Case-Based Learning, Class Attendance, And Academic Achievement of Master of Management Students In A Human Resource Performance Planning and Appraisal Course

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Abstract.
This study evaluates the academic achievement of Master of Management students in a Human Resource Performance Planning and Appraisal course after the second half of the semester was redesigned around case-based and problem-based learning, and examines how attendance and assessment components relate to final grades. A descriptive-retrospective quantitative design was applied to the complete institutional records of all 29 students in one class at Universitas Islam Sumatera Utara, Indonesia, in the odd semester of the 2024/2025 academic year. Descriptive statistics, normality tests, Pearson and Spearman correlations, and paired t-tests were applied. The mean final grade was 83.78 (SD 5.30), all students passed, and 48.28% obtained an A. Attendance averaged 95.57% and correlated strongly with the mean of the academic components that exclude attendance ($r = 0.874$; $\rho = 0.844$; $p < 0.001$). Final project scores, obtained after the case-based phase, exceeded mid-term scores by 1.72 points ($t(28) = 3.27$; $p = 0.003$; $dz = 0.61$), and 19 of the 29 students improved. All four course learning outcomes were attained. The findings suggest that case-based learning suits working postgraduate students and that attendance is a strong marker of engagement, although the single-group retrospective design does not permit causal inference.

Keywords: *case-based learning; class attendance; academic achievement; performance appraisal education; postgraduate management education.*

I. INTRODUCTION

Higher education institutions are increasingly expected to produce graduates who can apply knowledge to complex, ill-structured problems rather than merely reproduce theory. In Indonesia, this expectation is embedded in the national legal framework for education and higher education [1,2] and in the Indonesian National Qualifications Framework, which places master's graduates at level 8 and requires them to develop knowledge through research and to solve problems using inter- or multidisciplinary approaches [3]. The policy direction has become more concrete since the Ministry of Education and Culture designated the share of courses taught through case methods and team-based projects as one of the key performance indicators of higher education institutions [4], and since the current quality assurance regulation required study programs to evaluate the attainment of learning outcomes systematically [5]. Lecturers, who are legally obliged to carry out teaching, research and community service [6], are therefore under growing pressure to redesign their courses and to document the effects of these changes.

Case-based learning (CBL) and problem-based learning (PBL) are the two learner-centered approaches most often proposed for this purpose. In PBL, students learn by working in groups on complex problems that do not have a single correct answer, while the instructor acts as facilitator [7]. CBL uses real or realistic cases as a bridge between theory and practice and trains students to apply knowledge to authentic situations [8]. Meta-analytic evidence shows that PBL produces its strongest effects when assessment targets the application of principles to conditions and procedures rather than the recall of isolated concepts [9,10], and long-running curricular comparisons report that PBL graduates perform better in practical and interpersonal skills [11]. Broader syntheses of active learning point in the same direction: students in active-learning classes outperform those in traditional lecture classes and are less likely to fail [12,13].

Management education has a long tradition of case teaching, and experiential learning theory provides its main justification: learning is strongest when concrete experience, reflection, conceptualization

and active experimentation are linked in a cycle [14]. Empirical evidence from business schools supports this view. A seven-year quasi-experimental evaluation at a Thai business school found that graduate management students perceived PBL courses as more engaging and more helpful in applying theory to practice than conventional courses [15]. In Indonesia, studies in economics and accounting education report that PBL improves achievement and critical thinking [16,17], that team-based and problem-based designs both raise critical thinking but to different degrees [18], and that an integrated CBL–PBL design substantially raised conceptual mastery in an introductory economics course [19]. Problem-based learning has also been shown to improve problem-solving skills in vocational settings [20], and bibliometric analysis shows that research on project-based learning in higher education expanded, with fluctuations, between 2014 and 2023 [21].

Most of these studies, however, involve undergraduate students. Postgraduate management students in Indonesia are typically working professionals who bring organizational experience to class. Adult learning theory holds that such learners are most motivated when learning is problem-centered and connected to their own roles [22]. A course on human resource performance planning and appraisal is a particularly suitable setting in which to test this claim, because its subject matter, including the design of key performance indicators, the balanced scorecard and the management of rating bias, is inherently practical [23,24]. Indonesian research shows that the perceived fairness and effectiveness of performance appraisal shape employee satisfaction, workplace culture and performance [25,26], so practitioners who learn to design appraisal systems well can transfer that competence directly to their organizations.

