JURNAL AKADEMIK

INSTITUT TEKNOLOGI MARA CAWANGAN SARAWAK

EVALUATING EFFECTIVENESS OF TEACHING
by
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Introduction

Institut Teknologi Mara is going to introduce a new system of evaluation for its academic staff effective 1989. The annual evaluation programme evaluates basically the following areas of an academic staff member:

* Effectiveness of Teaching
* Social Commitment
* Research and Publication
* Administrative Responsibilities
* Personality

An academic staff member, therefore is expected to perform the roles of a lecturer, educator, researcher, administrator as well as providing a model of exemplary personality.

After the evaluation the staff member is assigned a number on an arbitrary scale of 1 to 15 with 1 being least satisfactory and 15 being most satisfactory. The performance status of the staff may be regarded as unsatisfactory (tidak memuaskan) or excellent (cemerlang), from one end of the scale to the other, depending on the score on the scale in terms of the areas under evaluation.

THE PURPOSE OF THIS PAPER

This paper intends to describe and propose a method with which the effectiveness of teaching may be measured. This, however, does not exclude other alternatives or means of evaluation when what is described and proposed may be impracticable or inapplicable.

The annual evaluation is a difficult and challenging process as Mr. Abdul Rahman Deen, the Deputy Principal of ITM Cawangan Sarawak, commented at an academic meeting recently. Nevertheless, a reliable, objective and valid tool of measurement will not only ensure a fair evaluation but also expedite the tedious process.

SOME ASSUMPTIONS

Teaching activities may be carried out within a specified length of time at a specific place based on a specific syllabus. If these activities do not produce positive results (improvement over the previous learning outcomes), we may say that the teaching of the staff concerned has not been effective. On the contrary, if these activities yield desired results which are immediately measurable or obtainable, we may say that the teaching has been effective. 'Result' here means grades or grade points or marks awarded to a learner as a result of a test or examination after he/she has gone through the said teaching activities. In fact, the assumption is that effectiveness of teaching should be reflected in the student's learning or the ultimate performance or behaviour of the learner. Therefore, an evaluation of the learner's immediate performance or competence becomes an evaluation of the effectiveness of teaching of the academic staff member. Consequently, the better the learner performs, the more effective the teaching is.

How can we say confidently that the particular groups of learners under evaluation are at par or equally knowledgeable or have reached a similar level of competency before joining a new programme? This may be ascertained by administering a placement test before joining the programme so that their results may be recorded for comparison later after the end of the teaching activities.

AN ANALOGY

Here is a story. Ahmad was assigned coach X, and Sazali coach Y. Before these trainees started their training programmes, they were asked to run a 100-metre race. Ahmad finished it in 14 seconds while Sazali clocked a time of 16 seconds. Their results indicated that both were qualified to take up the second part of the training programme. Then each trainee underwent a programme under his respective coaches. After the end of the same length of coaching, the two trainees met and competed again in a 100-metre race. Their results were taken. Ahmad's result remained the same while Sazali's result improved by 1 second. Suppose the minimum requirement for a pass after the second part of the training is 14 seconds. In other words, Ahmad managed to get through, though not too comfortably whereas Sazali was left behind. Here is a dilemma for an evaluator who is given the task of evaluating the performance of coaches X and Y. If Ahmad's and Sazali's results taken at the end of the second part of the training programme are compared, coach X should be considered a better coach even though there is no improvement in his trainee's performance. However, if the trainees' results before and after the second programme are compared, it is obvious that Y's learner has improved his performance. Accordingly, coach Y should be assigned a higher score on the scale.

Do you agree that coach Y is a better one and that his coaching is more effective? If you do agree with this conclusion, please read on.

A REAL CASE

Lecturers X and Y were each given a group of students to teach according to the syllabus for a course called 'ADV.' They worked under the same conditions and constraints: same work load, same time-table, same texts, same block of building. Both groups had already taken a common pre-requisite course called 'ELE.' Grade points for both 'ELE' and 'ADV' for X and Y groups were obtained and are shown in figures 1 and 2 respectively.

As their examination/test papers had undergone centralized marking, we may conclude that these scores reflect the collective and objective opinion of the lecturers involved in the marking. That is: these scores reflect genuinely the specific ability or skill or area of knowledge of the learners at the end of 'ELE' programme (or the beginning of 'ADV' programme) and at the end of 'ADV' programme.

