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ABSTRACT

The study determined the General Botany students' laboratory performance using inquiry-oriented laboratory activities and traditional laboratory activities in terms of acquired laboratory skills and scientific attitudes. It also determined the student factors (specifically gender, high school science rating, and laboratory-related personal traits) related to laboratory performance and selected scientific attitudes.

The study sample consisted of 36 General Botany students of the University of Nueva Caceres, divided into 18 students for the experimental group and 18 students for the control group. A pretest-posttest quasi-experimental design was employed to determine the laboratory performance of the experimental and control groups. A laboratory manual on inquiry-oriented laboratory activities developed and used by the experimental group while the control group used the traditional laboratory activities. A 150 points practical test was administered before and after the treatment to assess 12 laboratory skills. A scientific attitudes inventory was constructed and administered to the two groups and before and after the treatment. A laboratory-related personal traits inventory was also constructed and administered to the two groups only before the treatment. Gender and high school science ratings of the respondents were also investigated if related to the laboratory performance and scientific attitudes of the respondents.

Results of the study reveal the following:

1. All the student factors - gender, high school science rating, and laboratory-related personal traits (*i.e.,* organizer, orderly and systematic; patient, persistent and hardworking; creative and innovative; and curious) ---- are not significantly related to (1.1) laboratory performance and (1.2) scientific attitudes of all students in the sample.
2. There is no significant difference in the laboratory performance of the experimental and control groups in the 12 laboratory skills in the pretest scores.
3. There is a significant difference between the pretest and posttest scores of both the experimental and control groups on laboratory performance, implying that both treatments are effective, although the experimental group is much higher.
4. There is a significant difference in the post-test scores between the experimental and control groups on laboratory performance in favor of the former. The gain score of the experimental group is significantly higher than that of the control group, implying that the treatment used with the experimental group is more effective.
5. There is no significant difference in the scientific attitudes pretest scores of the students in the experimental and control groups; the two groups were initially comparable in scientific attitudes.

6. There is a significant difference between the pretest and posttest scores on scientific attitudes of the students in the experimental group but none in the control group. The difference in the gain score is much higher for the experimental group which implies that the treatment for the experimental group was much more successful.
7. There is a significant difference in the scientific attitudes posttest scores of the students in the experimental and control groups in favor of the former. The gain score of the experimental group is significantly higher than that of the control group, implying that the inquiry-oriented laboratory activities helped the students in this group in acquiring scientific attitudes.

This study shows that inquiry-oriented laboratory activities can be performed successfully even in a not-so-well-equipped laboratory room. It also shows that students using the inquiry-oriented laboratory activities do not only acquire much needed laboratory skills but also scientific attitudes which are helpful in coping with the cognitive demands of other science subjects.