SOME PERSONAL ATTRIBUTES
OF SECONDARY SCHOOL TEACHERS THAT PREDICT THEIR
AWARENESS OF ENVIRONMENTAL ISSUES
AND RISK PREVENTION PRACTICES

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Abstract

The study investigated some of the personal attributes of secondary school teachers that predicted their awareness of environmental issues and environment risk prevention practices in Enugu state. The population of the study was 2187 teachers. The sample used for the study was 589 teachers that teach geography, biology, chemistry, agricultural science and physics. Copies of a validated questionnaire were used for data collection and the data generated were analysed using multiple regression. The findings of the study were that years of teaching experience significantly predicted teachers’ awareness of environmental problems while highest educational qualification, gender and location of school did not. Years of teaching experience and school location significantly predicted teachers’ awareness of environmental risk prevention practice while educational qualification and gender did not. Serving teachers should be motivated by their employers to remain in the teaching profession. Teachers should acquaint themselves with the practices adopted in each locality for the prevention of environmental problem.

Keywords: Environmental awareness, Environmental risk prevention and Personal Attributes

Introduction

Awareness of the environmental issues and risk prevention practices has become an area of great concern worldwide since the latter part of the twentieth century. This is because many environmental problems ranging from soil erosion, flooding, drought and desertification to global warming are threatening human habitats leading to displacements of population, hunger and loss of lives in different parts of the world. Creating environmental awareness in the general public was therefore seen as an avenue to check the trend.

Environmental awareness entails understanding the fragility of our environment and the importance of its protection (Pachamama Alliance Organization, http://www.pachama.org/environmentalawareness). Awareness of environmental issues and risk prevention practices varies among people. It can be influenced by their experiences, educational qualification and gender. Individuals that are aware of environmental issues have basic knowledge of ecological principles, are capable of applying these principles into life as well as exhibit responsible behaviour and attitudes towards the environment (Oztas and Kalipci, 2009). Peoples’ awareness of environmental issues and the prevention practices is very crucial for environmental sustainability (Ekpenyong, 2009). According to Shukla (2001) in Shobeiri,Omidvar and Prahallada(2007)world educators and environmental specialists have overtime emphasized that the education system at all levels provides a window for making people understand their responsibilities to the environment. Consequently, environmental issues have been infused in the curriculum of subjects taught at various levels of education. Countries where environmental education has taken root include Malaysia, the Philippines, Thailand, the United States of America, Turkey and Netherlands among others (UNESCO – UNEP, 1990). In Nigeria environmental issues form part of the contents of biology, chemistry, geography, agricultural science, health science and physics curriculum at the senior secondary level. The aim of this infusion was to make students at this level of education gain knowledge of environmental issues, have attitudinal change toward the environment and be capable of protecting it even as adults. This is in line with
Arcury’s (1990) view that increased knowledge about the environment is assumed to change environmental attitudes.

The teachers at the secondary school level are expected to be aware of the environmental issues that form part of the subjects contents (Campbell, Medina-Jerez, Erdogan and Zhang, 2010) such as soil erosion, deforestation, drought, pollution, flooding and global warming among others. They should also be aware of the environmental risk prevention practices such as afforestation, terracing, energy conservation, recycling of materials, provision of drainage channels and their regular clearing of refuse. It is only when the teachers are able to identify and interpret these environmental issues and find solutions through the prevention practices that they can teach their students effectively (Shobeiri, Omidvar and Prahallada, 2007). In Nigeria teachers at the secondary level have varying educational qualifications, experiences and backgrounds. Previous studies have shown that there is limited knowledge of the personal attributes of secondary school teachers that predicated their awareness of environmental issues and environmental risk prevention practices, hence this study.

Purpose of the Study

The main purpose of this study was to find out some of the personal attributes of the secondary school teachers that predict their awareness of environmental issues and their prevention practices. Specifically, the study found out which of the predictor variables – years of teaching experience, educational qualification, school location and gender of teachers – significantly predicted their awareness of environmental issues and environmental risk prevention practices.

Hypotheses

Two hypotheses guided the study.

1. Years of teaching experience, educational qualifications, school location and gender do not significantly predict teachers’ awareness of environmental issues (p < 0.05).
2. Years of teaching experience, educational qualifications, school location and gender do not significantly predict teachers’ awareness of environmental risk prevention practices (p < 0.05).

Population

All the secondary school teachers in Enugu state that teach geography, biology, chemistry, agricultural science and physics constituted the population for the study. Their population was 2187 teachers.

Sample

Nine out of the 17 local government areas of the state were randomly sampled. All the 640 teachers that teach geography, biology, chemistry, agricultural science and physics constituted the sample.