Class attendance is the second factor examined in this study. A meta-analysis of 69 samples found that attendance is strongly related to class grades ($r = 0.44$) and is a better predictor of college grades than any other known predictor, including admission test scores and study habits [27]. Field studies using objective measures confirm that early and consistent attendance is associated with better performance [28], and absenteeism lowers grades even after controlling for potential confounders [29]. Other work suggests that the effect is partly explained by motivation and study time [30,31], that it is stronger for lower-performing students [32], and that attendance itself depends on student characteristics and course design [33]. Attendance is thus best understood as one observable facet of student engagement, which comprises behavioral, emotional and cognitive dimensions [34]. In the Indonesian context, cognitive and non-cognitive factors at admission [35] and participation in academic support services [36] have been found to predict academic achievement, but evidence on attendance among postgraduate management students remains scarce.

Three gaps motivate this study. First, empirical evaluations of case-based teaching in Indonesian master's programs in management are rare, as most local studies concern undergraduate or school settings. Second, studies of attendance seldom separate the contribution of attendance to the grading formula from its association with academic performance, even though many grading schemes include attendance as a weighted component. Third, few studies show how a single course can evaluate the attainment of its learning outcomes using records that institutions already hold. Addressing these gaps is relevant both for lecturers who are redesigning courses under current national policy and for study programs that must report evidence of learning-outcome attainment for accreditation.

Finally, outcome-based education requires that intended learning outcomes, learning activities and assessment tasks be constructively aligned [37]. Evaluating the attainment of course learning outcomes is therefore both a pedagogical and a quality-assurance task [38]. Retrospective analysis of complete institutional records offers a low-cost way to carry out this evaluation without disrupting teaching.

Against this background, this study analyzes the complete academic records of one Master of Management class at Universitas Islam Sumatera Utara (UISU) in which the second half of the semester was redesigned around CBL and PBL. The objectives are to (1) describe the distribution of final grades and achievement categories, (2) examine the relationship between class attendance and academic achievement, (3) compare scores obtained before and after the case-based phase, (4) analyze the relationships among

assessment components, and (5) evaluate the attainment of the course learning outcomes. The study contributes evidence from an under-researched population, working postgraduate students at a private Islamic university in North Sumatra, and illustrates how routinely collected records can support outcome-based course evaluation.

II. METHODS

2.1 Research design and setting

The study used a quantitative descriptive-retrospective design. Data were taken from records generated during normal teaching, and no additional intervention or measurement was introduced by the researchers. The setting was the course Human Resource Performance Planning and Appraisal in the Master of Management Study Program, Postgraduate Program, Universitas Islam Sumatera Utara, Medan, Indonesia. The course ran in the odd semester of the 2024/2025 academic year, from 16 September 2024 to 15 February 2025, and grades were finalized in the university's academic information system on 20 February 2025.

2.2 Participants

The population consisted of all students enrolled in class 3C-G of the course (N = 29). Because the population was small, total sampling was applied, and all 29 students were analyzed. All students had complete records for every assessment component, none withdrew from the course, and all met the minimum attendance requirement of 75%. Most students were working professionals.

2.3 Course design

Sixteen meetings were scheduled and all were held: 14 interactive teaching sessions, one mid-term examination and one final examination. The methods used during the semester included lectures, group discussions and presentations, problem-based learning, project-based learning and blended learning. The course was organized in two phases (Table 1). In the first phase (sessions 1–7), teaching focused on the concepts and theories of human resource planning and performance appraisal, delivered mainly through lectures and discussion, and was assessed by the mid-term examination. In the second phase (sessions 9–15), teaching shifted to CBL and PBL. Students worked in groups to analyze real cases on the design of key performance indicator matrices in their own work units and presented their analyses in class. The weight given to practical problem solving and presentation activity was increased in this phase, which culminated in a final examination in the form of a group case-study project.

Table 1. Course design and assessment components

Phase	Sessions	Focus and teaching methods	Assessment (weight)
Phase 1	1–7	Concepts and theories of human resource planning and performance appraisal; lectures and discussion	Mid-term examination (30%)
Phase 2	9–15	Case-based and problem-based learning: group analysis and presentation of real cases on key performance indicator design in students' own work units	Final group project (30%)
Whole semester	1–15	Structured assignments and case analyses; attendance at 14 teaching sessions	Assignments (30%); attendance (10%)

Sessions 8 and 16 were the mid-term and final examinations.

