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A Six-Cycle Evaluation of Programme Quality Indicators in Outcome-Based Education

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ABSTRACT

Institutional quality assurance systems generate substantial programme-level data, yet these data are often used primarily for periodic reporting rather than longitudinal programme evaluation. This study examined three routinely collected programme quality indicators across six consecutive academic cycles in an Outcome-Based Education programme at a Malaysian public university. A retrospective descriptive longitudinal case-study design was used. Course-level records were extracted from Closing the Loop Continuous Quality Improvement reports covering March 2022 to October 2024. The indicators were Course Grade Rating, Entrance-Exit Survey, and Student Feedback Online. Courses were grouped by Part, defined as the semester of study within the programme. Means were calculated across valid course ratings within each Part, while cycle-level means and population standard deviations were calculated across the available Part means. All three indicators were reported on a five-point institutional performance scale. Course Grade Rating declined from 2.71 in March 2022 to 2.41 in March 2023 and ended at 2.64 in October 2024. Entrance-Exit Survey means were 3.36 in the first three cycles, peaked at 3.55 in October 2023, and ended at 3.30. Student Feedback Online increased from 3.23 to 3.61, with its highest mean of 3.91 recorded in March 2024. The non-parallel trajectories show why programme quality should not be reduced to a single indicator. Routine quality assurance records can support longitudinal programme monitoring, although variation in Part composition and the use of aggregated ratings limit causal interpretation.

Keywords: Outcome-Based Education; programme evaluation; course grade rating; quality assurance; continuous quality improvement

INTRODUCTION

Programme evaluation is a central component of quality assurance in higher education. It provides evidence for reviewing curriculum delivery, academic achievement, student experience, and the effectiveness of continuous quality improvement (CQI). Under Outcome-Based Education (OBE), programme teams are expected to align intended learning outcomes, teaching and learning activities, assessment, and improvement processes [3]. This expectation has increased the volume of institutional data collected for accreditation, monitoring, and internal academic review.

Collecting data, however, does not guarantee that they will be used well. Quality assurance information may remain confined to compliance reports or individual reporting cycles, limiting its contribution to longer-term academic decision-making [2, 4]. Repeated programme-level indicators can serve a broader purpose when they are examined across successive cycles. Such examination enables programme teams to observe whether a result is isolated, recurring, recovering, or moving differently from other indicators.

Recent scholarship has emphasised the value of structured evidence in programme review and CQI. Learning analytics can convert routinely generated academic information into evidence that supports programme-level interpretation and action [1]. Studies of learning outcome evaluation similarly highlight the importance of using complementary evidence rather than depending on a single attainment measure [5-7]. Reviews of quality management in OBE also show that systematic evidence use is integral to closing the quality loop [8].

Much of the published discussion still concentrates on course-level attainment, programme learning outcomes, learning analytics systems, or single-cycle improvement exercises. Less attention is given to the practical use of several routine institutional indicators across consecutive academic cycles, particularly within a single programme. This is important because course-performance ratings, student perceptions of programme outcomes, and evaluations of teaching delivery are related to programme quality but do not measure the same construct. Their trajectories may therefore differ.

This study evaluated the six-cycle patterns of Course Grade Rating (CGR), Entrance-Exit Survey (EES), and Student Feedback Online (SUFO) in an OBE programme. The study had two objectives: (1) to describe the cycle-level patterns of the three indicators from March 2022 to October 2024; and (2) to examine how their combined interpretation may support programme monitoring and CQI. The study does not test causal relationships. It is an institutional case study of how routine quality assurance data may contribute to programme evaluation, as well as where their limits lie.

METHODOLOGY

Research Design

A retrospective descriptive longitudinal case-study design was used to examine programme-level indicator patterns across six consecutive academic cycles. The term longitudinal refers to repeated observation of programme indicators over time and does not imply that the same individual students were followed across all cycles. The design was selected because the available evidence consisted of historical, aggregated quality assurance records rather than individual-level panel data.

Study Setting and Data Source

The study involved one undergraduate programme offered at a Malaysian public university. Data were obtained from the programme's official Closing the Loop Continuous Quality Improvement (CDL-CQI) reports for March 2022, October 2022, March 2023, October 2023, March 2024, and October 2024. These reports are institutional quality assurance records used to document programme performance and improvement deliberations. The available data consisted of course-level institutional ratings grouped by Part, where Part refers to the semester of study within the programme rather than the calendar-based academic cycle.