Figure 1   X Group Performance

Student	School & Part	'ELE' Score	'ADV' Score	Improvement (+) or Deterioration (−) of performance
X1	* DBS III	1.67	2.00	+0.33
X2	"	1.33	2.33	+1.00
X4	"	3.00	2.00	−1.00
X5	"	2.33	1.67	−0.67
X6	"	2.33	2.33	+0.00
X7	"	2.33	1.67	−0.67
X8	"	2.33	1.33	−1.00
X9	"	2.33	2.00	−0.33
X10	"	4.00	3.33	−0.67
XII	"	3.00	3.00	+0.00
X12	* DIA III	3.33	3.00	−0.33
X13	"	4.00	4.00	+0.00
X14	"	3.00	2.00	−1.00
X15	"	3.33	3.00	−0.33

Figure 2   Y Group Performance

Student	School & Part	'ELE' Score	'ADV' Score	Improvement (+) or Deterioration (−) of Performance
Y1	* DIA III	3.33	2.33	−1.00
Y2	"	3.00	2.67	−0.33
Y3	"	3.33	2.33	−1.00
Y4	"	3.33	3.33	+0.00
Y5	"	2.67	2.00	−0.67
Y6	"	4.00	3.33	−0.67
Y7	"	3.33	3.00	−0.33

* DBS means Diploma In Business Studies

DIA means Diploma in Accountancy

'ELE' is a simple introductory course. If students fail to master the required skills or acquire the basic knowledge, they will face serious problems in the ensueing year and throughout their study life in ITM. Can we say that those who have scored a grade point 2.67 can be considered to have mastered the skills or acquired the knowledge? We may have to answer with reservation and caution. Perhaps the circular [File No. 100-CS(HEP/ASR)-6/7/1 dated 28 April 1988] from the Principal's office can give us clues to the question. The circular states that effective May '88 examination students who score below 2.5 CGPA will have their facilities (food and hostel) withdrawn. The decision was reached after the meeting held earlier

between the Director and heads of schools and principals of branch campuses. We naturally come to a conclusion that a score of 2.5 is the minimum requirement. Therefore, those whose scores are around 2.5 are 'weak' students.

Compare the 'ELE' scores for X and Y groups. We find that 8 out of 15 (53.33%) from the former scored below 2.5; only 1 out of 7 (14.28%) from the latter scored 2.67 while the rest obtained better scores. Therefore, we may safely conclude that X group students were much weaker than those in Y when they first joined 'ADV.'

'ADV' is a much more difficult course compared to 'ELE.' The difference in the level of difficulty is reflected in 'ADV' scores. Both groups scored rather consistently lower in 'ADV' than in 'ELE.'

Based on the comparative results from figures 1 and 2, the percentage of improvement (+) or deterioration (−) of performance of the learners may be calculated and represented as in figure 3.

Figure 3   Percentage of Improvement (+)
Deterioration (−) of Performance

Type of Performance	Grade Point	X Group	%	Y Group	%	Net Gain % X	Net Gain % Y
Improvement	+1.00	1/15	6.66	0	0	6.66	
	+0.67	Nil	Nil	Nil	Nil	Nil	
	+0.33	1/15	6.66	0	0	6.66	
Maintenance	+0 −	3/15	20	1/7	14.28	5.72	
Deterioration	−0.33	4/15	26.66	2/7	28.57	1.9	
	−0.67	3/15	20	2/7	28.57	8.57	
	−1.00	3/15	20	2/7	28.57	8.57	
Overall Improvement (+) OR Deterioration (−)		−5/15	33.33	−5/7	71.43		
Total			99.98		99.99	38.09	

The marked difference of performance between the two groups can be seen more clearly when their results are presented graphically as in figure 4.

Figure 4   Net Gain of Performance (in %) of X over Y
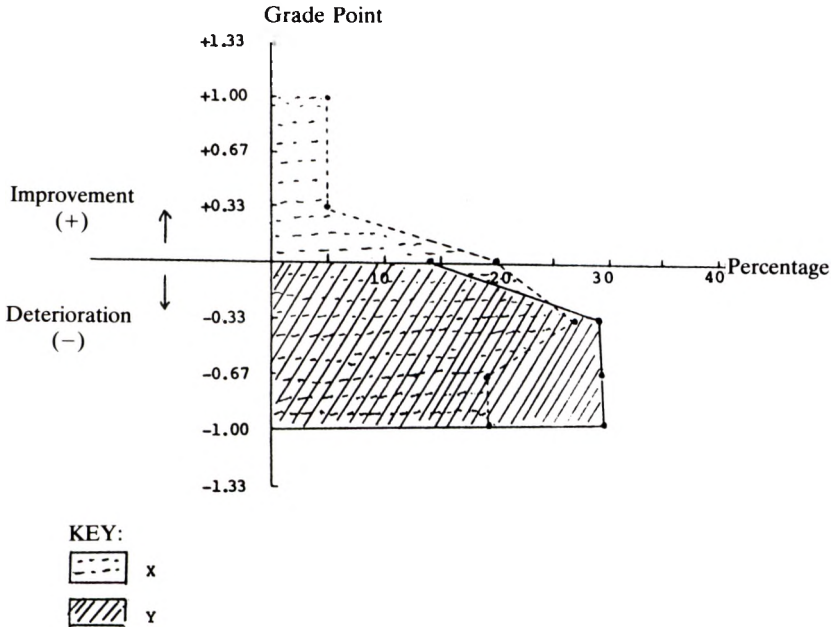
None of the learners from either group has improved or deteriorated by more than +1.33 grade point. However, in group X, 6.66% of the learners have improved their grade point by +1.00 and +0.33 whereas none of group Y learners has shown such improvement. In other words, X learners have shown their performance at least 13.32% better than Y learners.

