CAUSAL MODELING OF SOCIAL ENVIRONMENT VARIABLES AS DETERMINANTS OF SENIOR SECONDARY SCHOOL STUDENTS’ ATTITUDE TO SCHOOL IN CROSS RIVER STATE, NIGERIA

Henry Ojating
Department of Curriculum and Instructional Technology,
Cross River University of Technology,
Calabar.

Dr. S. W. Bassey
Department of Educational Foundations and Administration,
Cross River University of Technology,
Calabar.

And

Dr. E. Ayang
Department of Curriculum and Instructional Technology,
Cross River University of Technology,
Calabar.

Abstract
The study investigated the causal relationships among some social environment variables and senior secondary school students’ attitude to school in Southern Educational Zone of Cross River State, Nigeria. A five-variable hypothesized model was designed for the purpose of determining the causal links between the independent variables and senior secondary school students’ attitude to school. Two research questions guided the study. A 43-item questionnaire developed by the researcher was administered on 600 senior secondary school students (300 males and 300 females) sampled for the study. Regression analysis and path analysis procedures were utilized to analyze the data collected. The research findings indicated that of the 9 paths in the hypothesized model, 5 were significant at .01 level while 4 paths were not significant. These significant paths then formed the most meaningful model. The results equally indicated that the total direct effects of the predictor variables on attitude to school was 57.89%, while 42.11% was due to indirect effects. These percentages indicate that the four social environment variables exert more of direct effect than indirect effect on senior secondary school students’ attitude to school. The researchers recommended that secondary schools should initiate and exploit the platform of Parent-Teacher Association(PTA) to sensitize parents on the importance and ways of stimulating their wards and children academically. Functional counseling units should be provided in schools to consistently highlight the attitudinal implications of peer influence in learning. Government at all levels should prioritize teacher-retraining schemes as a prelude to enhancing and sustaining professionally acceptable patterns of teacher-student relationship.

Key words: Path analysis, social environment, attitude to school, secondary school students.

Attitude is a disposition to something, person or an idea which shows up in one’s beliefs, feelings or actions. Joshua (2005), referred to it as an organized and enduring set of beliefs and feelings towards some kind of object or situation and a disposition to behave toward it in a particular way. The affective component of attitude as feelings, likes and dislikes.

A student’s level of involvement in school-related talks could be a demonstration of how much he likes or dislikes school. In extreme cases, a negative attitude to school can result in the child out-rightly leaving school on his own or by expulsion. While a positive feeling for school becomes a strong drive for hard work and genuine pursuit of excellence in school performance.

Generally, secondary school students today are noted for manifesting very negative attitude to school. The common notion held is the ‘the end justifies the means’. They have denied the critical essence of hard work in learning and achievement in school subjects. Ekundayo (2010) asserted that personality traits like honesty, hard work, punctuality, self-denial and self-discipline, which are necessary conditions for effective citizenship have disappeared in the secondary schools. Students, these days, appear to be lazy, dishonest and always search for short-cuts to success. Abolade in Omoregie (2005) listed the problems manifested at the secondary school level as examination malpractices, cultism, manifestation of juvenile delinquency, drug abuse and academic incompetence among others.

Many psychologists who have made significant contributions to the understanding of the theory of attitude contend that most attitudes art the products of the individual’s environment. They (e.g., Zimnardo & Leippe, 1991 and Simmons & Maushak, 2001) saw attitude as dispositions that are learned, acquired or experienced within a social context (the environment). This position may not be easily contested because attitudes have been widely defined as people’s dispositions to objects, ideas and other components of their environment which in turn reflect in their beliefs, feelings, thoughts, or actions.

