Oral Presentations

The Hire-A-Soil Exercise

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Summary: As part of a five-week segment on "Plants and Environment" in a first course in planting design, sophomore landscape architecture students are introduced to the study of landscape soils with this attention-getting exercise, in which students role-play a job interview preparatory to hiring a soil.

Rationale: Landscape architecture (LA) students taking this course typically enter it without the benefit of previous work in soils, unlike the landscape management majors who comprise about 10% of the class. Consequently, we try to introduce the "Plants and Environment" segment at an intuitive level, using analogies and examples that relate to student experience.

The exercise: Hire-a-Soil is a simulation of job interviews, carried out within a two-hour laboratory/studio period, with studio sections of 15 to 20 students. Interviews are planned in groups of four to five students each. Students assume roles of recorder, interviewer, and interviewed soil. After the interviews have been conducted all students briefly critique them, clarifying any points of confusion. Instructor input is minimized at this stage, and held for later class meetings when the subject is discussed in greater depth.

Evaluation: Since instructors do not introduce new subject matter in this exercise, students are encouraged to learn from each other. We are impressed by the collective knowledge and experience that exists in such groups of students, most of whom feel that they know little or nothing on the subject at the outset. After this exercise, students are less fearful of a new subject, more impressed with their starting knowledge, and motivated to learn more as we continue.

Materials: Leader instructions and handout can be obtained by writing from H. L. Flint, Department of Horticulture, Purdue University, West Lafayette, IN 47907.

Purdue University Landscape Architecture 227

Hiring-A-Soil: Instructor's Procedure

1. Divide students into groups of 4 to 5 (four groups in a studio section of 15 to 20 students). Pass out the handout.
2. After students have read the handout, ask each group to elect a RECORDER to keep notes on the group's work.
3. Then ask the members of each group to prepare the interview questions, as described in the handout.
4. When each group nears the end of their list, ask each group to arrange their questions in order for an actual interview, and to decide how it should be conducted.
5. Ask each group to elect an INTERVIEWER, then to elect a SOIL, from among their members.
6. For each interview, assign the interviewer to interview a soil from one of the other groups, so that interviewers do not interview soils with whom they have already worked.
7. By this time, probably 40 to 50 minutes will have elapsed, making this an appropriate time for a BREAK.
8. During the BREAK, set up a small table and two chairs in a front-and-center position in the room, where they can be seen clearly by all students in the section.
9. When students return from BREAK, ask them to observe strong and weak points in each interview and note them for later discussion. Then, carry out the interviews.
10. Following all four interviews, ask the class to suggest orally how each might have been improved.
11. To learn about student attitudes toward and learning from this exercise, ask students, either orally in discussion format or with a simple evaluation instrument (one page maximum) to evaluate the exercise.

OPTIONS: You may find it useful to record the interviews. It is probably best to do this **only with advance consent of the students.** Students, like other people, may feel anxious about the prospect of having their language and actions recorded. Be sensitive, so as not to risk damaging your relationship with the class. If you do record and should encounter unexpected anxiety, it may be best not to play the recordings back. Unless you have a specific reason for doing so, you may find that it is not good use of classroom time to play back -- or for that matter to record.

Project: "Hiring a Soil"
Landscape Architecture 227

You are an employer, a landscape architect.
You employ bricks, and other pavers, for walks and walls.
You employ wood, for decks and other structures.
You employ plants, for many purposes.
You employ soil, to support walks, walls, and structures, and to support plant growth.

You have a job vacancy. Your last soil got a better job in Ohio, gave you two weeks' notice, and will leave March 1.

You need a replacement. You'd like the new soil to be as good as the last one -- even better if possible. You have already advertised the opening. Applications are starting to come in. Several look OK, and it looks as if you can start interviewing candidates right away.

Prepare a schedule of interview questions that you can ask each candidate. Design your questions to reflect the most important skills and capabilities that the successful candidate must have.

Merit Increases -- A Comparative Analysis

Leverne A. Barrett
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Michael Adelaine

The University of Nebraska-Lincoln (UNL) has received a grant from the U.S. Department of Education Fund for the Improvement of Postsecondary Education to address the national concern of rewards for scholarly teaching activity in higher education especially in research oriented universities. The College of Agricultural Sciences and Natural Resources has joined forces with the College of Arts and Sciences at UNL to find appropriate rewards for scholarly teaching.