2.4 Variables and measures

Five variables were analyzed. Attendance was the number of the 14 teaching sessions attended, converted to a score from 0 to 100 (sessions attended / 14 × 100). Assignment score was the mean score of structured assignments and case analyses. Mid-term score was the score of the mid-term examination, which assessed conceptual and theoretical mastery. Final score was the score of the final examination, a group case-study project. All scores used a scale from 0.00 to 100.00. The final grade (FG) was computed according to the weights stated in the semester learning plan:

$$FG = 0.10\ \text{Attendance} + 0.30\ \text{Assignment} + 0.30\ \text{Mid-term} + 0.30\ \text{Final} \quad (1)$$

Final grades were converted to letter grades using the university's postgraduate guidelines: A (≥ 85.00; grade point 4.00), A- (80.00–84.99; 3.75), B+ (75.00–79.99; 3.25), B (70.00–74.99; 3.00) and C (< 70.00; 2.00). A final grade of 70.00 or higher was required to pass. Four course learning outcomes (CLOs) were specified in the semester learning plan: mastery of human resource planning theory and performance regulation (CLO-1), design of performance evaluation instruments based on key performance indicators and the balanced scorecard (CLO-2), mitigation of rating bias and audit of employee appraisal systems (CLO-3), and preparation of a project report evaluating the performance of a real organization (CLO-4). A CLO was considered attained when the mean score of its assessment basis reached 80.00.

2.5 Data sources and ethical considerations

Data were obtained by documentation from three sources: the university's academic information system, the lecturer's portfolio of grade records, and the semester learning plan. Before analysis, students' identities were replaced with the codes M001 to M029, and all sensitive personal data, including student identification numbers, names and contact details, were removed in line with Indonesia's personal data protection law [39]. The use of secondary data for scientific reporting followed the university's internal academic regulations. During data verification, every final grade was recomputed from its components using Equation (1). Four recorded final grades did not match the formula; the recomputed values were used, which changed the letter grade of one student from A- to B+. The lecturer confirmed the component scores against the archived records.

2.6 Data analysis

Descriptive statistics (mean, median, standard deviation, minimum and maximum) and the frequency distribution of letter grades were calculated. Normality was assessed with the Shapiro-Wilk test. Relationships among variables were analyzed with Pearson product-moment correlations, and Spearman rank correlations were added for attendance, which was not normally distributed. Because each component is part of the final grade, component–final grade correlations are inflated by construction. To obtain an estimate free of this part–whole overlap, attendance was also correlated with the mean of the three academic components (assignment, mid-term and final), which does not contain the attendance score.

Mean differences between components were tested with paired-sample t-tests, confirmed by Wilcoxon signed-rank tests, and effect sizes were expressed as Cohen's dz [40], interpreted as small (0.2), medium (0.5) or large (0.8). The strength of correlations was described as very weak (< 0.20), weak (0.20–0.39), moderate (0.40–0.59), strong (0.60–0.79) or very strong (≥ 0.80). The significance level was set at 0.05 (two-tailed). Analyses were performed in Python with the SciPy library.

III. RESULT AND DISCUSSION

3.1 Descriptive statistics and grade distribution

Table 2 summarizes the descriptive statistics. All academic components fell in the upper-middle range. The assignment component had the highest mean (83.62) and the mid-term examination the lowest (81.03). The mean final grade was 83.78 (SD 5.30; 95% confidence interval 81.76–85.80), which corresponds to an A- grade. Assignment, mid-term, final and final-grade scores were normally distributed

(Shapiro-Wilk $p > 0.05$). Attendance was not ($p < 0.001$) because most students attended every session, producing a left-skewed distribution (skewness −1.42).

Table 2. Descriptive statistics of assessment components (n = 29)

Component	Mean	Median	SD	Min	Max	Shapiro-Wilk p
Attendance score	95.57	100.00	6.73	78.57	100.00	< 0.001
Assignment	83.62	84.00	5.41	73.00	93.00	0.766
Mid-term examination	81.03	82.00	5.45	70.00	89.00	0.356
Final project	82.76	84.00	5.30	72.00	92.00	0.259
Final grade	83.78	84.40	5.30	72.36	91.90	0.217

Table 3 presents the grade distribution. Nearly half of the students (48.28%) obtained an A, 31.03% an A-, 13.79% a B+ and 6.90% a B. No student scored below 70, so the pass rate was 100% and the mean grade point was 3.75. Final grades ranged from 72.36 to 91.90. This relatively narrow, upper-skewed range is typical of postgraduate classes made up of motivated professionals, but it also limits the variance available for correlational analysis, which should be kept in mind when interpreting the coefficients reported below.

