

STUDENTS' COMMUNICATION SKILLS ASSESSMENT BY EXTERNAL LECTURERS AND INDUSTRY REPRESENTATIVES

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Abstract

Soft skills, especially communication skills, are important skills which each graduate must possess. Accordingly, several courses and approaches have been carried out in universities to train students in communication skills. The skills are normally evaluated by course lecturers. However, assessments by a third party from outside the university are valuable so that the students' achievements may be weighed against external evaluators' point of views. In the Department of Electrical, Electronic and Systems Engineering (DEESE), Universiti Kebangsaan Malaysia (UKM), communication skills assessment by external lecturers and industry representatives are performed on Hari Poster JKEES, where students present their final year project poster. There are two categories of evaluation, namely project and communication skills. The project evaluation covers content, result and impact, while communication skills evaluation covers poster layout and design, and delivery. This study only analyse the students' communication skills achievement. The participants of this study consists of 109 final year students from two batches, of which 51 students are from year 2014 and the other 58 students from year 2015. The results show that for the year 2014 students, the mean mark given by external lecturers in layout and design category is 6.7, while the mean mark from industry evaluators is 6.5. For the 2015 batch, the mean mark in the layout and design category is 6.3 from external lecturers and 5.9 from industry evaluators. In the delivery category, the mean marks for the 2014 batch are 7.1 and 6.6 from external lecturers and industry evaluators, respectively. Meanwhile, for the 2015 batch, the mean marks by external lecturers and industry evaluators are 6.3 and 5.8, respectively. The results show that both external lecturers and industry representatives judged DEESE students' communication skills to be good.

Keywords: Communication skills, Layout and design, Delivery, External lecturers, Industry.

1. Introduction

An engineering graduate should have competency in soft skills alongside the expected good performance in academic. Soft skills such as leadership, team work, lifelong learning and communication skills are important in working environments as well as in daily life. Incompetency in soft skills is one of the factors that lead to graduates failing to secure a job [1, 2]. Schulz (2008) claims that the soft skills of science and engineering programme students are poorer compared to those in non-scientific academic programmes [3].

Among the soft skills, communication skills are predominantly cited as missing [3]. Communication skills can be divided into three aspects, namely intrapersonal, interpersonal and nonverbal [4]. The intrapersonal aspect refers to communication within the individual such as a monologue or a diary. On the other hand, the interpersonal aspect refers to communication between individuals. Lastly, nonverbal communication is based on body language such as hand movements, smiles, head movements and eye contacts. For intrapersonal and interpersonal communications, they can be further categorised into verbal communication and written communication. In this study, only interpersonal communication is assessed, both verbal and written methods.

Communication skills are also important to engineering graduates so that they are capable to work efficiently in the global era [5, 6]. Engineers have to convey information to managers, colleagues, technicians and workers, either in verbal or written reports. A good communication skill is important to ensure the recipients receive correct information. Realising the importance of communication skills in engineers, the *Engineering Accreditation Council* (EAC) made communication skills a compulsory attribute in all engineering programme outcomes in Malaysia [7]. This attribute has to be included in the courses and evaluated. The *Engineering Accreditation Council* (EAC) Malaysia is a board that controls the quality of all engineering courses in Malaysia.

In Universiti Kebangsaan Malaysia (UKM), several structured courses have been introduced to train students with soft skills, including communication skills [8]. In addition, communication skills also are coached and evaluated in departmental core and technical subjects. Normally, the verbal communication skill evaluation is done through presentations, and written skill evaluation is done through student reports. The evaluations are commonly done by subject lecturers.

In the Department of Electrical, Electronic and Systems Engineering (DEESE), Faculty of Engineering and Built Environment, UKM, communication skills evaluation is also performed by external evaluators, specifically external lecturers and industry representatives. The department organise a yearly event, called 'Hari Poster JKEES', for all final year students to present their final year project posters [9]. The external evaluators are invited to assess the presentations. Based on the marks given by these external evaluators, we can infer the students' communication skills as seen by outsiders. In addition, 'Hari Poster JKEES' also provides an


opportunity for students to get direct feedback from the evaluators. Consequently, they can improve their projects and communication skills before they graduate.

2. Methodology

Participants in this study consist of two batches of final year students in the Department of Electrical, Electronic and Systems Engineering (DEESE), of which 51 students are from the 2014 batch, and 58 students are from the 2015 batch. Therefore, the total number of students used in the analysis is 109. For each batch, four external lecturers and four industry representatives are invited as evaluators.