It is a widely held belief among faculty at UNL and across the United States that teaching is short changed in the decision process when it comes to merit pay, tenure and promotion. To determine if there is any fact to this perception, the College of Agricultural and Natural Resources within the Institute of Agriculture and Natural Resources at UNL made a three-year comparison study of merit pay increases for faculty with split appointments in teaching, research and extension.

Population - The population from which the sample was drawn was all full-time teaching, research and extension appointed faculty (N=460), employed in the Institute of Agriculture and Natural Resources 1987-1989. 1987 was selected as the base year because the state legislature had approved a three-year faculty salary package.

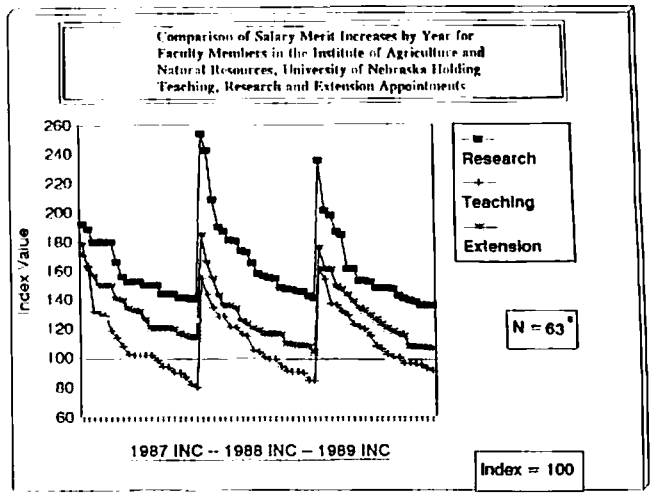
Sample - Determination of the final sample was somewhat complex, given that most faculty have split or joint appointments in at least two divisions of teaching, research and extension. The problem was to identify faculty who had a major portion of their assignment in teaching, research or extension. Therefore, the following formula was used in selecting the sample:

1. To be defined as a researcher the faculty member must hold at least a 20% research appointment, less than a 49% teaching appointment and less than a 40% extension appointment. This formula yielded 89 faculty defined as researchers for this study.
2. A teacher was defined as having an assignment with more than 20% teaching,less than 49% research and less than 40% extension. This resulted in 35 faculty with teaching assignments usable for the study.
3. An extension faculty member was defined as having an appointment of more than 20% extension, less than a 49% in research and in teaching. These combinations yielded 64 persons with extension appointments.

Results

A comparison was made for merit increases by year, from 1987 to 1989 for research, teaching and extension faculty (Figure 1). The original sample was divided into equal parts,

Figure 1 (* Note: Sample was evenly divided, 21 in each category. Index of 100=Average salary of all faculty for 1987 base.)



21 in each category for comparison. An index of 100 was set as the average 1987 base salary for all faculty.

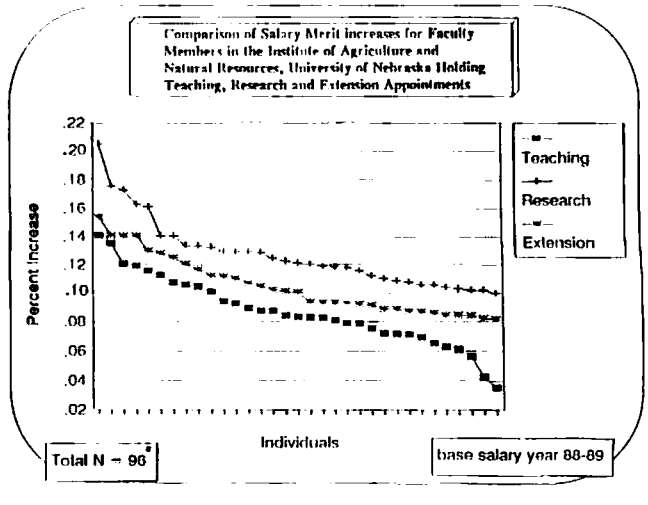
In each year researchers received a higher merit increase than extension and teaching faculty. No researchers or extension faculty in the selected sample fell below the 1987 index for any of the three years. However, in 1987, eight of 21 teaching faculty fell below the 1987 index and five of the 21 fell on the 1987 index, leaving eight above the index. In no case in 1987 did a teaching faculty member receive as much as any researcher or extension personnel.