Instrument

The instrument used for data collection was a structured questionnaire that reflected the environmental issues and their preventive practices as contained in the secondary school curriculum on each of the five subjects. There were 35 items on awareness of environmental issues and 35 items on awareness of the prevention practices. The items were generated by the researcher. A Likert-type scale of 1 – 4 was adopted in measuring the extent to which the teachers were aware or not aware of the environmental issues and prevention practices. The instrument was validated by two experts and pretested using 30 teachers from another state the study did not cover. The internal consistency of the instrument using the Cronbach alpha (α) formula was found to be 0.86.

Data Collection

Data for this study were collected by unemployed Nigeria Certificate in Education (NCE) teachers recruited by the researcher. They distributed the copies of the questionnaire to teachers in the sampled schools and collected same from them. Only 589 out of 640 copies were properly completed and used for analysis.
Data Analysis

The data generated were analysed using multiple regression. The analysis was carried out using the computer.

Results

The results of the analyses are shown in the tables that followed.

Table 1: The Relationship between Teachers’ Years of teaching experience, educational qualifications, school location and gender and their awareness of environmental issues

<table>
<thead>
<tr>
<th>Multiple Regression (R)</th>
<th>Coefficient of Determination ($r^2$)</th>
<th>Adjusted R</th>
<th>Standard Error of Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.212</td>
<td>0.045</td>
<td>0.038</td>
<td>0.36641</td>
</tr>
</tbody>
</table>

Table 1 shows that the calculated R was 0.212 indicating a positive relationship among the teachers’ years of experience, educational qualification, school location and gender and their awareness of environmental issues. The coefficient of determination ($r^2$) was 0.045 indicating that the predictor variables together account for 4.5 percent of teachers’ awareness of environmental issues. To determine whether all the predictor variables significantly predicted teachers’ awareness of environmental issues an analysis of variance (ANOVA) was carried out and the result shown in Table 2.

Table 2: Regression Analysis of Predictor variables - years of teaching experience, educational qualification, school location and gender of teachers and their awareness of environmental issues

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Df</th>
<th>Sub of Squares</th>
<th>Mean Square</th>
<th>F - Ratio</th>
<th>Sig.</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>4</td>
<td>3.682</td>
<td>0.921</td>
<td>6.857</td>
<td>0.000</td>
<td>S</td>
</tr>
<tr>
<td>Residual</td>
<td>584</td>
<td>78.405</td>
<td>0.134</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>588</td>
<td>82.087</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S Significant of 0.05
a) Predictors (constant) years of teaching experience, educational qualification, school location and gender
b) Dependant variable – Awareness of Environmental Issues

Table 2 shows that the calculated F – value of 6.857 was significant at 0.000 level of probability as well as 0.05. This result suggests that all the four predictors – years of teaching experience, educational qualification, location and gender taken together significantly predict teachers’ awareness of environmental issues. Based on this result, hypothesis 1 was rejected. To find out which of the predictors made greater impact in predicting teachers’ awareness of environmental issues, the coefficients of the predictor variables were determined.

Table 3: Coefficients of the Predictor Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Unstandardized Coefficient</th>
<th>Standardized coefficient Std Error</th>
<th>Beta</th>
<th>t</th>
<th>Sig.</th>
<th>Dec.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>2.999</td>
<td>0.096</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years of tech.</td>
<td>-0.104</td>
<td>0.021</td>
<td>-0.212</td>
<td>-4.874</td>
<td>0.00</td>
<td>S</td>
</tr>
<tr>
<td>Exp.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educ. Qfn.</td>
<td>0.003</td>
<td>0.034</td>
<td>0.003</td>
<td>0.078</td>
<td>0.983</td>
<td>NS</td>
</tr>
<tr>
<td>Sch. Location</td>
<td>-0.024</td>
<td>0.030</td>
<td>-0.031</td>
<td>-0.773</td>
<td>0.440</td>
<td>NS</td>
</tr>
<tr>
<td>Gender</td>
<td>0.036</td>
<td>0.031</td>
<td>-0.048</td>
<td>-1.182</td>
<td>0.238</td>
<td>NS</td>
</tr>
</tbody>
</table>

S Significant at 0.05
NS Not Significant at 0.05

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Table 3 shows that teacher’s years of teaching experience was the only predictor variable that significantly predicted teachers’ awareness of the environment issues. The other three predictors — educational qualification, school location and gender did not.

Table 4: The Relationship between teachers’ years of teaching experience, educational qualification, school location and gender and their awareness of environmental risk prevention practices

<table>
<thead>
<tr>
<th>Multiple Regression (R)</th>
<th>Coefficient of Determination ($r^2$)</th>
<th>Adjusted R</th>
<th>Standard Error of Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.227</td>
<td>0.052</td>
<td>0.045</td>
<td>0.374</td>
</tr>
</tbody>
</table>

Predictors (constant) years of experiences, academic qualification, school location and gender

Table 4 shows that there is a close relationship between the predictor variables and the criterion variable, hence $R = 0.227$. The coefficient of determination ($r^2$) was 0.052 which indicates that 5.2 percent of the observed change in teachers’ awareness of environmental risk prevention practices was accounted for by all the predictor variables. To determine the predictor variable(s) that significantly predicted teachers’ awareness of the prevention practices an analysis of variance was carried out and the result shown in Table 5.

