ENGINEERING LECTURERS’ PERCEPTIONS TOWARDS EFFECTIVE CONCLUSION SECTION IN ENGINEERING FINAL YEAR PROJECT PRESENTATION

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Abstract
Final year project presentation (FYPP) assessment in the engineering field aims to evaluate students’ comprehension in the principles and concepts learnt and its application in resolving problems through engineering projects. The components assessed in FYPPs include the presentation slides that comprise introduction, content and conclusion sections. Many studies have emphasised the significance of the conclusion section in project presentations; however, there has not been much research that explores the students' knowledge and practice on conclusion moves in their FYPPs from the FYPP lecturers’ perspective. Therefore, this qualitative study, through focus group interviews, explored the perceptions of 12 engineering lecturers from a private higher institution in the east coast region of Malaysia. These lecturers, who were also the students’ FYP supervisors were asked about the students’ overall performance in delivering FYPP conclusion section, the significance of the conclusion section and the challenges faced by engineering undergraduates when presenting their conclusion section. The findings indicate that the lecturers rated students' conclusion presentations as average. The findings reveal that for the lecturers, the conclusion section is significant as it is part of the FYPP assessment rubric and it reflects students’ critical thinking and problem solving skills. In addition, the key challenges faced by students in presenting an effective conclusion section were the English language barriers and obliviousness of the essential elements of a conclusion section. Pedagogical implications include providing training that highlights the importance of the conclusion section in FYPPs, and all the moves necessary in the conclusion section.

Keywords: conclusion section; engineering undergraduates; final year project; genre analysis; oral presentation

1. Introduction
A final year project presentation is an academic discourse held in universities to demonstrate undergraduates' understanding of a certain subject to specific group of audience. The final year project presentation is utilised as a part of the evaluation process to showcase research projects, and to acquaint students with the academic discourse
community in university (Duff, 2010; Morita, 2000; Zappa-Hollman, 2007; Zareva, 2016). The Final Year Project Presentation (FYPP henceforth) in this context is viewed as a type of technical oral presentation in technical communication.

According to Bhattacharyya (2014) a technical presentation is defined as a formal presentation to a non-expert audience on themes in science, engineering, technology, business, regulatory, legal, management or social science. This presentation contains business reports, training lectures, feasibility studies, survey presentations, progress/status reports, and laboratory results (Bhattacharyya, 2014). Oral presentations, which are developed as a formal evaluation for the students, are characterised by Zhu (2005) and Morita (2000) as a partially spoken and partially visual mode of communication that takes place in organisational settings with the goal of transferring knowledge (Hyland, 2008). Hyland (2008) further explains that these presentations are often easy going, amicable to the audience, and particularly difficult for non-native English speakers. One of the most difficult academic assignments, in the opinion of many undergraduates, is the FYPPs. Numerous research has attested to the difficulties students have when presenting oral presentations (Mohamed & Asmawi, 2018; Stapa et al., 2014). According to research, this oral discourse is the most stressful communication event (Mohd Radzuan & Kaur, 2011; Sabri & Yu Qin, 2014).

2. Literature Review

Oral presentations are vital for university undergraduates. Various academic genres have been explored within English for Specific Purposes, including oral presentations like FYPPs. Understanding the structure of these presentations can aid undergraduates in delivering them successfully. Research indicates that understanding a genre’s structure enhances student performance. Swales (1990) has defined genre as ‘distinctive category of discourse of any type, spoken or written, with or without literary aspirations’ (p. 33). While Hyland (2018) has simplified Swales’ definition by saying ‘a genre is a type of spoken or written text. It is recognised as a type, or category, because the various instances of it share similarities in purpose, content, form, and/or context’ (p.2). This process is inherently social, as understanding is formed through interaction.