In 1988, the trend was the same overall, teaching faculty had seven below the index and three at the index, with a high index value of 155 compared to the top researcher index of 255.

The same trend continued in 1989, except that now only eight of 21 teaching faculty fell below the index of 100 with one teacher at a high of 160. The top researcher that year received a merit increase equal to the index of 240, or 180 index points above the highest faculty with a teaching assignment.

Data in Figure 2 is a comparison of an equal number of faculty (31) in teaching, research and extension by percent merit increase for the year 1988-89. The highest researcher

Figure 2 (* Note: Sample was evenly divided, 33 in each category.)



Barrett is an associate professor, Edwards is Dean, College of Agricultural Sciences and Natural Resources, University of Nebraska and Adelaine is an Agricultural Engineering Extension Specialist, South Dakota State University.

received a 20% increase and the lowest 10%. The highest extension person received 15% and a low of 8%. The highest teacher received 14% and a low of 3%.

Sixteen out of 31 extension faculty received an average merit increase lower than the lowest research faculty, however, teaching faculty fared even worse, they had 23 out of 31 who received less than the lowest researcher.

In summary, no matter which way the data was compared, faculty with a high research assignment fared better than extension or teaching faculty with teaching averaging on the bottom for merit increases.

Conclusions

Data in this study indicate that faculty perceptions about rewards for teaching, at least in regard to merit, appear correct. Research faculty on the average received greater salary increases.

There are a number of hypothesis as to why this occurred. Presently with the information that a faculty member presents for evaluations; it is easier to quantify research productivity. Teachers on the other hand usually have only student evaluations of their teaching as evaluation evidence. Another factor that enters the evaluation question is that teaching is not considered to be a scholarly activity as is research. There are many other factors that enter the decision making equation other than these, not to mention institutional values and norms.

Finally teachers need to provide more agreed upon evidence of their teaching effectiveness to decision makers if they are to receive appropriate rewards for scholarly teaching.

Additional studies need to be made as to what is the best combination of assignments for faculty with split appointments in teaching, research and extension.

Using Student Opinion Surveys To Evaluate Teaching

Dale Drees
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Introduction

At the University of Minnesota, Waseca, faculty salary increases are based, in part, on merit. Each year faculty complete a performance review which is evaluated by three administrative directors. The performance reviews are then assigned points based on the quantity and quality of the activities in teaching, disciplined inquiry and service. These points determine the merit dollars which are distributed to faculty. Merit dollars are extremely important to faculty because they are added to base salaries and over a number of years, have a compound effect.

In the teaching section of the performance review, student evaluations of faculty are used to help determine the merit points. This study was developed to:

1. Determine what faculty and course characteristics were perceived important by students and faculty.
2. Determine what are student and faculty opinions regarding the current use of the student opinion survey evaluation forms.

Research Methods

A survey for both students and faculty was developed from surveys used in past studies. Mean scores were calculated and each characteristic was ranked by perceived importance.

The sample consisted of twenty-nine faculty members and 275 students from randomly selected courses. The students responding to the survey had an average of 3.1 grade points, twenty-one years old, and work twelve hours per week.

Results

Listed below are the top ten characteristics students perceived important.

Faculty Rank	Student Rank	Characteristic
3	1	Offers to help students
11	2	The instructor speaks with enthusiasm and not in a monotone voice.
15	3	Workload in the course fits time allotment and credits
1	4	Stresses application of subject matter to "real world".
7	5	Defines new terms.
4	6	Is available to students outside of the classroom.
5	7	Lectures are structured and easy to outline.
12	8	Homework and tests are graded and returned in a timely fashion.
2	9	Emphasizes understanding concepts.
13	10	The instructor builds up students' confidence.

The five bottom characteristics student perceived as important were:

Faculty Rank	Student Rank	Characteristic
20	22	Gives an overview of the lecture before beginning.
26	23	Grades leniently.
22	24	Emphasizes factual knowledge and memorization of facts.
24	25	The instructor is nationally recognized in his field of expertise.
17	26	Classes and lab sessions usually last the full time allotted.

