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Analysis on OBE Understanding & Implementation Level among Lecturers

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***Abstract*— A study was conducted to evaluate the level of understanding and implementation of Outcome-Based Education (OBE) in Teaching and Learning (T&L) among lecturers in the Electrical Engineering Department (EED) at Politeknik Kota Kinabalu (PKK). A survey was designed and distributed online via Google Forms, with 51 out of 55 EED academic staff participating. Data were analyzed using the Statistical Package for the Social Sciences (SPSS) software, focusing on mean and standard deviation. The findings revealed that most mean scores for the analyzed items fell within the high interpretation range, while the remainder were in the very high interpretation range. This result aligns with the frequency of lecturers attending OBE-related courses or workshops, as only 3.9 percent had never attended any. The study suggests that the level of understanding and implementation of OBE among EED lecturers is high.**

***Index Terms*— Academic Monitoring, Outcome-Based Education.**

I. INTRODUCTION

Monitoring academic management involves reviewing all activities related to curriculum aspects, teaching and learning implementation, assessment, and quality assurance at the Polytechnic and Community College levels. Academic monitoring, or *Penaziran Akademik* (PeNA), carried out by the Instructional and Digital Division (BIPD) of the Department of Polytechnic and Community College Education (JPPKK), aims to ensure that academic management in Polytechnics and Community Colleges is robust and of high quality. To enhance the transparency and quality of PeNA's evaluation of academic management at Politeknik Kota Kinabalu (PKK), particularly in the Electrical Engineering Department (EED), a study was conducted to assess the level of understanding and implementation of the OBE system among EED lecturers through a survey. The survey results were analyzed using SPSS software to calculate the mean, standard deviation, and percentages based on Likert scale values ranging from 1 to 5.

The primary goal of this study is to ensure that the OBE system is fully practiced and effectively implemented by all EED lecturers at PKK. The study's results will help identify any weaknesses and guide necessary corrective actions to ensure that learning objectives under the OBE approach are achieved. These improvements will be made continuously as needed over time.

The survey was developed by the Curriculum Instructional Assessment (CIA) Committee of PKK through several workshops chaired by the PKK Academic Deputy Director. The finalised survey was conducted online via Google Forms from 24 to 28 February 2022. This study is significant for the following target groups, as in [1]:

A. EED Lecturers

The findings will indicate the lecturers' level of understanding regarding OBE implementation. This is a key aspect that can serve as a benchmark for continuous improvement at both the academic programme and department levels to achieve the desired learning outcomes. Lecturers will benefit by enhancing their current understanding and gaining greater confidence in applying the OBE concept in their teaching sessions.

B. PKK Management

EED and PKK management will gain insights into the lecturers' level of understanding, enabling them to develop comprehensive action plans or programs to enhance lecturers' existing knowledge. Based on the study, the management can implement periodic reviews and monitoring of all activities related to teaching and learning, including assessment elements. The study will also serve as a communication channel for management to gather feedback, ideas, suggestions, and shared views between the management and lecturers.

C. Instructional and Digital Division (BIPD)

The PeNA process carried out by BIPD, *JPPKK* is expected to receive positive feedback on curriculum interpretation, teaching and learning implementation, and assessment conducted by PKK. All feedback, comments, and reviews should be addressed and improved as necessary. JPPKK management will be able to ensure that policies, guidelines, directives, and circulars are adhered to and referenced by the implementers at PKK.

Several studies have highlighted the importance of OBE in fostering not only academic success but also professional competence. According to [2], OBE enhances the alignment

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between teaching, assessment, and learning objectives, ensuring that students are evaluated on outcomes that reflect the knowledge and skills required in the professional world. Additionally, a study by [3] emphasises that educators' comprehension of OBE is crucial for the effective delivery of outcome-based curricula. Educators who fully understand OBE are more likely to integrate its principles into their teaching methods and adapt their assessment strategies to reflect the learning outcomes.

II. DATA COLLECTION METHOD

This quantitative study uses a survey design to empirically and systematically examine EED lecturers' practices related to the implementation of Outcome-Based Education (OBE) at PKK, Sabah. According to [4], a survey study is classified as descriptive research. Reference [3] explains that a survey design is a quantitative research procedure in which researchers conduct a survey on a sample and generalise the findings to the population.

