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ABSTRACT

The Pupil Control Ideology Form (PCI Form) and the Biology Classroom Activity Checklist (BCAC) were used to determine the relationship between teachers' stated pupil control ideology and the extent to which their students reported the use of inquiry methods in the classroom. Data were collected from a stratified random sample of 168 teachers and 2040 of their students. High scores on the PCI Form (indicating a custodial pupil control ideology) showed significant negative correlations with total scores on the BCAC (indicating the use of inquiry methods) and with four of the seven BCAC sub-scales. The use of inquiry methods in the laboratory appeared to be less related to the teacher's pupil control ideology than the use of inquiry methods in other classroom activities. (EB)

A CORRELATION OF BIOLOGY TEACHERS' PUPIL CONTROL IDEOLOGY AND THEIR CLASSROOM TEACHING PRACTICES

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Biologists and science educators, charged with the responsibility for developing an up-to-date biology program for the secondary schools, developed the Biological Sciences Curriculum Study program (BSCS). With this new program, innovative teaching practices and techniques were recommended to achieve the goal of overhauling the content, aims, methods, and essential structure of existing biological science courses.[1] These BSCS recommended teaching practices require an atmosphere of freedom; freedom in which the students are actively engaged in the learning process. The teacher is charged with the responsibility of creating and maintaining an environmental situation in which these innovative teaching practices can succeed.

Willower has indicated that teachers will tend to resist innovative changes in the school program because they are concerned with pupil control.[2] Pupil control problems have been found to play a major part in both the structural and the normative aspects of the school. This means that teachers who are viewed as weak on control have marginal status among their colleagues. Also, teachers are expected to maintain adequate social distance between themselves and pupils, a normative requirement in which teachers

learn and play out a host of correct behaviors toward pupils.[3] This fact is not surprising because the schools have no control in the selection of its clients; therefore, they must adjust to this lack of selectivity.[4]

The literature indicates that some, perhaps many, teachers view the control of students in moralistic terms and feel the need to remain aloof and the center of thought and power in the classroom. A question which may be appropriately raised then is, "How can the practices recommended by BSCS be present, if teachers ridigly control their students?"

Willower, Eidell and Hoy aware of the literature concerning pupil control developed the Pupil Control Ideology Form (PCI) which is an operational measure of the concepts of custodialism and humanism. These concepts provide a way of thinking about educator orientations toward pupil control.[3] It should be pointed out that the PCI is an operational measure of educator ideology, not a measure of actual controlling behaviors employed in the classroom situation.

Kochendorfer and Lee aware of the BSCS recommended teaching practices developed the Biology Classroom Activity Checklist (BCAC). The BCAC is an instrument that utilizes a student report technique for measuring the extent to which classroom practices recommended by the BSCS are being employed by high school biology teachers using various curriculum materials.[5]

Some classroom teaching practices measured by the BCAC appear to be related to teachers' rationale for control of students. Based upon the rationale of the PCI and the BCAC, the following relationship was postulated: Is there a significant correlation between the pupil control ideology of teachers and the extent to which the classroom practices recommended by BSCS are employed in the classroom?

Instrumentation and Design

Two conditions were necessary in order to test the correlation postulated: (1) determine the pupil control ideology of teachers, and (2) determine the classroom practices employed in the classroom.

The Pupil Control Ideology Form (PCI) was used in this study to measure the pupil control ideology of teachers. This instrument, developed by Willower, Eidell and Hoy, consists of twenty items which are scored on a likert-type scale. The range of possible scores are 20 to 100 with the lower scores representing a more humanistic orientation toward pupil control and the higher scores representing a more custodial orientation toward pupil control. The reliability was determined at .91 using the Pearson product-moment correlation and .95 using the Spearman-Brown formula. Validity was determined by judgments of principals concerning the pupil control ideology of their teachers. These judgments were significant at the .01 level of confidence.[3]

The Biology Classroom Activity Checklist (BCAC) was used in this study to measure the classroom teaching practices consistent

with those recommended by BSCS. This instrument consists of fifty-three items written from the viewpoint of the student. Twenty-six items are considered TRUE and twenty-seven are considered FALSE. A positive item which is marked TRUE and a negative item marked FALSE is considered a correct response. The range of responses is 0 to 100 with the higher scores indicating a greater degree of agreement with practices recommended by BSCS. The reliability and validity were determined at .96 and .84, respectively. The BCAC measures seven practices: namely, role of the teacher, student participation, use of curriculum materials, tests, pre-laboratory, laboratory, and post-laboratory.[5]

A sample of sixty-eight (68) biological science teachers, determined by a stratified randomized process, responded to the PCI Form. The first biology class of the day for that teacher responded to the BCAC. A total of 2,040 students completed the BCAC. A mean score for each class on each of the seven variables of the BCAC was calculated; it represented the score for their respective teacher on the variables.

In order to adequately test the hypothesis, there is no significant correlation between the pupil control ideology of teachers and the extent to which classroom teaching practices recommended by BSCS are exhibited in the classroom, a Pearson product-moment correlation was calculated between pupil control ideology and the seven variables of the BCAC.

Findings

The following results were obtained when pupil control ideology was correlated with:

A - Role of the teacher. A correlation coefficient of -.31 was significant at the .01 level of confidence.

B - Student participation. A correlation coefficient of -.25 was significant at the .05 level of confidence.

C - Use of curriculum materials. A correlation coefficient of -.33 was significant at the .01 level of confidence.

D - Tests. A correlation coefficient of -.28 was significant at the .05 level of confidence.

E - Pre-laboratory. A correlation coefficient of -.09 was not significant at the .05 level of confidence.

F - Laboratory. A correlation coefficient of -.14 was not significant at the .05 level of confidence.

G - Post-laboratory. A correlation coefficient of -.22 was not significant at the .05 level of confidence.

A correlation coefficient of -.33 was determined by comparing combined BCAC variables with pupil control ideology. This was found to be significant at the .01 level of confidence and resulted in rejection of the null hypothesis.

Conclusions and Recommendations

The purpose of this study was to allow the investigators to test the null hypothesis that there is no significant correlation between pupil control ideology of teachers and the extent to which classroom teaching practices recommended by BSCS are exhibited in the classroom. The null hypothesis was rejected at the .01 level

of confidence.

In order to report a more complete picture of the study, correlations were determined between pupil control ideology and the seven variables measured by the BCAC. It is interesting to note that on those variables (role of the teacher, student participation, use of curriculum materials, and tests) where the teacher is in a position to play a major role in the teacher-pupil interaction that there was a significant correlation. Based upon the sample, instrumentation and results obtained from statistical analysis, it appears that those teachers who have a more humanistic pupil control ideology exhibit the classroom practices recommended by BSCS to a greater extent than those teachers who have a more custodial pupil control ideology when the teacher is in a position to play a major role in teacher-pupil interaction.

As a result of the correlations completed on the variables of pre-laboratory, laboratory and post-laboratory, it appears that when the teacher is removed from the position of playing a major role in the teacher-pupil interaction there is no significant relationship between pupil control ideology and classroom teaching practices recommended by BSCS. This fact need not be alarming, however, because on these variables the students are actively engaged in the learning situation and the structure of the situation is dependent upon their laboratory procedures and results.

If the results of this study are confirmed using a larger sample public schools should consider in-service programs designed to alleviate

this tendency toward custodialism. Teacher training programs should include activities that would lend to lessen the teachers' concern in this area of rigid control of students.

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