Similarly, 20% of X's learners are able to maintain their grades in 'ADV' as in 'ELE' whereas only 14.28% of Y's learners manage to do so. The ability to achieve the same score in a more difficult and advanced course as in an easier course should be interpreted as a positive factor. That is to say, X's learners perform 5.72% better than Y's learners in this respect.

Let's turn to the deterioration aspect of the performance of X and Y learners. Y's learners have deteriorated more in their performance than X's learners have. For instance, 28.57% of Y's learners have deteriorated in their performance by −0.33 grade point against 26.66% in group X. Besides, 28.57 of Y's learners have scored lower by −0.67 and −1.00 grade points against 20% from their counterparts. In checking the deterioration of performance, X's learners manage to perform 19.05% better than Y's learners. In short, X's learners have shown an aggregate total of better performance by 38.09% in the three areas.

Y's learners show an overall deterioration of 71.43% while the corresponding figure for X's learners is 33.33%. The **overall outcome of performance** in course 'ADV' over the easier and earlier course 'ELE' of the two groups can be obtained by using this formula:

Percentage of deterioration − (percentage of improvement + percentage of Maintenance)

If the outcome shows a positive figure, it means the group has improved in its overall performance. Therefore, the greater the positive figure is, the greater the improvement. On the contrary, if the outcome shows a negative figure, it means the group has deteriorated in its overall performance. Hence, the greater the negative figure is the greater the deterioration.

Using the formula we get the overall deterioration of performance of X as 33.33%. Similarly Y's deterioration percentage of performance is 71.43. Compare the performance of X and Y, X shows a net again of 38.1% over Y.

Unfortunately, 3 learners in X group are unable to score 2.00 and above whereas all Y's learners manage to do so. Faced with the situation described an evaluator may rate Y's teaching effectiveness as better than that of X. Does Y deserve a higher number than a number for X on a scale of 1 to 15? The evaluation can be valid provided 'ADV' scores are sufficient to genuinely reflect the teaching effectiveness of Y and X. But in the case just described a horizontal comparison of 'ADV' scores can be rather misleading if only X's 'ADV' scores and Y's 'ADV' scores are compared. A more realistic approach to the situation is to consider not only the end behaviour/performance of the learners at the end of the programme but also their behaviour/performance before the start of the programme.

All the analyses above point towards one direction − X's learners have performend more satisfactorily when the results of 'ADV' and 'ELE' for both groups are compared longtitudinally. The better performance of X's learners shown in the three aspects − improvement in results in a more advanced course, ability to maintain the same level of achievement in a more difficult course, ability in checking the deteriorating rate in a course demanding more of a learner — has proved that X's teaching is more effective.

Whether this kind of analysis is present or available at the time of evaluation is crucial to X and Y. If it is available, is it given due consideration and attention when a final judgement is passed? How much weight does or should it carry? In the case discussed, if Y is awarded a score 10, 11 or 12 (considered 'good'), what score should X be given? Should X's score be approximately 38% higher than that of Y? Or conversely, whatever X's score is, should Y's score be 38% lower? Perhaps those who have the same unequivocal belief as I have that X has been more effective in his/her teaching can come up with a formula so that the effort of X is duly recognized.

CONCLUSION

Teaching effectiveness can be measured scientifically though not as accurately and quickly as weighing a durian on a scale. When teaching is seen as influencing and changing a learner's behaviour or performance, teaching effectiveness becomes something observable and measurable in units, figures and percentage. In reality the evaluation of staff's teaching effectiveness is learner-centred besides being behaviour or performance oriented. In arriving at an evaluation judgement for the academic staff the evaluator should keep in mind the end

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behaviour or performance of the learner before he/she joins the programme which is under evaluation. Such procedure is likely to increase the validity, reliability and objectivity of the evaluation. Likewise, having a group of 'weak' or 'poor' learners will be welcome by the staff under evaluation as a chance to prove his/her worth or ability as an ITM lecturer. The evaluation process suggested can be applied to a situation where more than two lecturers are involved provided the required data for comparison and study are present or obtainable. The availability of these data will also enable the lecturers concerned to monitor very closely the progress of their respective learners from time to time so as to adjust or adapt their strategies and methodologies aiming at producing better learning outcomes.

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