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Technical oral presentations in English: Qualitative analysis of Malaysian engineering undergraduates’ sources of anxiety

Noor Raha Mohd Radzuan1* and Sarjit Kaur2

1Center for Modern Languages and Human Sciences, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 23600 Gambang, Kuantan, Pahang, Malaysia.
2English Language Studies Section, School of Humanities, Universiti Sains Malaysia, 11800 Minden, Pulau Pinang, Malaysia

Abstract

Technical oral presentations are an integral component of engineering courses, but it is no doubt an anxiety-inducing experience for most engineering students. This paper presents an in-depth qualitative analysis of the sources for anxiety experienced by engineering students in delivering Undergraduate Research Project (URP) oral presentations. The URP oral presentations which are required to be delivered in English are part of faculty graduation requirements. Utilizing a qualitative method of enquiry, focus group interviews were conducted with 6 groups of students, comprising 44 final year engineering students from the Faculty of Chemical and Natural Resources Engineering at Universiti Malaysia Pahang, Malaysia. The interviews were conducted after they had completed the URP oral presentations in the 7th semester of their course of study. The results of the study reveal several main sources of anxiety that exist among the students in delivering the presentations, namely demanding and provocative evaluation panels, limited technical knowledge and barriers in students’ English language proficiency. The current findings add substantially to our understanding of contributory factors for anxiety feelings experienced by engineering students in delivering technical oral presentations in English. In addition, the findings have a number of important implications for future practice especially in the decision of the appropriate approach in managing anxiety in students’ presentations towards enhancing their presentation performance. The implications of this study point to the fact that providing for effective technical oral presentations in academic settings is an integral task for students’ preparation for future work-related tasks in their professional setting in today’s globalised work environments.

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Keywords: technical oral presentation; qualitative analysis; engineering students; presentation anxiety; English as a second language

* Corresponding author. Tel.: +6019 5766145; Fax: +609 5493112.
E-mail address: nraha@ump.edu.my

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1. Introduction

In the past two decades, communication across curriculum has become the issue of interest as it plays a central role in helping students to become better speakers and alleviate other communication problems such as nervousness (Dannels, 2003). Oral presentations, which are part of oral communication skills, have started to be recognized and emphasized (besides focusing on core subjects) in other major disciplines such as engineering and medical fields. In engineering contexts for instance, oral communication assignments such as oral presentations or design presentations have been part of formal and informal assessments and activities in engineering classrooms in tertiary settings. This is part and parcel of preparing the students to be more competitive and successful engineers in their future workplace as current research has found that working engineers frequently deliver oral presentations (Hafizoah Kassim & Fatimah Ali, 2010). Furthermore, this is in line with requirements outlined by local and international engineering accreditation bodies such as the Malaysia Engineering Accreditation Council (EAC) and the Accreditation Board of Engineering and Technology (ABET) which stress on effective oral and written communication skills among engineering graduates.

Oral presentation is viewed as “a planned and rehearsed talk or speech that is not committed to memory or read directly from script, given by a presenter (sometimes more than one) to an audience or two or more people” (Levin & Topping in Irvine, 2009: 10). The oral presentation, a common yet significant academic oral activity that university students routinely engage in, is reported to be the most anxiety-provoked situation (Woodrow, 2006; King, 2002, Woodrow & Chapman, 2002). There are recommendations for oral presentation activities to be reduced, but Woodrow & Chapman (2002) asserted that delivering oral presentations is an important skill for EAP (English for Academic Purposes) students to master. As Ali Said Al-Issa & Redha Al-Qubtan (2010) highlighted, there are many advantages of oral presentations to the learners, namely the integration of the four language skills: speaking, listening, reading and writing, the opportunity to learn to use technology and as preparation for real life. Furthermore, oral presentations serve multiple objectives that reflect “intellectual values and academic skills” (Morita, 2000: 287).

Research shows that delivering oral presentations is considered the most stressful communicative event rated by Asian students (Woodrow, 2006). However, a contrastive finding is reported in the case of Vietnamese students, who are Asian, who were found to be as confident as the European students in delivering presentations in English in classrooms (Woodrow & Chapman, 2002). The research also found that the 275 international learners of Advanced English for Academic course in Australia, who are the participants in the study rated delivering oral presentations in the target language as the major stressor besides interacting with native speakers. It was noted that most second language (L2) presentations were less conversational and less interactive because they were based on a written script which has more formal written academic style. In other words, presenting in second or third language may develop anxiety in the learners.