Table 5: Regression Analysis of Predictor variables - years of teaching experience, educational qualification, school location and gender of teachers and their awareness of environmental risk prevention practices

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Df</th>
<th>Sub of Squares</th>
<th>Mean Square</th>
<th>F - Ratio</th>
<th>Significance.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>4</td>
<td>4.436</td>
<td>1.109</td>
<td>7.937</td>
<td>0.000</td>
</tr>
<tr>
<td>Residual</td>
<td>584</td>
<td>81.594</td>
<td>0.140</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>588</td>
<td>86.030</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Predictors (constant) years of teaching experience, academic qualification, school location and gender

The calculated F (7.937) as shown in Table 5 was significant at 0.00 and 0.05 level and therefore suggests that all the predictor variables together significantly predict teachers’ awareness of environmental risk prevention practices. By this result hypothesis 2 was rejected. To determine which of the four predictor variables made greater impact in predicting teachers’ awareness of the prevention practices, their coefficients were found out and shown in Table 6.

Table 6: Coefficients of the Predictor Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Unstandardized B</th>
<th>Coefficient Std Error</th>
<th>Standardized coefficient Beta</th>
<th>t</th>
<th>Sig.</th>
<th>Dec.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>3.090</td>
<td>0.098</td>
<td></td>
<td>31.660</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>Years of tech. Exp.</td>
<td>-0.107</td>
<td>0.022</td>
<td>-0.213</td>
<td>-4.918</td>
<td>0.000</td>
<td>S</td>
</tr>
<tr>
<td>Educ. Qfn.</td>
<td>-0.100</td>
<td>0.035</td>
<td>-0.014</td>
<td>-0.325</td>
<td>0.746</td>
<td>NS</td>
</tr>
<tr>
<td>Sch. Loc.</td>
<td>-0.063</td>
<td>0.081</td>
<td>-0.083</td>
<td>-2.035</td>
<td>0.042</td>
<td>S</td>
</tr>
<tr>
<td>Gender</td>
<td>-0.031</td>
<td>0.031</td>
<td>-0.041</td>
<td>-1.006</td>
<td>0.315</td>
<td>NS</td>
</tr>
</tbody>
</table>

S  Significant at 0.05
NS Not Significant at 0.05
Table 6 shows that year of teaching experience and teachers’ school location significantly predicted their awareness of prevention practices. Their respective beta values were -0.213 and -0.083. Educational qualification and gender as individual variables did not predict teachers’ awareness of the prevention practices.

**Discussion**

The multiple regression analyses show that even though all the predictor variables put together predicted teachers’ awareness of environmental issues only the years of experience had a coefficient value that was significant at 0.05 level. This finding agrees with an earlier finding by Dye-house, Weber, Fang, Harris, Tomory and Strobel (2010) which stated that previous environmental knowledge of environmental education and knowledge of environmental tools/applications acquired overtime predict awareness of environmental issues. The finding of this work also agrees with that of Stevenson, Peterson, Bondell, Mertig and Moore (2013) which revealed that years of teaching experience predict awareness of environmental issues. This result may be attributed to the fact that each year serving teachers come in contact with different environmental issues through the travels they make or reading of current books, magazines and newspapers.

It is surprising that educational qualification of teachers did not significantly predict their awareness of environmental issues. This can be attributed to a reduction in teacher effectiveness after a certain number of years in the field (Stevenson et al, 2013).

Years of teaching experience and school location significantly predicted teachers’ awareness of environmental risk prevention practices while educational qualification and gender did not. This finding supports that of Stevenson et al (2013) which indicated that the experiences individuals gain through ‘outdoor activities’ in the environment they operate predict awareness of the environmental risk prevention practices.

**Conclusion**

In this study it was found out that the four predictor variables – years of teaching experience, educational qualification, school location and gender put together significantly predicted teachers’ awareness of environmental issues and risk prevention practices. However, when the coefficients of the predictor variables were determined it was found that only years of teaching experience significantly predicted teachers’ awareness to environmental issues while years of experience and school location significantly predicted teachers’ awareness of environmental risk prevention practices.

**Recommendation**

Based on the findings of this study, the researcher recommended that serving teachers should be motivated by their employers to remain in their chosen profession and be effective. Secondary school teachers should periodically engage in outdoor activities to acquaint themselves with the practices adopted by people in different localities to check or prevent environmental problems.

**References**


