

ABSTRACT

Effects of Three Sets of Teaching Strategies and Five Demographic Variables on Selected Rural Jamaican Grade 9 Students' Understanding of Transport and Respiration in Humans

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This study provides valuable information about selected rural Grade 9 Jamaican students' understanding of transport and respiration in humans based on: treatment, posttest self-esteem, posttest attitudes to science, gender, school type and socio-economic background (SEB). The study employed a non-randomised 3x2x2x2x3x3 pretest-posttest research design involving nine experimental groups and two sets of eight comparison groups, with 1182 students and 11 teachers. The data that informed the study included an 80-item transport and respiration in humans multiple choice test (TRHT), 25-item attitudes to science test and a 26-item self-esteem instrument. The students' responses to these instruments were compared based on the treatment received: lecture (L), lecture and teacher-demonstration (LD) and lecture, teacher-demonstration and students' practical work in large groups (LTP), with regards to the afore-mentioned variables. The results indicated that (a) there were no significant differences in the students' pretest attitude or pretest and posttest self-esteem, but the posttest attitudes to biology of the experimental group were significantly better than those of the comparison groups; (b) there were statistically significant school type and treatment differences in the experimental and comparison students' posttest performance on transport and respiration in humans favouring students in the traditional high schools and the experimental group students respectively; gender differences favoured the boys on transport in humans, but there were no significant differences based on their SEB, posttest attitudes to science and posttest self-esteem; (c) there were positive, statistically significant but weak relationships among the students' school type, treatment, and posttest attitudes to science and their performance on transport and respiration in humans, while there were no relationships among the students' gender and SEB. Improvements to the study could be effected with the use of a larger representative sample, structured questions, and an investigation of the effects of other variables on students' understanding of the two concepts.

Keywords: Teaching strategies, science performance, attitudes to science, school type