Table 3. Distribution of letter grades

Letter grade	Score range	Grade point	Students (n)	Percentage	Predicate
A	≥ 85.00	4.00	14	48.28	Excellent
A-	80.00–84.99	3.75	9	31.03	Very good
B+	75.00–79.99	3.25	4	13.79	Good
B	70.00–74.99	3.00	2	6.90	Satisfactory
C	< 70.00	2.00	0	0.00	Fail
Total			**29**	**100.00**	**Pass rate 100%**

Predicates are English renderings of the university's grading categories.

3.2 Attendance and academic achievement

Students attended a mean of 13.4 of the 14 teaching sessions (95.57%). Eighteen students (62.07%) attended every session, six attended 13, three attended 12 and two attended 11. Attendance correlated very strongly with the final grade ($r = 0.902$; $p < 0.001$). Part of this coefficient reflects the 10% weight of attendance in the final grade. However, the correlation between attendance and the mean of the three academic components, which excludes attendance, remained strong (Pearson $r = 0.874$; Spearman $\rho = 0.844$; both $p < 0.001$). Attendance therefore accounted for about 76% of the variance in academic performance independently of its contribution to the grading formula.

Fig. 1 shows a monotonic pattern: the mean academic score was 85.69 among students who attended every session, 79.94 among those who attended 13, 74.89 among those who attended 12, and 72.50 among those who attended 11.

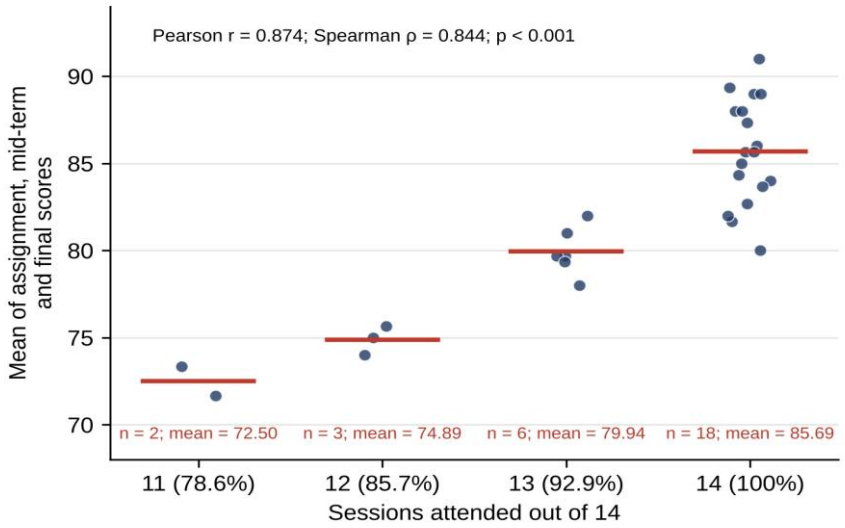


Fig. 1. Mean academic score (assignment, mid-term and final) by number of sessions attended (n = 29). Red bars indicate group means.

These results are consistent with the meta-analytic evidence that attendance is among the strongest predictors of grades [27] and with field evidence from management and economics students [29,32]. The coefficient observed here is larger than the pooled meta-analytic estimate. Two features of the course may explain this. First, in the second phase, learning took place largely through in-class group case analysis and presentation, so missing a session meant missing part of the learning activity itself rather than content that could be recovered from slides. Second, attendance in a course of this kind is plausibly a marker of broader behavioral engagement [34], which also drives the quality of group work and project output. Because attendance was not experimentally manipulated, the association may also reflect unobserved factors such as motivation or workload, as panel studies have shown [30]. Even so, the strength and consistency of the pattern justify treating attendance as an early-warning indicator for students at risk of underperforming.

3.3 Relationships among assessment components

Table 4 presents the Pearson correlation matrix. All coefficients were positive, very strong ($r \geq 0.81$) and significant at $p < 0.001$. Among the components, the assignment score had the highest correlation with the final grade ($r = 0.984$), followed by the final project ($r = 0.973$), the mid-term examination ($r = 0.947$) and attendance ($r = 0.902$). The correlation between the case-based assignment and the final project was also very high ($r = 0.967$).

Table 4. Pearson correlation matrix of assessment components (n = 29)

Variable	Attendance	Assignment	Mid-term	Final project	Final grade
Attendance	1				
Assignment	0.856	1			
Mid-term	0.811	0.906	1		
Final project	0.877	0.967	0.861	1	
Final grade	0.902	0.984	0.947	0.973	1

All coefficients are significant at p < 0.001 (two-tailed).