The students' communication skills assessment by external evaluators was performed in a programme called 'Hari Poster JKEES'. The yearly programme is organised by the department to give an opportunity to the students to present their final year projects and get feedback from external lecturers and industry representatives. Consequently, they can improve their projects and communication skills based on the evaluators' comments. Each student is assessed by one external lecturer and one industry representative. The evaluation is carried out simultaneously.

The assessment is divided into two categories, namely project and communication skills. Project assessment consists of contents, results and impacts of the project. Meanwhile, communication skills assessment consists of poster layout and design, and delivery. Figure 1 shows the rubric used in the poster presentation assessment. The rubric is divided into five rating scales, namely 0, 1-3, 4-5, 6-7, and 8-10. Each scale has its own criteria. Scale 1-3 represents the lowest mark with very weak criteria; meanwhile scale 8-10 is the highest mark with excellent criteria.



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Academic
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Rubric for Poster Presentation

Poster number: _____

Project title: _____

Item	Scale					Weightage	Score	Total	
	0	1 - 3	4 - 5	6 - 7	8 - 10				
A Layout / Design	none	Hard to read, not creative & not attractive	Readable but less creative & attractive	Easily read, creative, attractive & professional	Very easily read, creative, attractive & professional	2			
B Content	none	Contain 1-2 from these 5 items: problem statement, objective, methodology, result & conclusion	Contain 3-4 from these 5 items: problem statement, objective, methodology, result & conclusion	Contain all these items: problem statement, objective, methodology, result & conclusion with clear explanation.	Contain all these items: problem statement, objective, methodology, result & conclusion with very clear explanation.	3			
C Delivery	none	Clear voice, but not fluent, unsuitable body language & not confident	Clear voice but less fluent, moderate body language & less confident	Clear voice, fluent, good body language & confident	Very clear voice, fluent, very good body language & confident	2			
D Result	none	Poorly presented, non quantitative, partially fulfill objectives	Moderately presented, quantitative, partially fulfill objectives	Well presented, quantitative, analytical, fulfill objectives	Excellent presented, quantitative, analytical, fulfill objectives	2			
E Impact	none	Minimal academic / commercial / social impact	Moderate academic / commercial / social impact	Significant academic / commercial / social impact	Very significant academic / commercial / social impact	1			
TOTAL									

Comments: _____

Name: _____ Date: _____

Signature: _____

Kualalumpur, Semester 2 Sesi 2015/2014

Fig. 1. The rubric for final year project's poster presentation assessment at the Department of Electrical, Electronic and Systems Engineering.

As for communication skills, two categories are assessed, namely written and verbal skills. Written communication is assessed by poster layout and design. A good poster should be easily read and contains enough information so that audience easily can understand it. In addition, students' creativity in poster layout and design is also assessed. An attractive poster is important to attract audience to read all the information. For verbal communication, students' delivery during the poster presentation is evaluated. Voice projection, fluency, body language and confidence level are the criteria to be assessed. In addition, evaluators also consider how the student responds to their questions. Table 1 shows the assessment criteria for each scale in both poster layout and design, and delivery categories.

Table 1. Communication skills assessment criteria for each scale.

Scale	Layout and design	Delivery
0	None	None
1 – 3	Hard to read, not creative & not attractive	Clear voice but not fluent, unsuitable body language & not confident
4 – 5	Readable but less creative & attractive	Clear voice but less fluent, moderate body language & less confident
6 – 7	Easily read, creative, attractive & professional	Clear voice, fluent, good body language & confident
8 – 10	Very easily read, creative, attractive & professional	Very clear voice, fluent, very good body language & confident

3. Results and Discussion

The analysis of students' communication skills assessment is divided into two categories, namely poster layout and design, and delivery. Each category is discussed in its own sub-section.

3.1. Poster layout and design assessment

Tables 2 and 3 show the number of students for each rubric scale in the poster layout and design category, for 2014 and 2015 batches, respectively. Both years show a similar pattern where external lecturers and industry evaluators placed most students in the 6-7 scale. According to the assessment criteria as shown in Table 1, this scale belongs to a good poster layout and design criteria. This result shows that the majority of DEESE students can convey information through writing, which in this case is a poster.

For the 2014 batch, industry evaluators put 11.8% more students in the weak rating (scale 4-5) compared to external lecturers. Meanwhile, for the 8-10 scale, industry evaluators rated two extra students in this scale compared to external lecturers. In the year 2015, the same pattern occurs for the 4-5 scale, where

industry evaluators put more students in this scale, 10.3% extra compared to external lecturers. However, the pattern no longer applies for the 8-10 scale, where external lecturers placed six extra students in this scale compared to industry evaluators. The maximum difference between industry evaluators and external lecturers is 15.7% which is in the 6-7 scale, for the 2014 batch. The difference shows that industry professionals and lecturers have different perspectives in evaluating students' skills.