In determining causes for presentation anxiety, Elliot and Chong (2005) cite the following three main reasons: the presentations itself (the content, equipment and dealing with questions), personal attributes (communication aspects e.g. stuttering, language, physical appearance, anxious disposition) and evaluation (self evaluation, reactions of others and grades). King (2002: 404) posited that “speech anxiety, group boredom and limited presentation skills” are the main factors that hinder learners from giving effective presentations. Even though Vitasari et al. (2010) did not conduct a study on causes for presentation anxiety, she discovered classroom oral presentation contributed to study anxiety experienced by many Malaysian university students.

This study is motivated by several recommendations that have been made by researchers to conduct more research systematically on students’ anxiety in oral activities in a learning environment (Ercan et al., 2008; Morita, 2000; Foss & Reitzel, 1988). Morita (2000) who views oral activities (such as oral presentation) as demanding and complex in terms of interaction and cognitive process suggested more systematic research to be conducted. Ercan et
al. (2008) and Foss and Reitzel (1988) proposed for more research on causes of anxiety to be conducted and in determining the sources of students’ anxiety in a learning environment, perceptions from the students should be analyzed and taken into consideration.

Since anxiety is an abstract psychological phenomenon (MacIntyre & Gardner, 1989), outside people will not know what is lingering on the language learners’ minds (cognition) and what are their feelings (affective and emotional states) when they are presenting in the target language. Thus, it is very important to understand the students’ feelings and perceptions in the issue of anxiety in delivering technical oral presentations in English. In this study, technical oral presentation refers to Undergraduate Research Project presentations (URP hereafter) (or also known as Capstone project) in English delivered by final year engineering students from the Faculty of Chemical and Natural Resources Engineering (FCNRE hereafter), Universiti Malaysia Pahang (UMP) which is mandatory for graduation. Therefore, the present qualitative study aims to investigate the perceived sources of technical oral presentation anxiety which was found to be present among ESL engineering students.

2. Methodology

2.1 Implementation of the Undergraduate Research Project (URP) course

For FCNRE engineering students to graduate, they have to register for an Undergraduate Research Project (URP) course during their final year of study. The course is offered in two stages: Undergraduate Research Project (URP) I in Semester 6 and Undergraduate Research Project (URP) II in Semester 7. These courses require the students to conduct one research project individually and they will be supervised by faculty lecturers. In the sixth semester, the students need to do their project proposal (URP I) which contains Chapter 1, Chapter 2 and Chapter 3. In the seventh semester, the students will register for URP II, where they will conduct data collection and discuss the findings. At the end of the seventh semester, a written report which consists of Chapter 1 to Chapter 5 will have to be submitted and on oral presentation presenting the findings will have to be delivered before a selected panel of evaluators. The panel of evaluators comprise of mainly course lecturers from FCNRE and starting from this semester, the presentation assessment process also involve 11 representatives from industries.

Every student is given 30 minutes in which 15 minutes is allotted for presentation and another 15 minutes is for Question and Answer session. URP II presentation assessment marks contribute 20 percent to the total URP marks. The marks’ allocation for the presentation assessment is heavily populated on the objectives, problem statements, research scopes, methodology, results and discussions, conclusion and recommendation as well as presentation skills.

2.2 Participants

The participants of the study were final year engineering undergraduates from the Faculty of Chemical and Natural Resources Engineering (FCNRE hereafter) at Universiti Malaysia Pahang (UMP hereafter). A total of 219 final year engineering students from FCNRE presented their Undergraduate Research Project (URP) conducted by the faculty. However, only 44 students volunteered to be involved in the study. Eligibility criteria required students to have had been involved in final year project presentations conducted by the faculty. Of the 44 students, 14 students were majoring in Biotechnology and 15 students were majoring in Pure Chemical and Gas Technology respectively. Table 1 below illustrates the number of students involved in the study based on their academic major:
Table 1: Number of students based on academic major

<table>
<thead>
<tr>
<th>Academic major</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biotechnology</td>
<td>14</td>
<td>32</td>
</tr>
<tr>
<td>Chemical</td>
<td>15</td>
<td>34</td>
</tr>
<tr>
<td>Gas</td>
<td>15</td>
<td>34</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>44</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

2.3 Focus group interviews

Focus group interviews were chosen because according to Sekaran and Bougie (2009: 181), focus group interviews will elicit the “genuine opinions, ideas and feelings of the members about the topic under discussion”. As this study aims to gauge the sources of anxiety among the participants, focus group interviews were conducted with the sample. Merriam (2009) also proposed that interviewing is the best technique to use to understand anxiety, an abstract psychological phenomenon (MacIntyre & Gardner, 1989). She also asserted that interviews are used to “observe behavior, feelings or how people interpret the world around them” (Merriam, 2009: 88).