Two interpretations of these coefficients are possible. On the one hand, the strong agreement between the two case-based assessments suggests that the rubrics used by the lecturer were applied consistently and measured a coherent applied competence. On the other hand, correlations this high indicate

that the two instruments may be measuring nearly the same construct, which reduces the diagnostic value of having separate assessments. For future offerings, the assessment rubric could be refined so that each task targets a distinct CLO, in line with the principle of constructive alignment [37]. The component–final grade coefficients should not be read as evidence of validity in themselves, because each component contributes 10–30% of the final grade.

3.4 Comparison of scores before and after the case-based phase

The mid-term examination measured achievement at the end of the theory-focused first phase, whereas the final project measured achievement after the case-based phase. Table 5 reports the paired comparisons. The mean final project score (82.76) was significantly higher than the mean mid-term score (81.03), a difference of 1.72 points ($t(28) = 3.27$; $p = 0.003$; Wilcoxon $p = 0.004$), with a medium effect size ($dz = 0.61$). As Fig. 2 shows, 19 students (65.52%) improved, two obtained the same score, and eight scored lower. The number of students scoring 80 or above rose from 17 on the mid-term to 21 on the final project. The assignment score, which was also case-based, exceeded both the mid-term score (difference 2.59; $dz = 1.10$) and the final project score (difference 0.86; $dz = 0.62$).

Table 5. Paired comparisons between assessment components (n = 29)

Comparison	Mean difference	t(28)	p	Wilcoxon p	dz	Effect
Final – Mid-term	+1.72	3.27	0.003	0.004	0.61	Medium
Assignment – Mid-term	+2.59	5.92	< 0.001	< 0.001	1.10	Large
Assignment – Final	+0.86	3.36	0.002	0.004	0.62	Medium

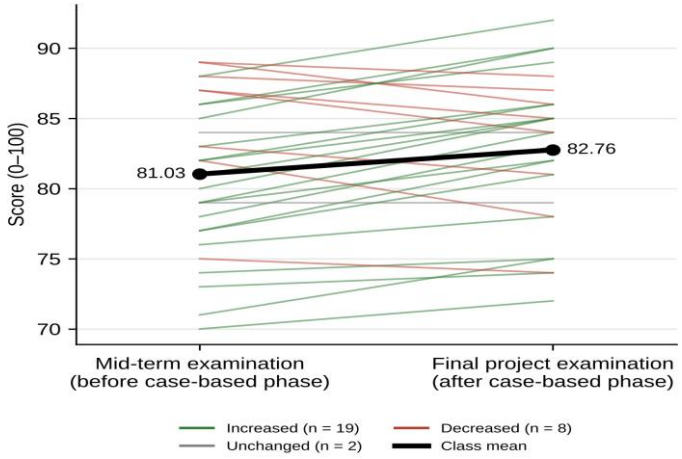


Fig. 2. Individual mid-term and final project scores (n = 29). Lines connect each student's two scores; the black line shows the class mean.

The improvement is consistent with evidence that PBL and CBL are most effective when assessment requires the application of knowledge to realistic situations [9] and with reports that graduate management students find problem-based courses more effective in linking theory to practice [15]. Indonesian studies report similar gains in economics and accounting courses [16,19]. For working professionals, analyzing performance indicators in their own work units gives the material immediate relevance, which adult learning theory identifies as a key source of motivation [22]. The finding should nevertheless be interpreted with caution. The mid-term examination and the final project differed in format (individual written examination versus group project), there was no comparison group, and group projects may compress individual differences. The increase is therefore best read as an initial indication that students performed better on case-based assessment after case-based instruction, not as a causal estimate of the effect of CBL.

3.5 Attainment of course learning outcomes

Table 6 shows that all four CLOs were attained, with mean scores above 80. The highest attainment was found for CLO-2 (design of instruments based on key performance indicators and the balanced scorecard; 83.62) and CLO-4 (performance evaluation project for a real organization; 82.76), both assessed through case-based tasks. The lowest, although still above the threshold, was CLO-1 (theoretical mastery; 81.03). This pattern is consistent with constructive alignment: applied outcomes were attained best where both the learning activities and the assessment were case-based [37,38].