The students' mean mark given by external lecturers for the 2014 batch is 6.7, while the mean mark from industry evaluators is 6.5. The standard deviation is 1.12 and 1.18 for external lecturers and industry evaluators, respectively. The highest mark given by both evaluators is 9 while the lowest mark is 4 from external lecturers and 5 from industry evaluators.

For the 2015 batch, the mean mark given by external lecturers is 6.3 and the standard deviation is 1.43. Meanwhile, the mean mark given by industry evaluators is 5.9 and the standard deviation is 1.10. The highest mark given by external lecturers is 10 while the highest mark from industry evaluators is 8. External lecturers also give the lowest mark of 3, compared to the lowest mark of 4 from industry evaluators. The small difference in mean mark between external lecturers and industry evaluators demonstrate their agreement on DEESE students' written communication skills achievement. Although the industry experts and lecturers have different perspectives on evaluating students' skills, both agree that the majority of DEESE's students perform well in poster layout and design.

**Table 2. Poster layout and design assessment:
number of students in each rubric scale for the 2014 batch.**

Scale	External lecturer	Industry
1 – 3	0	0
4 – 5	8	14
6 – 7	32	24
8 – 10	11	13
Total students	51	51

**Table 3. Poster layout and design assessment:
number of students in each rubric scale for the 2015 batch.**

Scale	External lecturer	Industry
1 – 3	1	0
4 – 5	17	23
6 – 7	29	30
8 – 10	11	5
Total students	58	58

Figure 2 shows the percentage of all 109 students in each rubric scale. As shown in the graph, both external lecturers and industry evaluators put the majority of students in the 6-7 scale, which represents good achievement in poster layout and design. It is followed by weak achievement in the 4-5 scale, and next is excellent achievement in the 8-10 scale. Finally 0.9%, or just one student, is in the very weak achievement scale of 1-3, given by external lecturers. As depicted in Fig. 2 as well, the percentage of students in each scale is only slightly different between external lecturers and industry evaluators. The maximum percentage difference is only 11% in the 4-5 scale.

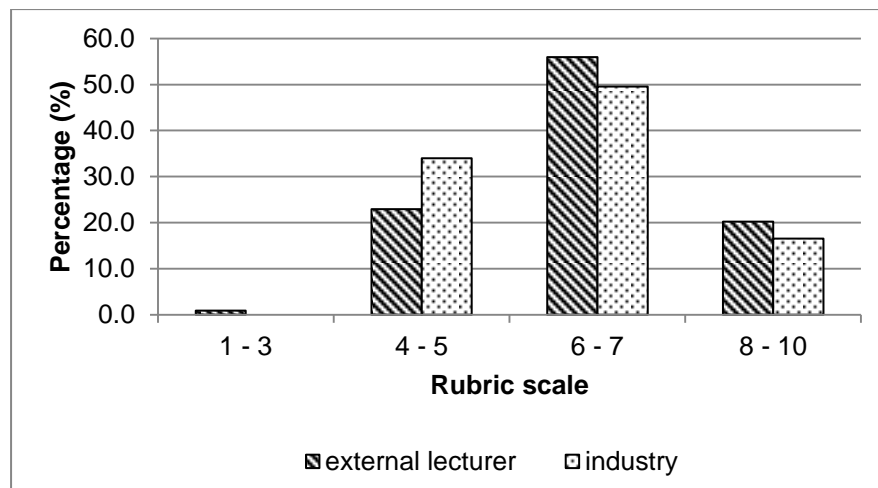


Fig. 2. Poster layout and design assessment: Percentage of students in each rubric scale.

3.2. Delivery assessment

Verbal communication is assessed by students' delivery in their poster presentation. Table 4 shows students' delivery marks as assessed by external lecturers and industry evaluators for the 2014 batch. The results show that most of the students are in the 6-7 scale. This scale represents good verbal communication skill with clear voice, fluent pronunciation, good body language and confident. As also depicted in Table 4, the number of students in the 6-7 scale is only one more than the 8-10 scale, for both evaluator categories. More than 70% students achieve good and excellent performance in their delivery assessments. The mean mark given by external lecturers is 7.1 with a standard deviation value of 1.34. On the other hand, the mean mark given by industry evaluators is 6.6 with a standard deviation value of 1.43. The highest mark given by the external lecturers and industry evaluators are 10 and 9, respectively. Meanwhile, the lowest mark given by both evaluator categories is 4.