Several studies (e.g., Breakwell & Beardsell, 2002; and Ojating & Eyo, 2010) have linked the learner’s social environment with his/her attitude to school. In this study, however, the researchers are interested in designing and validating a causal model of social environment variables and senior secondary school attitude to school. A causal model, otherwise referred to as ‘path analysis’, is a causal network for understanding relationships among
variables (Babbie, 1986). It is based on regression analysis, but it can provide a more useful graphic picture of relationships among several variables than is possible through other means. Babbie opined that besides diagramming a network of relationships among variables, path analysis also shows the strength of those several relationships. The term ‘path coefficients’ represent the strengths of the relationships between pairs of variables with the effects of all other variables in the model held constant.

Path analysis, according Pedhazur (1982), is a model building technique for studying the direct and indirect effects of variables hypothesized as causes of variables treated as effects. The technique was first developed by Sewall Wright. Path analysis is neither a statistic nor a technique for discovering causes, but a method applied to a causal model hypothesized by the researcher on the basis of knowledge and theoretical considerations. Path analysis combines both quantitative information in causal relations to provide a quantitative interpretation. Path analysis uses multiple correlation and multiple regression as its statistics. The researcher simply designs a hypothesized model of exogenous and endogenous variables. The model so hypothesized is then being tested for significance and meaningfulness.

Several studies have employed causal modeling procedures to critically examine and understand relationships among social environment variables and secondary school learners’ attitude to school. Haladyna, Shaughnessy and Shaughnessy (1983) hypothesized a model in which teacher quality, social-psychological classroom climate, and management-organization, classroom climate were assumed to affect a class’s attitude towards Mathematics and, to a lesser extent, its motivation. Path analysis of data from 28 fourth-grade, 34 seventh-grade, and 38 ninth-grade classes were employed to test the validity of the model. Support was moderately positive at Grade 4 and improved substantially at Grade 7 and 9.

Dorman and Fraser (2008) undertook a study on psychosocial environment and affective outcomes in technology-rich classrooms: testing a causal model. The research investigated classroom environment antecedent variables and student affective outcomes in Australian high schools. The Technology-Rich Outcomes-Focused Learning Environment Inventory (TROFLEI) was used to assess 10 classroom environment dimensions: student cohesiveness, teacher support, involvement, investigation, task orientation, cooperation, equity, differentiation, computer usage and young adult ethos. A sample of 4,146 high school students from Western Australia and Tasmania responded to the TROFLEI and these student outcome measures: attitude to the subject, attitude to computer use and academic efficacy.
Confirmatory factor analysis using LISREL supported the 10 scale a priori structure of the instrument. Structural equation modeling using LISSREL was used to test a postulated model involving antecedent variables, classroom environment and outcomes. The modeling indicated that improving classroom environment has the potential to improve student outcomes, antecedents did not have any significant direct effect on outcomes, and academic efficacy mediated the effect of several classroom environment dimensions on attitude to subject and attitude to computer use.

This study explored the causal network of social environment variables and senior secondary school students’ attitude to school in the Southern Educational Zone of Cross River State.

**Statement of the Problem**

According to McLeod (1992), most studies on cognitive issues conducted in the past excluded affective factors from their considerations due to the profound influence of behaviorism in educational psychology, which had interest in non-cognitive aspects of learning such as beliefs, emotions, attitudes, and motivation. A student manifesting poor attitude to school was never assessed on that basis. Ekundaya (2010) asserts that personality traits like honesty, hard work, punctuality, self-denial and self-discipline, which are necessary conditions for effective citizenship have disappeared in the secondary schools. Students, these days appear to be lazy, dishonest and always search for short-cuts to success. These unhealthy conditions naturally evolve where learners see themselves as “never do well” and unable to achieve any form of success in school students’ attitude to school in the Southern Educational Zone of Cross River State.

**Purpose of the Study**

The study was designed mainly to investigate the causal relationships among some social environment variables (Parental socio-economic status, parental academic stimulation, peer group influence and teacher-student relationship and senior secondary school students’ attitude to school.