Research on genre analysis has largely concentrated on academic writing with less emphasis on oral presentations. Over the past 20 years, ESP research has mainly delved into written content, with only 14% focusing on spoken content. Researchers believe this might be due to challenges in collecting and analysing the spoken data. Notably, 86% of ESP research data is written, while only 14% is spoken, as highlighted by Maktiar Singh (2019) and Srinon and Sucharitrak (2020). Dudley (1998) points out that the scarcity of spoken data can be problematic, especially since speech is often more crucial in academic settings, such as lectures and seminars.

Although there is a heavier emphasis on written text in genre studies, some researches have been done on oral discourse, particularly using Swales (1990) genre approach. Building on Swales’ concept, his ‘Create a Research Space’ model (CARS) has been used to study various spoken genres, like conference presentations (Seliman, 1995), university lecture introductions (Yaakob, 2013), and question and answer (Q&A) sessions in presentations (Fuad et al., 2009). None of the genres include FYPPs.

Many of the current literatures look at the general moves of oral presentations, namely the moves in introduction, body and conclusion (Carter & Rowley, 2020; Qiu & Kevin, 2021; Srinon & Sucharitrak, 2020). For instance, Maktiar Singh (2019) explores moves in the
introduction, body, conclusion and question and answer sections in the English language and Administrative Science courses, while Srinon and Sucharitrak (2020), are focusing on generic structure development in oral presentations mostly conforming to the generic structures identified in the coursebook and the Sydney genre-based school, of students at the Faculty of Liberal Arts and Science. There are few researches regarding the moves primarily in the conclusion section in technical oral presentations, particularly in the engineering field. This study therefore aims to explore the engineering students' knowledge and practices on the moves in the conclusion section in their FYPPs as perceived by engineering lecturers.

3. Research Method

The study was conducted at University College TATI (UC TATI onwards), one of the private university colleges in the east coast of Malaysia. All engineering programmes in UC TATI require students in their final year to sign up for the final year project (FYP onwards). Final Year Project I and II are mandatory courses that all final year undergraduate engineering students must enrol in, complete, and pass to qualify for graduation. The students are required to register in FYP 1 (in semester one) and FYP 2 (in semester two) which are both three credit hour courses. FYP 1 encompasses the project proposal, planning, and literature review, while FYP 2 is centred on implementation, experimentation, testing, evaluation, and analysis of the project.

For this study, the researchers employed a qualitative research design in which focus group interviews were conducted with a total of 12 lecturers who were also supervisors to FYPPs. To achieve data saturation, at least 12 participants are needed to be interviewed (Braun & Clarke, 2023; Fraenkel et al., 2019; Subedi, 2021) for eligibility criteria required for individuals to have experienced in FYPP assessment. Table 1 illustrates the details of the lecturers respectively, providing their background and expertise.

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Department</th>
<th>Respondent</th>
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<tbody>
<tr>
<td>Faculty of Engineering Technology</td>
<td>Electrical</td>
<td>6 lecturers</td>
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<tr>
<td></td>
<td>Chemical</td>
<td>3 lecturers</td>
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<td></td>
<td>Manufacturing</td>
<td>3 lecturers</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>12 lecturers</strong></td>
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Table 1. Sampling

Six engineering Final Year Project (FYP) lecturers were assigned per group interview, with 1 hour duration of time per interview session. By using semi-structured interviews, the researcher has the flexibility to modify questions for the FYP lecturers during the interviews (Fraenkel et al. 2019). This approach gives the lecturers more freedom to discuss their views on the effective conclusion section of FYPPs. The interviews were audio-recorded to help the researchers to focus on the conversation without being distracted by note-taking and thus keeping the interview more natural (Creswell & Creswell, 2018). Therefore, these interviews may yield rich and valuable insights into the effective conclusion section of FYPPs for the study (Fraenkel et al., 2019). The interviews were then being transcribed manually and several themes have emerged from the analysis of the interview transcriptions. In the interview, the researcher used the term 'element' instead of 'moves' in describing the conclusion section moves as the interviewees were more familiar with the word
‘element’. In other words, in this study, the word ‘element’ has the same meaning as ‘moves’. For coding purposes, the researchers used a simple coding to identify each respondent, for instance ‘Lecturer 1’ is referred to L1, ‘Lecturer 2’ as L2, throughout this study.