The numbers of valid course-level records for CGR across the six cycles were 77, 81, 47, 84, 41, and 42, respectively. The corresponding counts were 76, 79, 46, 86, 43, and 44 for EES, and 78, 82, 47, 86, 43, and 45 for SUFO. Records designated as not applicable were excluded. Student-level response counts and response rates were not available in the dataset.

Programme Quality Indicators

Course Grade Rating (CGR). CGR represented the institutional evaluation of academic performance at the course level. Each eligible course was classified on a five-point reporting scale: 1 (poor), 2 (fair), 3 (good), 4 (very good), and 5 (excellent).

Entrance-Exit Survey (EES). EES assessed students' perceived knowledge in relation to the course outcomes. The entrance assessment was administered between Weeks 1 and 4, while the exit assessment was administered during Weeks 13 and 14. Students responded on a five-point scale from 1 (strongly disagree) to 5 (strongly agree). The number of items varied by course because the statements were aligned with the relevant course outcomes. The CDL-CQI report expressed the final course-level EES result on the institutional five-point performance scale.

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Student Feedback Online (SUFO). SUFO represented students' evaluations of teaching and course delivery. The CDL-CQI report expressed the final course-level SUFO result on the institutional five-point performance scale.

Data Preparation and Analysis

The course-level category labels were recoded from 1 to 5 according to the institutional performance scale, and records marked as not applicable were treated as missing. Courses were then grouped by Part. For each indicator, an unweighted mean was calculated across all eligible courses within each Part. Each Part subsequently contributed equally to the cycle-level estimate: the cycle mean was the unweighted average of the available Part means, and the population standard deviation described variation across those Part means. Parts 1-6 were included from March 2022 through October 2023, Parts 2-6 in March 2024, and Parts 3-7 in October 2024. October 2023 records outside Parts 1-6 were excluded from the defined analytical scope. Descriptive tables and trend plots were used to examine the direction, range, and consistency of each indicator. The three indicators were displayed in separate panels on the common five-point scale, with error bars representing plus or minus one population standard deviation across Parts. No inferential tests or causal claims were made because individual-level responses, stable response denominators, and information on relevant confounders were unavailable.

RESULTS

Six-Cycle Summary

Table 1 presents the means and standard deviations for CGR, EES, and SUFO across the six academic cycles. The indicators did not follow a common trajectory. CGR declined during the first three cycles, followed by modest fluctuations. EES remained comparatively stable, with a temporary increase in October 2023. SUFO showed greater movement and reached its highest mean in March 2024.

Table 1. Programme quality indicators across six academic cycles

Academic cycle	CGR, mean +/- SD	EES, mean +/- SD	SUFO, mean +/- SD
March 2022	2.71 +/- 0.17	3.36 +/- 0.22	3.23 +/- 0.32
October 2022	2.53 +/- 0.11	3.36 +/- 0.26	3.51 +/- 0.42
March 2023	2.41 +/- 0.17	3.36 +/- 0.29	3.30 +/- 0.19
October 2023	2.55 +/- 0.08	3.55 +/- 0.37	3.52 +/- 0.23
March 2024	2.43 +/- 0.22	3.36 +/- 0.24	3.91 +/- 0.61
October 2024	2.64 +/- 0.21	3.30 +/- 0.33	3.61 +/- 0.47

Note. CGR = Course Grade Rating; EES = Entrance-Exit Survey; SUFO = Student Feedback Online. All indicators use a five-point reporting scale. SD = population standard deviation across Part means.

Indicator-Specific Patterns

CGR recorded its highest mean of 2.71 in March 2022. It decreased to 2.53 in October 2022 and reached its lowest mean of 2.41 in March 2023. The mean rose to 2.55 in October 2023, declined slightly to 2.43 in March 2024, and ended at 2.64 in October 2024. The final mean was 0.07 points below the initial value. Standard deviations ranged from 0.08 to 0.22, indicating relatively limited variation among the included Part means.

EES means remained at 3.36 during the first three cycles. The mean increased to 3.55 in October 2023, returned to 3.36 in March 2024, and declined to 3.30 in October 2024. Across the observation period, EES occupied a narrow interval of 3.30 to 3.55. The standard deviations ranged from 0.22 to 0.37, with the widest variation among Part means recorded in October 2023.