**Method**

An ex-post facto design was used for the study. The study covered all the students in the fifteen secondary schools in the southern educational zone of Cross River State. The population comprised all the senior secondary school students in the education zone. Stratified random sampling technique was used to select six hundred students (600) comprising SS1 and SS2 students from the fifteen (15) secondary schools in the five local government areas of the southern educational zone of Cross River State for the study. A self-structured questionnaire developed by the researcher was used for data collection. The questionnaire contained thirty one (31) items which were structured on a 4 – point Likert scale.
ranging from strongly agree (4 points) to the strongly disagree (1 point) and a 7-item check-list for socio-economic status of parents. The questionnaire comprised two (2) main parts – A and B. Part A which sought to elicit personal information on the variables that guide the study was divided into five (5) subsections comprising a total of thirty one (31) items with six (6) items for each of the independent variables except socio-economic status which had 7 items. The dependent variable (interest in school had six (6) items. Validation of the instrument was done by an expert in test and measurement in the University of Calabar. The reliability of the instrument was also established through test-retest which yielded co-efficient values from .50 to .75. Six hundred questionnaires were administered by the researcher to the subjects but five hundred and fifty eight (558) were properly filled, retrieved and used for the analysis. The data obtained were statistically analyzed with multiple correlation analysis, multiple regression analysis and path analysis procedures.

Hypothesized Causal Model Involving Social Environment Variables and Senior Secondary School Students’ Attitude to School

On the basis of theoretical consideration and knowledge, the researcher designed a five-variable hypothesized recursive path model which addressed the linkages among variables in the study. The model, as shown in Figure 1, denotes a one way causal flow between variables and the relations among the variables in the model are linear, additive and causal in line with the basic assumptions of path analysis procedure suggested by Kerlinger (1980) and Pedhazur (1984).

Figure 1: A hypothesized Causal Model of the Four Social Environment Variables and Senior Secondary School Students’ Attitude to School

Key:
X₁ Socio-economic status (SES)
X₂ Parental academic stimulation (PAS)
X₃ Peer group influence (PGI)
X₄ Teacher-student relationship (TSR)
X₅ Attitude to school (ATT)

The structural equations implied in the hypothesized model in figure 1 are:

\[
X₁ = e₁ \\
X₂ = P_{21}X₁ + e₂
\]
\[ X_3 = P_3 X_1 + e_3 \]
\[ X_4 = P_4 X_2 + P_4 X_1 + e_4 \]
\[ X_5 = P_5 X_4 + P_5 X_3 + P_5 X_2 + P_5 X_1 + e_5 \]

The residual variables \( e_1, e_2, e_3, \ldots, e_5 \) in the above equations refer to the effects of variables outside the model that are not accounted for by the independent variables.

**Data Analysis And Results**

The mean scores and standard deviations of subjects on the social environment variables and students’ attitude to school considered in the study are presented in Table 1.

**Table 1: Means and Standard Deviations of Variables in the Study**

<table>
<thead>
<tr>
<th>Variables of the study</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer group influence</td>
<td>558</td>
<td>18.10</td>
<td>3.51</td>
</tr>
<tr>
<td>Teacher–student relationship</td>
<td>588</td>
<td>11.41</td>
<td>3.42</td>
</tr>
<tr>
<td>Parental academic stimulation</td>
<td>588</td>
<td>19.27</td>
<td>3.42</td>
</tr>
<tr>
<td>Socio-economic status</td>
<td>588</td>
<td>17.83</td>
<td>4.17</td>
</tr>
<tr>
<td>Attitude to School</td>
<td>588</td>
<td>18.10</td>
<td>3.34</td>
</tr>
</tbody>
</table>

The result in Table one (1) shows that the mean scores for the independent variables peer group influence, teacher-student relationship, parental academic stimulation and parent’s socio-economic status range from 11.41 to 19.27, while the standard deviations range from 3.42 to 4.17. The mean and standard deviation of students’ attitude to school stood at 18.10 and 3.34 respectively.

**Presentation of Results**

**Research Question One**

What proportions of the total effects of the four social environment variables on students’ attitude to school are direct and indirect?