In response to the second objective, students feel:

1. Most of the time other students are fair and accurate in their rating of teachers.
2. Usually instructor's salary level is affected by the results of the student evaluation form.
3. Uncertain if teachers pay any attention to the evaluation forms.
4. The average instructors' ratings and the amount of knowledge acquired by students in the course are moderately-high correlated.

5. Evaluation forms usually provide enough information to the instructor so they can identify students' concerns and improve their teaching.

Faculty feel:

1. Uncertain if students do an accurate and conscientious job of rating faculty.
2. They usually use the student ratings of characteristics in their courses to improve their teaching.
3. The average instructors' ratings and the amount of knowledge acquired by students in the course is moderately negatively correlated.
4. Disagree that the official student course evaluation form used in UMW is adequate for rating instructors and helping improve teaching.

Conclusions

Students and faculty generally agree on characteristics which are important, with the following exceptions.

Students believe it is more important for the teacher to speak with enthusiasm than what the faculty perceived. Students also believe that it is more important for the workload to fit time allotment than what the faculty perceived. Faculty believe that it is more important to emphasize understanding of concepts than what students perceived. Faculty also believe that it is more important that classes and lab sessions last the full allotted time that what the student perceived.

Students and faculty disagree whether the average instructor ratings and the amount of knowledge acquired by the students were correlated. They also disagree whether the official student course evaluation forms used the UMW identifies problems and helps improve teaching.

Factors Influencing Student Ratings Of Faculty and Courses

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Purpose of the study

1. Evaluate influence of class size on student ratings of faculty.
2. Evaluate which teacher and course characteristics are most important in influencing overall teacher and course evaluations.
3. Overall, validity of student evaluations.

Data

The data consisted of 5775 Student Opinion Surveys (Copyright 1980, Measurement Services Center, University of Minnesota) of courses for the quarters: Winter 1989, Spring 1989, Fall 1989 and Winter 1990. These courses were taught at the University of Minnesota, Waseca. The University of Minnesota, Waseca is an open admissions college that provides 2 year programs related to agriculture, rural homes and rural services. In all, 319 courses were evaluated by students. Average course size was 18 students.

Following are the questions that students rated on a 1 to 5 scale (1 = unsatisfactory, 5 = excellent):

(teacher) How would you rate this instructor's teaching?
(course) How would you rate this course?
(learning) How much have you learned in this course?
(clarity) Clarity in presenting or discussing course material.
(rapport) Instructor's rapport with you as a student.
(interest) Instructor's success in getting you interested or involved.
(thinking) Instructor's success in getting you to think.
(attention) Instructor's attention to what helps you learn best.
(feedback) Helpfulness of feedback given you about your performance.
(exams) Overall quality of exams and quizzes.
(test) Overall quality of text(s) and handouts.
(ability) How would you rate your own ability, prior to the course, to deal with the subject matter of this course?
(motivation) How would you rate your own motivation to do as well as you could in this course?
(grades) What have your typical grades been in recent college courses? (1 = Almost all A's, 2 = Mostly A's & B's, 3 = Mostly B's & C's, 5 = Mostly C's or lower)

Methods

The data was analyzed using the Statistical Analysis System (SAS). Partial correlations between variables were calculated from the residual sums of squares using general linear models. The data was analyzed separately using course means (319 observations) and the individual student surveys from Fall 1989 quarter and Winter 1990 quarter (3293 observations).

Results and Discussion: Effect of Class Size

The correlations between course size and mean course ratings were: Teacher -.13, Course -.17, Learning -.15, Clarity -.14, Rapport -.25, Interest -.19, Thinking -.18, Attention -.18, Feedback -.23, Exams -.10, Text -.14, Ability -.11, Motivation -.18, and Grades .12 (correlations of magnitude > .14 are statistically significant at $P < .01$). Course size tended to be negatively correlated with students' ratings characteristics of the teachers and course. Even so, the magnitude of the correlations tended to be relatively small.

To investigate effect of class size further, a model was run with Teacher, Course, and Learning as dependent variables. Independent variables included class size, Ability, Motivation, and Grades. Partial correlations are presented in Table 1. Class size did not effect Teacher, Course or Learning when the students' prior ability, average grades and their own motivation was taken into account. However, the students' own motivation was significantly positively correlated with

Table 1. Partial Correlation between Teacher, Course, and Learning with class size, Ability, Grades and Motivation. (* indicates P < .01)

	Teacher	Course	Learning
Class Size	-.02	-.05	-.04
Ability	-.15*	-.10	-.26*
Grades	.05	-.04	.01
Motivation	.62*	.68	.67*

Table 2. Least Squares Means of Teacher Ratings on Class Size.