The population consists of all EED lecturers currently serving at PKK. In this survey, 51 lecturers, representing 92.7% of EED lecturers, were sampled. Reference [5] explains that larger sample sizes generally lead to more reliable and accurate survey results, as they tend to reduce sampling error and improve the generalisability of the findings.

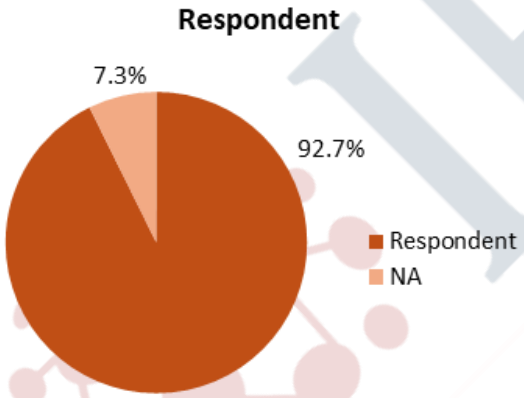

Fig. 1: Respondent Percentage

The OBE questionnaire comprises 11 evaluation items using a Likert scale of 1 (strongly disagree), 2 (disagree), 3 (somewhat agree), 4 (agree), and 5 (strongly agree). From Table VI, items 1 to 6 are used to assess lecturers' understanding of OBE while items 7 to 10 are used to evaluate how well lecturers implement OBE in their teaching. Item 11 measures how OBE impacts accreditation with external bodies.

The questionnaire, which was created in Google Forms, was chosen for its ease of use, cost-effectiveness, and time efficiency. Additionally, reference [6] notes that using questionnaires as research instruments is preferable, as it facilitates respondent cooperation and is well-suited for survey-based studies.

Table I. Interpretation of Mean Scores

Mean score	Interpretation
1.00 – 1.80	Very Low
1.81 – 2.60	Low
2.61 – 3.40	Moderate
3.41 – 4.20	High
4.21 – 5.00	Very High

Source: Creswell (2018)

The data were downloaded in Excel format, and after being cleaned and coded, they were transferred to SPSS for descriptive analysis. The final findings were presented in tables to facilitate data interpretation and reporting. The interpretation of mean scores based on [3]'s guidelines typically follows a range of values that correspond to qualitative descriptions, as in Table I. Means are used to indicate the average level of agreement or understanding for each item (the higher the mean, the higher the level of understanding or implementation). Standard deviations (SD) are used to show the spread of responses; a smaller SD means the responses are closer to the mean, indicating more consensus among respondents.

III. DATA FINDINGS AND ANALYSIS

The demographics are categorised by academic programmes, lecturers' position', and years of teaching experience.

A. Demographic Information

Table II shows the number of lecturers in EED, categorised by the academic programmes involved in this survey. There are 21 lecturers from the Diploma in Electrical & Electronic Engineering (DEE) programme, 15 lecturers from the Diploma in Electronic Engineering (Communication) (DEP) programme and 14 lecturers from the Diploma in Electronic Engineering (Computer) (DTK) programme.

Table III shows the number of EED lecturers categorised by position. There are 47 lecturers, 3 programme heads and 1 department head involved in this survey.

Table IV shows the number of EED lecturers categorised by teaching experience. Of the 51 lecturers, 60.8% have more than 15 years teaching experience, 37.3% have 6 to 15 years of teaching experience and 2% have 1 to 5 years of teaching experience.

Table II. EED Lecturers by Program

Programme	Frequency	Percentage
DEE	21	41.2
DEP	15	31.4
DTK	14	27.5
Total	**51**	**100.0**

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Table III. EED Lecturers by Position

Position	Frequency	Percentage
Lecturer	47	92.2
Programme Head	3	5.9
Department Head	1	2.0
Total	**51**	**100.0**

Table IV. EED Lecturers by Years of Teaching

Years of Teaching	Frequency	Percentage
1-5	1	2.0
6-15	19	37.3
> 15	31	60.8
Total	**51**	**100.0**

B. Frequency of Attending OBE Courses/Workshops from 2019 to February 2022

The analysis of EED lecturers' frequency of attending OBE courses/workshops from 2019 to February 2022 is shown in Table V. According to the table below, 96.1 % of lecturers have attended OBE courses / workshops, whereas 3.9% of them have never attended any OBE courses/workshops during this period. The majority of the lecturers which is 41.2 % have attended 1 to 2 OBE courses/workshops.