Table 5 shows students' delivery marks as assessed by external lecturers and industry evaluators for the 2015 batch. For external lecturers, the majority of the students scored 6-7, while industry evaluators placed more students in the 4-5 scale. However, for the industry evaluator category, the number of students in the

good criteria, which is the 6-7 scale, is only two students less than the 4-5 scale. In this batch, only a small number of students achieves excellent performance, which is signified by the 8-10 scale. For the external lecturer category, the mean mark is 6.3 with a standard deviation value of 1.33. While for industry evaluators, the mean mark is 5.8 with a standard deviation value of 1.17. The highest mark given by external lecturers and industry evaluators are 10 and 8, respectively. Meanwhile, the lowest mark given by both evaluator categories is again 4.

The difference of mean marks between external lecturers and industry evaluators is less than 0.6. This small value demonstrates that both evaluator categories have agreed that DEESE students' verbal communication skill is good.

Table 4. Delivery assessment: number of students in each rubric scale for the 2014 batch.

Scale	External lecturer	Industry
1 – 3	0	0
4 – 5	8	14
6 – 7	22	19
8 – 10	21	18
Total student	51	51

Table 5. Delivery assessment: number of students in each rubric scale for the 2015 batch.

Scale	External lecturer	Industry
1 – 3	0	0
4 – 5	13	27
6 – 7	36	25
8 – 10	9	6
Total student	58	58

Figure 3 shows the percentage of all students in each rubric scale for the delivery assessment. External lecturers and industry evaluators placed the majority of students in the 6-7 scale, which represent good delivery performance. From external lecturers' perspective, more than 80% students achieve good and excellent performance, and only less than 20% of them are weak in presentation delivery. Industry evaluators have a slightly different perspective when compared to external lecturers, where 27.5% students are in the 4-5 scale, which represents weak presentation delivery. However, the majority of the students are still at good and excellent performance levels with 72.5% of them in the 6-7 and 8-10 scales.

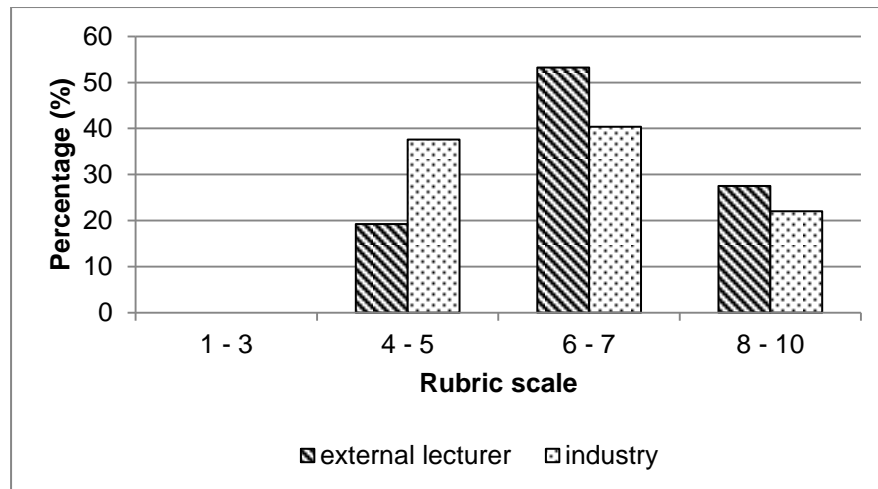


Fig 3. Delivery assessment: Percentage of students in each rubric scale.

4. Conclusion

In this study, an analysis of students' communication skills assessment by external lecturers and industry evaluators has been undertaken. A total of 109 final year students from the Department of Electrical, Electronic and Systems Engineering (DEESE) in UKM were involved, where 51 students are from the 2014 batch and 58 students are from the 2015 batch. The assessment is done through the final year project poster presentation on 'Hari Poster JKEES'. The communication skills evaluation is categorised into two groupings namely poster layout and design, and presentation delivery. For poster layout and design assessment, the mean marks given by external lecturers for the batch 2014 and 2015 are 6.3 and 6.7, respectively. Meanwhile, the mean marks given by industry evaluators is 6.5 for the batch 2014 and 5.9 for the batch 2015. For delivery assessment, the mean marks given by external lecturers for the batch 2014 and 2015 are 7.1 and 6.3, respectively. Meanwhile, the mean marks given by industry evaluators is 6.6 for the batch 2014 and 5.8 for the batch 2015. These results show that from external lecturers' and industry evaluators' perspectives, DEESE students' communication skills are good.

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