4. Results and Discussion

In gathering the data from the interview, the interviewees were asked to refer to their experience assessing students’ FYP presentations. The results and discussion of the study are presented as follows:

i. Overall performance in conclusion section during FYPPs,

ii. Significance of conclusion section in FYPPs,

iii. Challenges faced by the students in presenting conclusion section.

4.1 Overall Performance in the Conclusion Section

When asked to rate the performance of the students, the interviewees categorized the performance based on the suggested categories such as excellent, good, moderate, average, and poor. This is to better understand the lecturers’ perceptions of student performance in the conclusion section during their FYPPs. The data showed that the majority of the lecturers (L2, L3, L5, L7, L10 & L12) rated the students’ FYPPs as average. They noted:

- L5: *For conclusion section, I think their performance was average, less than 50% of them have met the standard.*
- L7: *In terms of the conclusion section, I think they are just average.*

Four lecturers [L1, L4, L6 & L11] assessed the students’ FYPPs as moderate. The findings suggest that the students' performances in their FYPPs were neither outstanding nor unsatisfactory. These observations were consistently mentioned during the interviews:

- L1: *I'm putting this as moderate. As there were some students who could present their conclusion section well while others do not.*
- L11: *In my point of view, their overall performance for FYP presentations, particularly the conclusion section, is just moderate.*

Additionally, one lecturer [L8] believed that the students' conclusion section presentations were good. He recognised that the students' performances in presenting the conclusion were not subpar. He stated:

- L8: *‘From my observation, some of the students’ presentation on conclusion section is good. Yes, I would rate them as good.'*

Finally, one lecturer [L9] rated the presentations as poor. This lecturer appeared to have high expectations from the students while presenting the conclusion section in the FYPPs. He expressed:

- L9: *‘In terms of technical aspects, I think they have achieved certain criteria, but in terms of presentation delivery, they still have problems in analysing and summarising the project. In that case, I'd rate them as poor.’*

This finding offers insights into the overall performance of engineering students during their FYPPs, especially in the conclusion section as perceived by the engineering
lecturers who are also the FYP supervisors. The majority of the lecturers rated the students’ performances as average, indicating potential areas for enhancement. A potential reason for this outcome might be the students' limited knowledge in rhetoric or presentation genre. This aligns with Dannels (2009) observations about impactful presentations in engineering. Dannels highlighted those top-rated presentations by the engineering faculty effectively communicated technical details while also addressing the relational and intrinsic design aspects of the presentation genre. This was accomplished by using strong rhetorical understanding and proper organisation. Based on the panel perceptions, by mastering the elements in the conclusion section, students can potentially boost their conclusion delivery, possibly leading to an elevated overall performance in their FYPPs.

In summary, most lecturers rated the students as average, with some indicating that fewer than half of the students met the standard. While four lecturers deemed the performance moderate, one considered it good, and another rated it poor due to students' inadequate analytical and summarisation skills.

4.2 Significance of Conclusion Section in FYPPs

Based on the interview question, the lecturers offer a deep insight into how they view the significance of the conclusion section in FYPPs. Interview data show that most lecturers agree on the importance of the conclusion section in FYPPs. They responded:

L3: ‘The conclusion is the last part of their FYP thesis. The conclusion section summarises the results of their projects. It also explains the relation in each result of the project. Yes, the conclusion section is important and it has a major impact on your FYP thesis presentation.’

L2: ‘I think it is a must. If not, it won’t be in the rubric. Conclusion section enhances students’ critical thinking and problem solving skills.

L4: ‘The conclusion section is an important component of a research paper, article or Final Year Project Presentations.’

From the excerpts above, we could see that the conclusion section plays a significant role in summarising significant results and how the findings are related and supported by each other. Besides that, the conclusion section appears to be the section where the lecturers assess the students’ critical thinking and problem-solving skills. Some lecturers evaluate how the students critically solve the problem in the projects beyond a mere perception of the projects. This was shared by Lecturer 5 (L5), where she perceived:

‘It’s a must to present the conclusion section during FYPPs. I observed that they are using critical thinking skills in their conclusion section. I also checked the level of students’ problem-solving ability when they presented their recommendations.