To answer this research question, we first derive the total effects representing values of the zero-order correlation between each of the social environment variables and senior secondary school students’ attitude to school. The direct effects are the standardized regression weights from the predictive equations in the recursive model. These standardized regression weights are clearly shown in Table 3 which summarizes the relative contributions of each predictor variable to senior secondary school students’ attitude to school. The indirect effects represent the difference between these Pearson’s (or zero-order) correlation coefficients and the standardized weights.
Table 2: Proportions of the Total Effects of the Predictors of Students’ Attitude to School that Are Direct and Indirect

<table>
<thead>
<tr>
<th>Variables</th>
<th>Total Effect</th>
<th>Direct effects</th>
<th>Indirect effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>X1 (SES)</td>
<td>0.18</td>
<td>.002</td>
<td>.016</td>
</tr>
<tr>
<td>X2 (PAS)</td>
<td>.415</td>
<td>.329*</td>
<td>.122</td>
</tr>
<tr>
<td>X3 (PGI)</td>
<td>.298</td>
<td>.150*</td>
<td>.148</td>
</tr>
<tr>
<td>X4 (TSR)</td>
<td>.354</td>
<td>.168*</td>
<td>.472</td>
</tr>
<tr>
<td>Total</td>
<td>1.121</td>
<td>.649</td>
<td>.472</td>
</tr>
<tr>
<td>Percentage (%)</td>
<td>100</td>
<td>57.89</td>
<td>42.11</td>
</tr>
</tbody>
</table>

* = significant at .05 level

Table 2 shows that the proportion of direct effects of the social environment variables on senior secondary school students’ attitude to school stands at 57.89%. The proportion of indirect effects, on the other hand, accounted for 42.11%. These results indicate that the four social environment variables exert more of direct than indirect effect on students’ attitude to school. That is, changes in senior secondary school students’ attitude to school could be more easily achieved through direct means when the same social environment variables are taken into consideration and used for the same purpose.

Table 3: Summary of Multiple Regression Analysis of the Relative Contributions of the Individual Social Environment Variable to the Prediction of Students’ Attitude to School

<table>
<thead>
<tr>
<th>Variables</th>
<th>Unstandardized Regression Weights</th>
<th>Standardized Regression Weights</th>
<th>SEb</th>
<th>t-ratio</th>
<th>P-level</th>
</tr>
</thead>
<tbody>
<tr>
<td>(PGI)</td>
<td>.143</td>
<td>.150</td>
<td>.037</td>
<td>3.836</td>
<td>.000*</td>
</tr>
<tr>
<td>(TSR)</td>
<td>.164</td>
<td>.168</td>
<td>.041</td>
<td>4.040</td>
<td>.000*</td>
</tr>
<tr>
<td>(PAS)</td>
<td>.322</td>
<td>.329</td>
<td>.041</td>
<td>7.795</td>
<td>.000*</td>
</tr>
<tr>
<td>(SES)</td>
<td>.00126</td>
<td>.002</td>
<td>.030</td>
<td>.043</td>
<td>.966</td>
</tr>
</tbody>
</table>

SEb = Standard error of estimate
* = Significant at .01 probability level
Research Question Two

What are the significant paths in the five-variable model through which the predictor variables determine senior secondary school students’ attitude to school?

Table 4: Shows the Various Path Coefficients in the Recursive Hypothesized Path Model Obtained Through a Series of Regression Analyses from the Original Path Equations. The Coefficients Were Expressed in Beta Weights. Paths with Standardized Coefficients Significant at .01 Probability Level were Retained, Otherwise, They were Trimmed to Obtain a More Parsimonious Model

Table 4: Significant paths through which the Independent Variables Determine Students’ Attitude to School