2.4 Procedure

A briefing session was conducted prior to the interviews and consent forms for participation were given to the students during the briefing session. The students were grouped based on their academic major and further divided into two different groups. There was a total of six groups comprising seven to eight students in each group. Dornyei (2007) recommended a project should involve four to five groups as a minimum to achieve adequate breadth and depth of information. Furthermore, Merriam (2009) also suggested having six to ten participants in each focus group.

Each focus group was later interviewed at specified times according to the students’ convenience and availability. The interviews were conducted in Bahasa Melayu, the national language of Malaysia. However, there were interviewees who used English in the interview, which was also acceptable. Mackey and Gass (2005: 174) suggest that interviews can be conducted in learners’ L1 so as to “remove concerns about the proficiency of the learner impacting the quality and quantity of the data provided”. All the focus group interviews were recorded on a digital audio recorder and transcribed manually by the researchers.

2.5 Data analysis

The transcriptions were analyzed manually. Repeated themes were looked for and grouped together. Next, appropriate headings were given and finally data were tabulated. All utterances used in this study were translated into English by the researchers who are bilingual speakers (proficient in both Malay and English) and great care was taken to ensure that the meaning of the utterances remain the same. The translations were then validated by another bilingual speaker at UMP.

The participants in the focus group interviews were coded based on their major (B for Biotechnology, C for Pure Chemical and G for Gas Technology), number of participants (according to their seating in the group during the interview) and gender. For instance, a participant with code:B1/6/F refers to participant from Biotechnology Group 1 (B1), participant number 6 (6) and a female (F).

For companies names which were mentioned by the participants, they were coded X and Y to camouflage companies identity.
3. Results and discussion

Results show that perceived factors that affect technical oral presentation anxiety can be clustered into three main categories: demanding and provocative evaluation panels, barriers in students’ English language proficiency and limited technical knowledge. As shown in Table 2, the category that most develops anxiety in delivering URP oral presentation mentioned by the students is the demanding and provocative evaluation panels (26), followed by barriers in students’ English language proficiency (19) and limited technical knowledge (13).

Table 2: Perceived sources of anxiety based on frequency of utterance

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency of utterances</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Demanding and provocative evaluation panels</td>
<td>26</td>
</tr>
<tr>
<td>2. Barriers in students’ English language proficiency</td>
<td>19</td>
</tr>
<tr>
<td>3. Limited technical knowledge</td>
<td>13</td>
</tr>
</tbody>
</table>

3.1 Demanding and provocative evaluation panels

When students were asked about the sources of anxiety during their oral presentations, the most frequently mentioned source of anxiety is panels of evaluation (26 utterances). In this URP presentations, panels of evaluation comprised faculty lecturers and industrial people who are working engineers from chemical related industry. In this section, only significant utterances will be discussed.

Many of the students in the interviews mentioned the main source of their anxiety arose from their nervousness concerning the panels’ expertise and knowledge in the field. Since this is the first time that faculty invited industrial panels to be involved in URP presentation evaluation, many of the students were afraid of this prospect of being evaluated by industry personnel. For reasons of anonymity, the personnel from the industry are referred to as ‘X’ and ‘Y. Two participants from the same major, expressed the following sentiments:

“I felt so stressful when I got to know the panel is from X and they actually conduct similar research. I was so afraid thinking of how to answer her questions” (B1/6/F/)

“For me, since the panel is from industry, that makes me a bit nervous” (B2/7/F)

Similar responses were given by students from other majors and some of their comments are as follows:

“I think what affects me the most is the panel of evaluators because the first thing that comes to my mind is the industry panel. So when I look into the name list and I locate the name of the industry panelist from Y …… I was depressed and worried.” (G1/6/M)

“Then, there was a panelist from industry, from Y, that really made me scared.” (G2/2/F)

“When the first group came out of the room, they said that there are panelists from the industry. Suddenly, I was nervous and scared like hell.” (C2/6/F)