Another question was asked regarding the lecturers’ perceptions on the reasons for students to neglect the conclusion section in their FYPPs. Lecturers concurred that failure to present their conclusion section in their project during FYPPs would result in a decrease of grade. Despite being aware of the conclusion section and knowing the effect of neglecting it, the lecturers observed that the students still neglected the conclusion section elements in their FYPPs. This reflects the lack of genre knowledge of the FYP students on FYPP structure.
Thus, to gain good marks or higher marks in engineering FYP students need to employ or fulfill certain criteria from the rhetorical or genre knowledge in their FYPPs (Dannels, 2009: 405). The excerpts below illustrate the phenomenon mentioned above:

\[
L1: \text{`Not presenting the elements needed in the conclusion section of their final year project will affect their overall marks.'}
\]

\[
L11: \text{`The conclusion is the last part of the thesis. The thesis without a conclusion will not be perfect but it does not depict that your project is a failure. It only affects the total evaluation mark for the thesis.'}
\]

\[
L12: \text{`In the rubric of the FYPPs evaluation there are marks allocated for the conclusion section. Therefore, the effect of not presenting the conclusion section or not summarising their project is that they will lose marks for that particular section.'}
\]

The findings indicate that these lecturers understand the significance of the conclusion section in FYPPs, highlighting its role in summarising the results and explaining relationships within the projects. The conclusion section also serves as a platform to evaluate students' critical thinking and problem-solving skills. One lecturer noted that students demonstrated these skills, especially when presenting the recommendations. However, despite understanding its importance, many students neglect essential elements of the conclusion section. Such omissions can negatively impact their grades, reflecting their lack of understanding of the conclusion section in FYPP structure. Thus, as to score higher marks, students should better grasp and apply the rhetorical structure in their presentations.

### 4.3 Challenges Faced by the Students in Presenting Conclusion Section

From the interviews with the lecturers regarding challenges students face in presenting the conclusion section of their final year projects, two main themes were identified:

1) English language barriers and
2) Obliviousness of the FYPPs conclusion section elements.

These engineering lecturers noticed that FYP students faced challenges with English language proficiency during their presentations. Students were observed to face difficulty in expressing their ideas clearly in the conclusion section, and this could possibly be due to their low proficiency in the English language. This problem has led to unclear or disorganised presentations of their findings as mentioned by Lecturer 9 (L9), stating ‘The reason their conclusion section is unclear and lacks organisation, is because they are not proficient in English language’. Similar point of view was expressed by Lecturer 11 (L11) when he found the students encountered difficulties in summarising their work in the English language concisely.

Furthermore, the lecturers highlighted that students' limited English vocabulary was also a significant barrier for the students to present the conclusion section in FYPP effectively. Lecturer 3 (L3) observed that students struggled with vocabulary and word choice when asked to elaborate on their projects. This limited vocabulary repertoire might hinder students from using precise terms and effectively expressing complex ideas, leading to unclear or incorrect conclusions. For example:
L1: ‘The students seemed reluctant to speak in English, technically they know the process, but they could not deliver well. They seemed to have language or vocabulary problems.’

L4: ‘I observed that the students seemed to struggle with English language and vocabulary. I see these two as their primary challenges, noting that students seemed unsure about how to construct their conclusion section.’

4.4 Unfamiliarity with the FYPP conclusion section elements

The lecturers pointed out that many FYP engineering students lack familiarity with the essential elements that should be included in the conclusion section of their FYPPs. This lack of knowledge poses challenges when they present the contents in their conclusion section. Many engineering students were found struggling to determine what should be presented in this section. As Lecturer 7 (L7) observed that “some students seemed unaware that they even needed to present certain elements in the conclusion section, suggesting that if they were informed about the required elements, they might do a more thorough job explaining and presenting it”. This is also supported by Lecturer 2 (L2) who noted that “the students do have the engineering or technical content, it is just that they often miss some of the conclusion section elements; thus, leading to the omission of significant results or project limitations during their conclusion section during the FYPPs.”