Table V: Frequency of Attending OBE Courses / Workshops

No of OBE Courses / workshop	Frequency	Percentage
1-2	21	41.2
3-4	18	35.3
> 5	10	19.6
0	2	3.9
Total	**51**	**100.0**

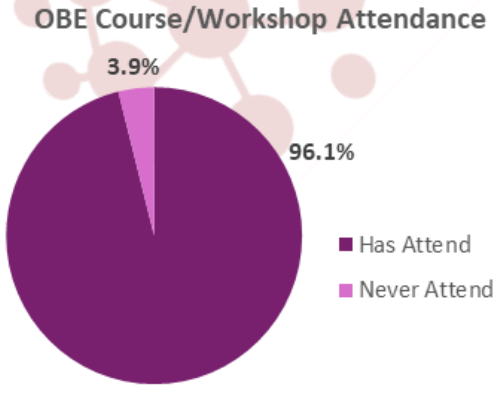

Fig. 2: OBE Course/Workshop Attendance

C. Analysis of OBE Concept for Lecturers

The analysis of EED lecturers' understanding of the OBE concept is shown in Table VI. In this table, item 11 received the highest mean score of 4.33 with a standard deviation of 0.58, while item 10 received the lowest mean score of 4.02 with a standard deviation of 0.52. Among the 11 items, five items received mean scores within the very high interpretation range, and six items received mean scores in the high interpretation range. The average mean score was 4.19, which falls within the high interpretation range, with an average standard deviation of 0.60.

Table VI. Analysis of OBE Concept for Lecturers

No	Item	Mean	Standard Deviation
1	I understand the concept of OBE-based learning	4.23	0.60
2	I understand the Teaching & Learning (T&L) activities based on OBE	4.23	0.57
3	I understand the Programme Aims (PAi)	4.11	0.65
4	I understand the Programme Educational Objectives (PEO)	4.20	0.62
5	I understand the Programme Learning Outcomes (PLO)	4.25	0.61
6	I understand the Course Learning Outcomes (CLO)	4.26	0.61
7	I understand the relationship between PAI, PEO, PLO, and CLO	4.12	0.68
8	I understand the implementation of OBE in line with the vision of PKK	4.18	0.60
9	I understand the implementation of OBE in line with the mission of PKK	4.19	0.61
10	I always diversify my teaching & learning methods according to the suitability of the learning outcomes to ensure the success of the OBE system at PKK	4.02	0.52
11	I always know that the implementation of OBE can help the academic programmes at PKK obtain accreditation from recognized bodies (MQA / ETAC / MBOT / RISM / Others)	4.33	0.58
Average		**4.19**	**0.60**

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IV. DISCUSSION

The study conducted among the EED lecturers at PKK shows a high level of understanding and implementation of OBE. The majority of the respondents had attended OBE-related workshops or courses, which had a positive correlation with their grasp of the OBE concept and its application in teaching and learning (T&L) processes. Research by [7] indicates that continuous training and professional development are critical for the successful implementation of educational reforms such as OBE. Reference [8] emphasise the importance of regular workshops and continuous professional development to improve OBE understanding among lecturers. Based on the findings, the average mean score of 4.19 across 11 evaluation items indicates that the lecturers' comprehension of OBE, including key elements such as Programme Learning Outcomes (PLO), Course Learning Outcomes (CLO), and Programme Educational Objectives (PEO), is substantial. The average standard deviation is 0.60, indicating that there is a relatively low variance in responses, meaning most lecturers share a similar level of understanding.