Class Size	Teacher Rating
4 - 7	3.85
8 - 11	3.99
12 - 16	3.85
17 - 26	3.88
27 - 36	3.82
> 36	3.90

ratings of Teacher, Course and Learning.

Non-linear effects of class size was investigated using the previous model except that class size was put in as a class variable which broke into six sub-classes. The least squares means in Table 2 do not show any trends and the variable class size was not a significant effect in the model.

Interpretation of these results would indicate that large class sizes can have a slightly negative effect on evaluations. This negative effect can be overcome by using techniques to motivate the students.

Variables that Effect Teacher and Course Ratings and Perception of Amount Learned

The correlations of course averages of Teacher, Course and Learning with teacher and course characteristics are presented in Table 3. The correlations between the rated correlations are due somewhat to the "halo effect". For example, if students think a teacher is terrific, that student will be inclined to rate his/her exams, texts, and other attributes also high. Even so, these correlations are somewhat useful in ranking the importance of these effects. Clarity of presentation, instructors' attention to what helps students learn, and instructors' success in getting students interested ranked higher in importance for teacher ratings than quality of text or exams. Students' prior grades or ability were of lowly correlated.

A general linear model was run to further investigate the relationships between teacher and course characteristics on average Teacher and Course ratings and perceptions of amount Learned. The partial correlations in Table 4 show a ranking similar to the raw correlations. The magnitude of the correlations are much smaller because the model should have removed much of the "halo effect". For Teacher ratings the most important characteristic was again, clarity

Table 3. Unadjusted Correlations of Mean Course Ratings of Teacher, Course, and Amount Learned with Course and Student Characteristics

	Teacher	Course	Learning
Clarity	.92	.81	.79
Attention	.91	.81	.79
Interest	.89	.85	.81
Think	.87	.82	.82
Rapport	.81	.71	.70
Feedback	.79	.74	.68
Text	.78	.76	.72
Exams	.73	.74	.70
Prior	.19	.26	.12
Grades	.03	.03	-.02
Motivation	.63	.71	.65

Table 4. Partial Correlations of Mean Course Ratings of Teacher, Courses, and Amount Learned with Course and Teacher Characteristics. (* indicates P < .01)

	Teacher	Course	Learning
Clarity	.37*	.11*	.11
Attention	.25*	-.00	.03
Think	.23*	.22*	.27*
Interest	.17*	.22*	.14
Exams	.15*	.27*	.24*
Text	.11	.17*	.11
Rapport	.10	-.09	.00
Feedback	-.02	.03	-.11

of presentation. The least important characteristic was the amount of feedback that the student was given.

The four characteristics for course rating was quality of exams, success in getting students to think, success in getting students interested and quality of texts and handouts. Success in getting students to think and quality of exams were the two most important characteristics in influencing the students' perception of how much they had learned.

Table 5. Partial Correlations of Individual Student Ratings of teachers, Courses, and Amount Learned with Course and Teacher Characteristics. (* indicates P < .01)

	Teacher	Course	Learning
Clarity	.34*	.15*	.12*
Think	.14*	.09*	.13*
Interest	.14*	.10*	.15*
Attention	.12*	.08*	.07*
Rapport	.09*	.00	.01
Feedback	.09*	.04	.03
Exams	.07	.09*	.08*
Text	.07	.15*	.05*

The analysis was also run separately using individual student responses rather than course averages. Effects of course was absorbed in the model. Partial correlations are reported in Table 5. Clarity of presentation was an important characteristic for Teacher rating, Course rating and perception of amount learned. Overall rankings were not significantly different than on Table 4 where course averages were used.

Relationship Between Perception of Amount Learned and Teacher and Course Ratings

For this investigation, a model was run using course means of teacher and course ratings as dependent variables. Ability, Motivation and Learning were the independent variables. The perception of amount Learned was highly correlated with Teacher and Course ratings (Table 6). A students' own motivation and prior ability were also posi-

Table 6. Partial Correlations of Mean Course Ratings of Teachers and Courses with Prior Ability, Students' Motivation and Amount Learned. (* indicates P < .01)

	Teacher	Course
Prior Ability	.07	.18*
Students' Motivation	.15*	.26*
Amount Learned	.71*	.78*

tively correlated with the dependent variables but to a lesser extent.