Table 6. Attainment of course learning outcomes

Code	Course learning outcome	Assessment basis	Mean score	Status
CLO-1	Mastery of human resource planning theory and performance regulation	Quizzes and mid-term examination	81.03	Attained
CLO-2	Design of performance evaluation instruments based on key performance indicators and the balanced scorecard	Case-based assignments	83.62	Attained
CLO-3	Mitigation of rating bias and audit of employee appraisal systems	Mid-term case items and discussion	82.15*	Attained
CLO-4	Project report evaluating the performance of a real organization	Final group project	82.76	Attained

*Attainment threshold: mean score ≥ 80.00. *Taken from the lecturer's course portfolio.*

3.6 Discussion

Taken together, the results support three conclusions about the course. First, case-based learning appears well suited to postgraduate management students who are already working. Achievement was highest on the components assessed through real cases, and scores improved between the theory-based mid-term and the case-based final project. This agrees with international evidence on PBL and CBL [7,8,12] and with Indonesian studies in economics and business education [17-19]. It also responds to national policy that promotes the case method and team-based projects as indicators of learning quality [4].

Second, attendance remains a powerful correlate of achievement even in a postgraduate class in which almost everyone attended regularly. The difference of more than 13 points in mean academic score between students who attended every session and those who attended 11 sessions is substantial in practical terms. When learning is organized around in-class group analysis, attendance becomes a precondition for participation, which may explain why the association observed here exceeds the meta-analytic average [27]. Programs may therefore benefit from retaining minimum attendance requirements and from monitoring attendance as an early indicator of disengagement [33].

Third, the analysis illustrates how routinely collected academic records can serve outcome-based quality assurance. With a modest amount of verification, the records allowed a description of achievement, an evaluation of CLO attainment and an initial test of a change in teaching method. The verification step itself proved valuable: four recorded final grades did not match the weighting formula, and one letter grade had to be corrected. Systematic recomputation of grades from their components is therefore recommended before records are used for evaluation or publication.

The findings also have implications for teaching performance appraisal itself. Research on performance management emphasizes that appraisal systems succeed when they are perceived as fair, are linked to clear goals and are embedded in a supportive culture [24-26]. Asking students to design indicator matrices for their own work units exposes them to exactly these issues, including the difficulty of choosing measurable indicators and the risk of rating bias. Learning through such authentic tasks is likely to transfer to the workplace more readily than learning through lectures alone [14].

For study program managers, the results suggest several practical steps. Courses with a strong applied orientation could introduce case-based tasks from the first weeks rather than only after the mid-term examination, so that students practice applying concepts while they are learning them. Assessment plans could map each task explicitly to one learning outcome and use analytic rubrics that distinguish conceptual accuracy, quality of analysis and feasibility of recommendations. Attendance data, which are already recorded in the academic information system, could be reviewed at mid-semester to identify students whose attendance is falling and to offer them support before the final project. Finally, the verification procedure used in this study, in which every final grade was recomputed from its components, could be built into the routine grade-finalization process.

Several limitations should be acknowledged. The sample consisted of a single class of 29 students, which limits generalization. The retrospective single-group design does not allow causal attribution of the score increase to CBL. The mid-term and final examinations used different formats. The narrow range of grades reduced variance. The component–final grade correlations are inflated by the part–whole relationship, which is why the attendance analysis was repeated using a measure that excludes attendance. Finally, the CLO-3 score was taken from the lecturer's portfolio rather than computed from the component data. Future research should use quasi-experimental designs with comparison classes, equivalent pre- and post-test instruments, multiple classes or semesters, and measures of motivation and workload, so that the effects of CBL and of attendance can be separated more rigorously.

IV. CONCLUSION

This study examined the complete academic records of 29 Master of Management students in a course on human resource performance planning and appraisal whose second half was taught through case-based and problem-based learning. Achievement was high: the mean final grade was 83.78, the mean grade point was 3.75, 48.28% of students obtained an A, and all students passed. Attendance averaged 95.57% and was strongly associated with academic performance, even after its weight in the final grade was removed ($r = 0.874$; $\rho = 0.844$). Scores on the case-based final project were significantly higher than mid-term scores (difference 1.72 points; $p = 0.003$; medium effect), and all four course learning outcomes were attained, with the highest attainment on outcomes assessed through case-based tasks. These findings indicate that case-based learning is well suited to working postgraduate students and that attendance is a valuable indicator of engagement. Lecturers are encouraged to adopt case-based designs earlier in the semester and to refine rubrics so that each assessment targets a distinct learning outcome. Study programs are encouraged to recompute grades from their components before using records for evaluation. Quasi-experimental studies with comparison groups are needed to establish causal effects.

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