SUFO increased from 3.23 in March 2022 to 3.51 in October 2022, before decreasing to 3.30 in March 2023. It rose to 3.52 in October 2023 and reached its highest mean of 3.91 in March 2024, before moderating to 3.61 in

October 2024. Standard deviations ranged from 0.19 to 0.61. The largest dispersion occurred in March 2024, indicating that the higher overall mean was accompanied by greater variation among the included Parts.

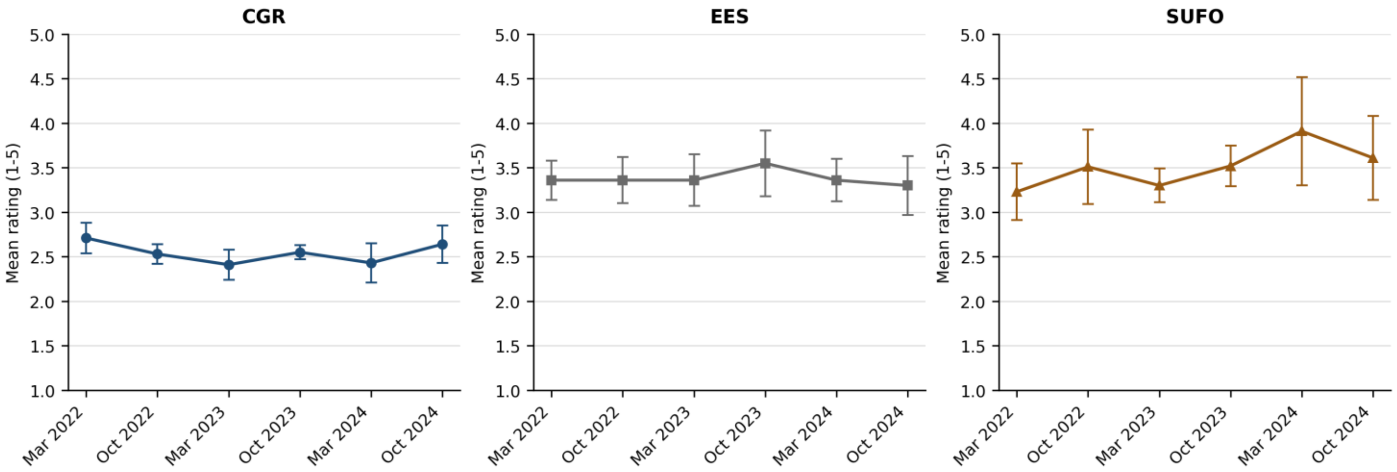

Figure 1. Indicator-specific patterns across six academic cycles. All panels use the institutional five-point reporting scale. Error bars represent +/-1 population standard deviation across Part means.

Integrated Interpretation

Viewed together, the six-cycle profiles offer different forms of programme-level evidence. CGR showed an early decline followed by a partial, uneven recovery. EES remained comparatively stable, apart from a temporary increase in October 2023. SUFO displayed the clearest upward movement, particularly in 2024. Their non-parallel movement indicates that a change in one indicator should not be assumed to represent improvement or deterioration across the programme as a whole.

DISCUSSION

Reading the Indicators Together

The three indicators tell different parts of the programme story. CGR, EES, and SUFO address related but distinct dimensions: institutional judgements of course performance, students' perceived knowledge in relation to course outcomes, and evaluations of teaching delivery. Their non-parallel patterns are therefore plausible and underscore the risk of reducing programme quality to a single score.

The early decline in CGR, followed by modest fluctuations, warrants contextual review rather than a simple account of decline and recovery. Possible explanations include changes in the mix of Parts and courses, cohort characteristics, assessment patterns, curriculum delivery, or academic support. These possibilities cannot be tested using the available aggregated ratings. CGR should therefore be treated as a descriptive signal for further investigation, not as a substitute for direct student achievement data.

The EES results were comparatively stable, with a temporary increase in October 2023 and a modest decline by October 2024. The accompanying standard deviations indicate some variation among Parts, but the range remained moderate across cycles. SUFO showed a more visible increase during 2024, although this should not be equated automatically with improvement in learning outcomes. Student evaluations and course-performance ratings remain different forms of evidence even when they share the same five-point reporting scale.