Conclusions

1. There may be a slight negative correlation between class size and Teacher and Course ratings.
2. There are many characteristics that influence Teacher and Course ratings. Overall Clarity of presentation tended to be most important in this study.
3. Student ratings of Faculty and Courses must be interpreted carefully because of the many characteristics they are measuring.

Evaluation of Teaching/Programs

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Webster defines *evaluate* as: to judge or determine the significance, worth, or quality of; to assess or to appraise. In the context of teaching, we are asked to evaluate: 1) teaching and teaching methods, 2) student performance (grades, testing, exams, etc.) and 3) programs and learnings. This discussion focused on 1) and 3).

Evaluation of Teaching and Methods

Accepted Premises of Evaluation of Teaching

In any discussion of evaluation of teaching, we can all probably agree with the following.

1. Excellence in teaching is becoming increasingly important in promotion, tenure and merit decisions. Teachers are being challenged to account for their stewardship in the classroom.
2. Measurement of quality of teaching is complex because teaching is a complex activity. Difficulty of measurement, however, cannot be an excuse.
3. There appears to be widespread dissatisfaction among faculty with the evaluation of teaching -- particularly where undue emphasis is placed on student evaluations.
4. Whether or not teaching can be accurately evaluated is not relevant. We must evaluate teaching. Administrators must, and do, make decisions about quality of teaching.

Purposes of Teacher Evaluation

Evaluation of teaching serves many purposes; the primary ones being:

1. Assist and encourage individuals to improve as instructors.
2. Provide information to colleagues and addministrators for decisions about promotion, tenure, and salary adjustments.
3. Provide information to students for course selection. This has not been very effective since the information is often too terse and incomplete.
4. Provide information to colleagures involved in course and curriculum development. The focus here is on course evaluation rather than evaluaiton of instruction. This is crucial, however, for courses which are prerequisite or part of a series of courses. Much of the information collected for improvement is appropriate for curriculum evaluation.

Historically, the purpose of teacher evaluation has focused on 1) and 2).

Methods of Teacher Evaluation

Approaches used in evaluating teaching include:

1. *Student Evaluation*: There appears to be widespread disenchangment among faculty members with student evaluation of university teaching. Reasons given for distrust of student evaluations usually fall into the following categories:
   a. Use or misuse of student evaluations by administrators.
   b. Focus of student evaluation is generally on teaching performance rather than on the basis of what students learn.
   c. Lack of confidence in the reliability of student evaluations.
2. *Peer Review*: Concerns most often expressed about peer review of teaching center around the evaluator's personality, biases and qualifications. A one-time review is not always reliable because it does not take into account that the instructor had a good or bad day. Also, for fear of retribution, there may be some reluctance to be as critical as needed. A criticism of the peer review is that it tends to evaluate the input, or resources, going into teaching rather than the output, or learning.
3. *Mid-Semester Review*: Since the evaluation is by students, the approach is subject to the same criticisms as the student evaluation approach. Students are likely to have different ratings depending on their GPA, major, and whether the course is required. Also, the mid-semester review evaluates the input, or resources, going into the teaching process and not the output learning. However, from the instructor's standpoint, it does provide an opportunity for mid-term changes.
4. *Criterion Referenced Instruction (Evaluation)*: Criterion referenced testing determines how well the teaching process has contributed to learning, based upon a set of instructional objectives. Thus, it attempts to measure output, or student learning.
5. *Teaching Portfolio*: This is a relatively new technique consisting of a collection of materials documenting classroom performance. Documentation includes: courses taught, enrollments and distribution of student grades, course syllabus, teaching philosophy, materials to show extent of student learnings, student evaluations, videotape of teaching a class, statements from colleagues, and miscellaneous materials (letters from former students, awards, honors, contributions to professional journals on teaching, etc.)

Concluding Comment on Evaluation of Teaching

Multiple perspectives are important in evaluation of teaching. Information collected from a number of sources and by a variety of methods, each reflecting a diversity or criteria, *is*

(BECK continued on next page.)