Numerous factors could contribute to the problem. Factors contributing to this issue could be unclear project objectives, students’ lack of effort, insufficient guidance from supervisors or limited experience with research projects as stated by Lecturer 5 (L5). He expressed his concern about the students’ struggle in determining the essential elements to be included in the conclusion section. Furthermore, some of the lecturers stated that the students were not aware of the conclusion section which led to neglecting it during their FYPPs. One of the lecturers mentioned, ‘I doubt they knew all of the elements needed in the conclusion section. Even when we reminded them, they still seemed to be oblivious about the elements’. This finding is contrary to Maktiar Singh’s (2019) who mentioned that missing certain moves and steps in students’ oral presentations were due to various requirements set by different lecturers, rather than due to students’ unawareness of the conclusion section.

It is interesting to note that the majority of the lecturers found that some FYP students were aware of the importance of the concluding section but chose to ignore certain elements in this section during their FYPPs. The excerpts below illustrated the phenomenon:

L1: ‘They did summarise and restated their objectives, but they neglected limitation of the study and practical implications of the projects’.

L8: ‘I could see that they presented half of the elements in the conclusion section. I could spot the ‘objectives’ and ‘overall findings being mentioned’. The students seemed to neglect ‘significance finding’ and they didn’t mention ‘project limitations’. I can say they are missing lots of elements for the conclusion section’.

The findings suggest that some students are aware the requirements to present the conclusion section during their FYPPs. Nevertheless, factors such as insufficient knowledge of the conclusion section elements and lack of guidance from the supervisors, faculty or departments, may have contributed to them neglect some of the conclusion. By having
substantial knowledge of rhetorical structure, especially in conclusion section could reflect on their genre competence and thus would assist the students to adapt or transfer the genre knowledge from one context to another context (Loi et al., 2016; Maktiar Singh, 2019). Once the students can grasp the knowledge of rhetorical structure, they can employ it in their conclusion section presentation thus boosting the students' grades or marks (Dannels, 2009; Maktiar Singh, 2019).

5. Conclusion

This study investigated the engineering lecturers’ perceptions towards FYP engineering students’ conclusion section FYPPs. The findings identified that most lecturers rated students' conclusion presentations as average, emphasising the conclusion's role in reflecting critical thinking. However, students often faced presentation challenges due to language barriers, lack of familiarity with conclusion elements, and incomplete projects, highlighting a need for additional support and guidance.

The results of the study offer few pedagogical implications. First, the importance of the conclusion section in academic presentations, as highlighted by the lecturers, necessitates its emphasis in the curriculum (Ferreira et al., 2017). Educators should ensure that students understand the significance of the conclusion section in reflecting the entirety of their research efforts during their project presentations. The study also indicates a significant portion of students are average or moderate in their FYP conclusion presentations, suggesting a gap in rhetorical understanding and proper organisation of the elements needed in the conclusion sections as stated by many lecturers. It is crucial to incorporate courses or workshops (Grieve et al., 2021) that focus on genre and rhetorical strategies, especially tailored to the technical nature of engineering FYPs.

Furthermore, the formidable challenge of English language barriers is recognized as a significant impediment. Subsequent research endeavors could delve into examining the effectiveness of specialized English language intervention programs designed specifically for engineering students. This could include specialised courses focusing on the conclusion section in academic presentation and technical vocabulary, as well as presentation skills. The study was limited to perceptions of engineering lecturers from one institution, which involved only 12 lecturers, which might not provide a comprehensive perspective on all potential views about FYP conclusions section presentation. Therefore, for future research, more broadly, research is also needed to explore the perceptions of industry panels towards the students' conclusion section during their FYPPs. Further investigation into the application of conclusion section elements by the students should also be carried out to gather empirical data to assess the level of genre knowledge of the conclusion section among the students.

References