Using Routine Data for Continuous Quality Improvement

OBE and CQI require programme teams to interpret several sources of evidence when identifying areas for improvement [3, 6, 7]. Routine institutional data become more useful when successive cycles are reviewed together. A single-cycle report may identify whether a target was met, whereas a six-cycle view can reveal recurrence, fluctuation, changes in dispersion, or divergence between indicators.

In practice, these indicators are most useful for the questions they raise. A decline in CGR can prompt examination of course-level outcomes, assessment patterns, and differences among Parts. A change in EES can trigger a review of response coverage and specific course-outcome statements. A rise in SUFO can be considered alongside changes in teaching delivery and professional development. These steps convert descriptive patterns into a structured agenda for investigation. The patterns themselves do not identify causes or prove the effects of CQI actions.

Such an approach is consistent with evidence-informed quality assurance, in which data support professional judgement rather than replace it [2]. It also reflects programme-review approaches that connect evidence, analysis, and action [1]. For the present programme, the next analytical stage should link each identified pattern with documented CQI decisions, implementation dates, and subsequent indicators. Such mapping would provide stronger evidence of whether the quality loop was closed.

Implications for Programme Monitoring

Several practical points follow for programme monitoring. Indicator definitions, scales, denominators, and response rates should accompany every cycle-level summary. Without this information, apparent changes may reflect differences in data coverage or Part composition rather than programme performance. Although the present indicators share a five-point reporting scale, they should still be interpreted within their distinct measurement contexts. Programme teams should then record the link between an observed pattern, the decision taken, the person responsible, the implementation period, and the evidence reviewed in the following cycle.

A modest longitudinal dashboard or CQI evidence matrix would be enough to put these principles into practice. Such a system would not need to replace existing institutional reports. Instead, it would organise routine data so that programme committees can distinguish monitoring information from evidence that requires follow-up. This approach is particularly relevant where institutions already collect extensive QA data but have limited capacity for advanced learning analytics.

Strengths And Limitations

A strength of this study is the use of six consecutive academic cycles rather than a single reporting period. The Part-based analysis also retains the programme's semester-of-study structure rather than collapsing all courses into a single undifferentiated pool. The inclusion of three indicators broadens the evaluation beyond one dimension of quality. In addition, the analysis uses data generated through an established institutional QA process, demonstrating the practical potential of existing administrative evidence.

The findings must nevertheless be read within several limits. The study concerns one programme in one university and is not intended to support statistical generalisation. The analysis used aggregated course ratings, preventing examination of individual student trajectories, response distributions, and potential confounding factors. The ratings are ordinal institutional categories that were treated numerically for descriptive monitoring; the resulting means should therefore be read as summary signals rather than precise interval measurements. The composition of Parts also changed across cycles, which limits direct temporal comparison of the overall means. Course and Part means were unweighted, and student response counts were unavailable. Six cycles are sufficient to describe observed patterns but not to establish long-term structural trends. No inferential tests were undertaken, and overlap among standard deviations should not be interpreted as a test of statistical significance. Finally, the dataset did not include direct programme learning-outcome attainment, graduate employability, employer feedback, or a time-linked record of CQI actions.

CONCLUSION

This study examined CGR, EES, and SUFO across six academic cycles in an OBE programme. CGR showed an early decline followed by a partial and uneven recovery. EES remained comparatively stable, while SUFO showed the clearest increase and reached its highest mean in March 2024. The three trajectories did not move in parallel. They should therefore be interpreted as complementary descriptive signals rather than interchangeable measures of programme quality.

A cautious conclusion is therefore appropriate. Routine institutional QA data can strengthen programme monitoring when indicator definitions, denominators, distributions, and contextual information are made explicit. Their greatest value is in identifying questions and priorities for CQI, not in proving causal effects. Future studies should adopt a mixed-methods design combining longitudinal indicator analysis with interviews involving students, lecturers, and programme administrators. Extending this approach across multiple programmes or institutions, while linking indicator patterns to documented CQI actions, implementation timelines, direct learning-outcome evidence, cohort characteristics, and subsequent stakeholder outcomes, would strengthen comparative evaluation and provide a firmer basis for determining whether the quality loop has been effectively closed.

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