<table>
<thead>
<tr>
<th>Paths</th>
<th>Paths coefficient</th>
<th>P-level</th>
</tr>
</thead>
<tbody>
<tr>
<td>P_{21}</td>
<td>.029</td>
<td>.496</td>
</tr>
<tr>
<td>P_{31}</td>
<td>.021</td>
<td>.626</td>
</tr>
<tr>
<td>P_{41}</td>
<td>.012</td>
<td>.758</td>
</tr>
<tr>
<td>P_{42}</td>
<td>.446</td>
<td>.000*</td>
</tr>
<tr>
<td>P_{43}</td>
<td>.265</td>
<td>.000*</td>
</tr>
<tr>
<td>P_{51}</td>
<td>.002</td>
<td>.699</td>
</tr>
<tr>
<td>P_{52}</td>
<td>.329</td>
<td>.000*</td>
</tr>
<tr>
<td>P_{53}</td>
<td>.150</td>
<td>.000*</td>
</tr>
<tr>
<td>P_{54}</td>
<td>.168</td>
<td>.000*</td>
</tr>
</tbody>
</table>

* = Significant at .01 level

The results in Table 4 show that out of the 9 paths in the hypothesized model, 5 were significant at .01 probability level, while 4 paths were not significant. Based on the result, the 4 paths not significant were trimmed leaving a new and most meaningful causal model as shown in figure 2.
Figure 2: New causal model (trimmed) of the hypothesized social environment variables on senior secondary school students’ attitude to school.

Figure 2 shows that five out of the nine hypothesized paths survived the trimming. The numbers on the pathways are path coefficients and the zero order correlation coefficients are in parenthesis.

Validation of the New Model
To verify the efficacy of the new model, the reproduced correlation coefficients (obtained by formula) were compared to the original correlation coefficient. Table 5 shows the original and reproduced correlation coefficient matrix of the social environment variables and senior secondary school students’ attitude to school.

Table 5: The Original and Reproduced Correlation Matrix of Social Environment Variables and Students’ Attitude to School

<table>
<thead>
<tr>
<th>Variables</th>
<th>SES</th>
<th>PAS</th>
<th>PGE</th>
<th>TSR</th>
<th>INS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. SES</td>
<td>1.000</td>
<td>.029</td>
<td>.021</td>
<td>.025</td>
<td>.018</td>
</tr>
<tr>
<td>2. PAS</td>
<td>.029</td>
<td>1.000</td>
<td>.341</td>
<td>.445</td>
<td>.451</td>
</tr>
<tr>
<td>3. PGI</td>
<td>.021</td>
<td>.001</td>
<td>1.000</td>
<td>.265</td>
<td>.298</td>
</tr>
</tbody>
</table>

The discrepancies between the original and reproduced correlations shown in Table 5 are quite small indicating that the pattern of correlations in the observed data is consistent with the parsimonious model in figure 2.

Discussion
Table shows that the four social environment variables \((X_1, X_2, X_3, \text{ and } X_4)\) accounted for 57.89% of direct effects on senior secondary school students’ attitude to school. The indirect effect of the independent variables on attitude to school accounted for 42.11%. These percentages indicate that the four social environment variables used in this study exert more of direct than indirect effects on senior secondary school students’ attitude to school. These findings support wide range of studies which have found strong direct causal links between environmental variables and affective outcomes of students (e.g. Way, 2011; Evans and Hygge, 2007).
Furthermore, Table 4 shows that out of the 9 paths in the hypothesized model, 5 were significant at .01 probability level, while 4 paths were not significant. These significant paths eventually produced the most meaningful and statistically significant causal model for explaining the causal relationships among social environment variables and senior secondary students' attitude to school.

**Conclusion**

Based on the findings of this study, the four social environment variables exert more of direct than indirect effect on student’ attitude to school. Three of the independent variables: Peer group influence, teacher-student relationships and parental academic stimulation were each found to have direct significant causal link with senior secondary school students’ attitude to school.

**Recommendations**

The researcher recommended that:

i. In view of the direct significant effect of parental academic stimulation on students' attitude to school, parents on the platform of PTA meetings should be properly sensitized on the need and ways of stimulating their children academically,

ii. Only trained teachers should be recruited to teach in secondary schools. Teacher re-training programmes should be sustained.

iii. Counseling services in secondary schools should be designed to educate students on how to manage peer relationships.

**References**


