

significant differences are what one would expect. One might question whether significant differences in salaries between most colleges and between sexes should exist.

The fact that 12-month least square mean salaries are significantly higher than 9-month least square mean salaries does **not** mean that all is well in the relationship between appointment types. Dividing these salaries by the appropriate number of months to reflect days worked, nine and 12, shows 9-month appointments earning about \$165 per month more than 12-month type appointments.

Other Results

Total incomes to University of Wyoming faculty (excluding administrators) were ranked in order from highest to lowest salary. Of the top 25 salaries, 21 were received by individuals on 9-month appointments. Nineteen of these 21 individuals received a substantial summer income which pushed their total salaries upward. Eighty percent of the top 50 total salaries were received by 9-month personnel.

When faculty contractual salaries were ranked, 12 of the top 25 salaries were received by 9-month individuals. Fifty percent of the top 50 contractual salaries were received by faculty on 9-month appointments.

Conclusions

Within most colleges noticeable salary differences between 9- and 12-month appointments are not apparent. However, based on number of days worked, evidence indicates salary discrimination against 12-month faculty among colleges. Mean contractual salaries in many instances were lower for 12-month faculty than for comparably ranked and trained faculty on 9-month appointments in other colleges. When salaries for 12-month appointments were adjusted to a 9-month basis, College of Agriculture faculty salaries were lower than 9-month salaries in all other colleges for all ranks except instructor.

Statistically significant salary differences between colleges were found. Salaries in Commerce and Industry, Engineering, Law, and Education were all significantly higher than salaries in the other three colleges and Adult Education.

Female faculty members received significantly lower salaries than their male counterparts. The women faculty members also had more years in service and in rank at all ranks, except instructor, than did male faculty members.

References

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Does Laboratory Reinforcement Result in Greater Learning?

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Abstract

A one-time study indicates no benefit to learning by a laboratory conducted on a grade contract basis.

As educators at The Ohio State University, we were curious as to whether or not a laboratory supplement to a course resulted in a greater gain in knowledge of the lab participants. The course in question was an introductory lecture course for non-majors in the landscape horticulture curriculum. Being broad in its educational scope, it had wide appeal across the various colleges on the Ohio State campus.

The course had been taught as a lecture only for the past 6 years, with continuous evaluation and feedback from the students resulting in an updating and some minor revision. Lately, students indicated a desire for a practical lab supplement to more clearly objectify some of the principles discussed in the lecture.

Based on this student feedback, a laboratory section was established which gave the students an opportunity to practice some of the concepts discussed in the lecture. The lab was run on a grade contract basis. Students receive a detailed course outline at the start. Based on the depth of their interests and available time, students contract for an A, B or C. Contracts eliminated the usual testing pattern.

The Hypothesis

Van Dalen's (2) believes timely and relevant experiences can lead to educational reinforcement. Therefore, the hypothesis was established that those students who augmented the lecture with a lab section would significantly out-perform other students on a standard post-course test.

Classroom vs Laboratory

Class size has increased. The first class had 32 students, but currently, quarterly enrollments range from 200-300 students. Finding a room large enough to accommodate the students is the main lecture problem. The lectures relied heavily on the use of 35 mm slides to

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present the subject matter which ranges from landscape design and pruning principles, to flower and vegetable gardening (Figure 1). The students in the lecture classes were administered the pre-test on the first day of class, the normal subject matter taught and tested throughout the quarter, and the same test as the post-test was administered on the last day of class.

Figure 1 Summary of Subject Matter Covered in Lectures

1. Horticultural History and Edible Ornamentals
2. Landscape Plant Selection
3. Landscape Design Principles, Aesthetic and Functional Plant Use
4. Basic Soil Management, Fertilizers, Lawn Establishment
5. Property Maintenance — Pruning, Weed, Insect and Disease Control
6. Home Propagation Techniques
7. Vegetable Gardening, Flower Gardening, House Plant Selection and Care

The laboratory section was limited to the first 30 students who signed up, due to limited facilities. This gave us two groups of students in the lab, those who were previously enrolled in the lecture, and those who were currently enrolled in the lecture. The students were administered a pre-test on the first day of lab, and were given the same exam as a post-test on the last day of the lab sessions. Throughout the quarter, students completed work on their projects for credit toward their contracted grade. Projects were based on their lab experiences in developing a landscape design, pruning practices, and plant propagation. Laboratory students received no testing or quizzing.

Results of the Study

Pre-test and post-test scores were compared for the lecture and the lecture plus the laboratory groups. The results did not show the differences which were anticipated (See Table 1 and Table 2). It was assumed that students participating in the laboratory section as well as the lecture would, as a result of the practical reinforcement obtained in the laboratory section, perform significantly better than those students enrolled in the lectures only. While both groups showed an increase in post-test

Table 2. Adjusted Means for Table 1

Group	Number of Students	Pre-test Mean	Post-test Mean	Adjusted Post-test Mean
Currently Enrolled Lab Students	22	12.6	16.9	16.9
Lecture Students	66	12.6	17.5	17.5

scores, there was no appreciable difference in the scores gained between the two groups. This lack of difference may be partially explained by the following factors.

1. The tests may include items related primarily to what was taught in lecture rather than activities and experiences in the laboratory.
2. Student heterogeneity — the instructors lacked the control to exercise direction of who should or should not enroll.
3. Unusually poor weather during the spring quarter of 1973 hampered many outdoor activities that were scheduled for the laboratory.
4. The instructors' experience at teaching the lecture. The lecture had evolved over a 6-year period, while the laboratory was under development for less than a year.

Conclusions

The proposed hypothesis of the lecture and lab students out-performing the lecture-only students with a post-test as the dependent variable is not supported with this work. The students in the lecture only had the advantage of random selection from a large and heterogeneous student group. The lecture students also had the advantage of a practice effect in taking the exams during the quarter which were similar in make-up to the pre- and post-test.

It is our conviction that Van Dalen's hypothesis can be supported, if a proper testing instrument can be developed which would effectively measure gains in knowledge through lectures and laboratory experiences. It is also contended that a time-series study would effectively lead to results which would support the hypothesis.

References

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Table 1 Pre-test and Post-test Results.

Analysis of Covariance For the Currently Enrolled Lab Students and Randomly Selected Lecture Students. Post-test Score is the Dependent Variable.

Source	Adjusted SS	DF	Adjusted MS	F
Treatment (Between)	4.6997	1	4.6997	0.889(NS) ^a
Error Within	444.3018	85	5.2271	
Total		86		

^aNS - Not Statistically significant at the .05 level. The proposed hypothesis is not supported.