Items 1 to 6 which assess lecturers' understanding of OBE received relatively high mean scores of 4.11 to 4.26, indicating a strong understanding of OBE principles among lecturers. The low standard deviations of 0.57 to 0.65 suggest consistency in responses, showing that lecturers generally have a similar level of understanding across all OBE elements. Items related to understanding the Course Learning Outcomes (CLO) and Programme Learning Outcomes (PLO) also scored high, with means of 4.26 and 4.25, respectively. This indicates that lecturers are well-versed in understanding the outcomes that directly impact student performance. Overall, these results reflect that lecturers have a firm understanding of OBE fundamentals, which is critical for accurate implementation and alignment with programme objectives.

Items 7 to 10 assess the implementation of OBE in teaching, specifically how lecturers integrate their knowledge of OBE with PKK's vision and mission and their adaptation of teaching methods to suit different learning outcomes. Scores in this section are slightly lower than in the previous one, indicating that while lecturers understand OBE concepts, there may be some challenges in consistently implementing these ideas in diverse teaching contexts. Item 10, which focuses on diversifying teaching methods to align with learning outcomes, has the lowest mean score (4.02). This may suggest an area for further development in adopting varied teaching strategies. Item 10 also has the lowest standard deviation, which implies there is some consistency in responses, yet the higher standard deviation in item 7 (0.68) suggests some variation in how lecturers perceive the interconnectedness of PAi, PEO, PLO, and CLO. The analysis also reveals that lecturers are confident in implementing OBE in line with the institution's vision and mission. This suggests that lecturers see the value of OBE not only as a teaching methodology but also as a tool to achieve institutional excellence. Overall, this section shows that while lecturers generally align OBE implementation with institutional goals, additional support may be beneficial to enhance their adaptability in teaching practices.

Item 11 evaluates lecturers' views on the impact of OBE on accreditation. The high mean score (4.33) for understanding OBE's role in achieving programme accreditation further demonstrates their recognition of its importance. A low standard deviation here indicates strong agreement among lecturers regarding the positive impact of OBE on accreditation, reflecting a shared perspective on the value of OBE in achieving external validation.

In summary, lecturers have a strong foundational understanding of OBE and recognise its importance in meeting accreditation standards. However, enhancing support for varied teaching practices could further improve OBE's practical impact on student outcomes. The demographic analysis also reveals that most lecturers have substantial teaching experience, which likely contributes to their high competence in applying the OBE framework. Interestingly, despite the high mean scores, there is a minority group (3.9%) who has never attended any OBE workshops, indicating a need for inclusive professional development initiatives.

A. Continuous Quality Improvement (CQI)

To ensure continuous quality improvement (CQI), several actions should be considered based on the survey findings:

1. Enhanced Professional Development:

Although most EED lecturers have attended OBE courses, there is a need for targeted workshops that focus on areas with lower mean scores, such as the diversification of teaching methods. These workshops could provide more advanced strategies and tools to enhance lecturers' flexibility in adapting OBE to different learning outcomes [9].

2. Inclusion of All EED Staff Members:

Efforts should be made to engage the small percentage of lecturers who have not attended OBE workshops. Providing them with tailored resources or one-on-one mentoring could ensure that all lecturers have a baseline understanding of OBE practices.

3. Curriculum Alignment and Feedback:

The EED management should regularly review the curriculum, teaching methods, and assessment strategies in consultation with lecturers to ensure they are aligned with the OBE framework. Regular feedback sessions can help identify challenges in implementation and foster collaborative problem-solving.

4. Accreditation Preparedness:

Given the high score related to the role of OBE in obtaining accreditation, continued focus on meeting the requirements of accreditation bodies ie. ETAC is essential. Lecturers should be kept up to date on accreditation standards and changes, ensuring they are well-prepared for future assessments.

V. CONLUSION

The study highlights that the understanding and implementation of OBE among EED lecturers at PKK are robust, with high mean scores across most items. The lecturers' familiarity with the essential components of OBE and its alignment with the institution's objectives is evident. However, to achieve excellence and consistency in OBE practices, it is crucial to address the areas where improvement is needed, particularly in diversifying teaching methods and ensuring the inclusivity of professional development efforts. With ongoing CQI measures, PKK especially EED is well-positioned to maintain and enhance the quality of its academic programmes, ultimately contributing to successful student outcomes and accreditation achievements.

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