Besides the industrial panels’ expertise, these students also claimed that the panels’ demanding and provocative questions also increased their anxiety levels in delivering their URP presentations. Some participants described the panels as vicious, as depicted in the following excerpts:

“My panel was quite vicious...” (B1/5/F/)
“Because my panel members were vicious and cruel to me during my oral presentation, I cried in front of them, because it seemed that they tried to make me look small/ intimidate me. I couldn’t sleep remembering how the panel reacted to my presentation” (C1/6/F)

“When the panel displayed vicious kinds of facial expressions during my presentation, it made me very nervous” (B1/6/F)

Besides that, one female participant commented that from her observation while waiting for her turn to present, she found that the panel members were very critical in “attacking” the students’ projects. They did not only “attack” the project objectives and the discussion part, but also criticized the project title. That caused her to become more anxious in presenting her own URP project before the same evaluation panel.

Furthermore, questions posed by these industry experts to test the students’ understanding of their URP project also contributed to students’ anxiety. One male participant (B2/6/M) shared his bad experience when unexpected questions were posed by the panel during his oral presentation. As he did not prepare answers to the questions (as they were unexpected), it made him very nervous. According to the student, the situation became worse when he was speechless and could not answer the questions due to his high level of anxiety. A female participant (B1/7/F) commented that there was a panel member who is “well known as being very vicious and will pose many questions”. According to her, even though she knew the answer, she “stammered in giving the answers” due to her nervousness.

Another female Biotechnology (B2/1/F) student faced similar problems when the “panel attacked” her with provocative questions and she told the researchers that she got frightened by the manner in which they posed questions to her. The female student felt like the panel was trying to find fault with her project. She claimed that it was the worst experience in her academic life. This shows that high expectations imposed by the panel through provocative and challenging questions have contributed to students’ high level of anxiety in presenting their URP presentations.

In addition, data from the focus group interviews also illustrate the fact that interruptions made by the panel during students’ presentations (whether to give comments or seek further clarifications) result in making the students more anxious, thus affecting students’ confidence level in effectively presenting their URP project. Some of the comments made by the students are as follows:

“Sometimes the panel likes to interfere. Initially, my confidence level in presenting was high, but when the panel interfered in the midst of my presentation, I felt lost, nervous and even forgot where I had stopped prior to their intervention” (B2/3/F)

“It really bothered me when the panel interrupted my presentation to ask me questions” (B1/5/F)

“ It really bothered me when the panel cut my presentation short to give comments and suggestions. For example, one of the panelist asked me to put graphs in the presentation. Suddenly my confidence level was pulled down, I became really nervous...because I knew it was my fault” (G1/4/M)

“When the panel interrupted my presentation and posed questions, and I was not so sure of my given answers, it affected my concentration as I was afraid whether or not my answers were correct.” (G2/6/F)

Data have shown that the idea of presenting before the evaluation panel has made these students anxious, what more when they are interrupted during their oral presentations. Furthermore, the students face time constraints as only 15 minutes were allocated for presentations and marks will be deducted if the presentation exceeds or is below
The panel should act appropriately and more professionally where they should use the ‘Question and Answer’ session provided after the presentation to pose their questions. The panels’ impatience and demanding expectations affect the students’ confidence level and increase their anxiety in being able to deliver good presentations. Some of the students also cited feeling a little ‘annoyed’ by the panels’ constant interruptions during their oral presentations.

3.2 Barriers in students’ English language proficiency

The second main source of anxiety in delivering their URP presentation that was raised by a number of students is the barriers in students’ English language proficiency. Several students stated that their low proficiency in English language affects the smooth delivery of their URP projects. Many of the students talked about their level of English language as the main barrier that hinders them from giving their best performance, hence affecting their overall URP marks. One participant admitted her weakness in English as she stated, “I don’t like oral presentations because I am weak in English...furthermore, I have limited vocabulary” (G1/3/F). Another student also admitted, “I have problems in English, I have things to say but I cannot speak, that is the problem” (C1/1/F). Another participant also confessed that ‘English’ is the main problem and because of that he was “afraid that people will misinterpret my words, I mean, I want to say A, but people understand B” (C2/4/F). Another participant added that “One more thing (problem) is to make other people understand, we know what we want to say, but we are afraid that other people cannot understand us because of inability to express ideas well in English” (B2/5/F). Another participant added that if Bahasa Melayu (the participant’s native language) were used, she could explain things clearly, but when English is used, she could not convey her message clearly due to her limited vocabulary (C2/1/F). Another participant expressed her feelings about doing URP presentation in English as she said:

“I don’t like presenting in English. Because I am weak in English. I find it difficult to master English since beginning and I am scared to express my ideas in English, especially before the evaluation panel. If there are questions posed, I have idea how to provide good answers in English” (C1/2/F)

Another participant talked about her feelings of nervousness:

“Yes, I was nervous when presenting my URP, but I let it go, I said to myself, just present even though my English is weak. An evaluation panelist commented on my weak English and he said that my English is influenced by my mother tongue, that is why he asked me to improve” (C2/3/FM)

The current findings further support Zareva’s (2011: 6) claim that “presentation skills become more pressing an issue when English as a second language (ESL) is used” because communicating in L2 can “result in apprehension, emotional and even physical reactions” (Baralt & Gurzynski-Weiss, 2011: 202). On the same note, Weissberg (1993) also observed that L2 students have the contention that delivering a presentation effectively demands language mastering. This can be seen clearly from the participants’ comments during the focus group interview sessions which reflect the sense of anxiety and dissatisfaction among the students over their low English proficiency and limited English vocabulary in delivering effective URP presentations. Many students believe that doing their URP presentations in English has heightened their feelings of anxiety in delivering their presentations as they have difficulties in conveying their message across effectively.

3.3 Limited technical knowledge

Limited technical knowledge is the third main source of anxiety that was raised by the participants. Many participants were nervous to present their URP project results for several reasons. However, just by the act of thinking of presenting the project result had caused one participant to feel anxious as she said:

“I was so nervous thinking of presenting my project result. Normally, if I am so nervous, I feel dizzy, like fainting. I don’t know why, but I felt like fainting just thinking of the prospect of presenting.” (G2/3/F)
One reason that raises their anxiety was their incomplete projects. One of the participants mentioned:

“I was nervous, what more when the research was not complete and the panel members knew about it.” (B2/4/F)

There were also participants who stated that the problems they encountered with their project results also caused them to feel scared and this gravely affected their presentation performance. One student said:

“My presentation wasn’t that ok, because the URP results were not ok.” (B1/6/F)

“I was scared to present because of the limited results.” (C1/2/F)

“So, I had mixed feelings about presenting. I had problems with the results. My results were not that right because I used a different machine. So, I had different results, therefore, the panels criticized me heavily on the results.” (C1/3/F)

“For me, the main factor could be the results section of my project because my project was experimental and I did not have any previous experience on experimental projects. Therefore, I did it my own way, by using my own method. I was so afraid if it was wrong... because industry people know better. I was really afraid if what I did was totally wrong.” (C2/8/F)

The findings of the present study concur with Vitasari et al.‘s (2010) study that found lack of preparation had caused students to feel anxious in taking the examination. Lack of preparation in this study can be defined as students’ failure in completing their URP projects successfully. Examination in Vitasari et al.‘s study refers to the written final examination but in this study, technical oral presentations are also considered to be a type of test or examination too as the results matter.

4. Conclusion

The current findings add substantially to our understanding of the demand that oral presentations have on students, especially in high stake oral presentations such as these URP presentations. The three emergent factors perceived to raise students’ anxiety were: (1) panel of evaluators, (2) low English proficiency and (3) limited technical knowledge. The findings from the present study should be particularly of great value for engineering instructors and language and communication instructors. Engineering lecturers should be aware that besides evaluators among lecturers, industrial panels do intensify students’ level of anxiety in delivering their URP presentations. Therefore, faculty should take necessary steps to reduce students’ anxiety level. Faculty may involve the industrial people from the beginning of the project so that on the presentation day, the students would not feel anxious of personnel from industry. Close collaboration between industry and university marks the university’s initiative to prepare students well for the workplace. In addition, engineering lecturers should also pay closer attention to that fact that their supervision aspects need to be strengthened and improved. Thorough supervision and assistance on the project conducted by the students may ensure successful project completion and help raise students’ confidence in presenting their URP projects competently. Furthermore, more emphasis is needed in the area of English for Specific Purposes, especially in developing engineering students’ English language proficiency and presentation skills. The fact that engineers at workplace frequently engage in presentations and presentation anxiety is found presence among Malaysian engineering students, it is high time for university and faculty to take appropriate measures to equip its students with relevant skills and competency to enhance student’s quality and competitiveness in a global job market.
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