Influence of Cultural Practices on Students’ Performance in Secondary School Chemistry in Gboko Local Government Area of Benue State, Nigeria

Prof. Peter Ogbe Agogo1 Emmanuel Eriba Otor PhD1 Sunday Nyior2

1, Benue State University, Makurdi
2, College of Education, Oju
poagogo2007@gmail.com

Abstract
The study was on influence of cultural practices on students’ performance in secondary school chemistry in Gboko Local Government Area of Benue State. Four research questions were raised and answered. A total of 75 chemistry students were randomly selected. The instrument used for data collection was the Cultural Practices Identification and Effect on Performance Questionnaire. The data were answered using frequency computation by percentages as well as the use of pie chart. It was found that 56% of the cultural practices were relevant and related more to female chemistry students than the 44% that were related to male chemistry students’ performance in chemistry. From the analysis, it was recommended that chemistry teacher should devise ways to interact with the community so as to teach the cultural practices to the learners with minimal cultural “injury” so as to enhance chemistry learning.

Keywords: Cultural Practices, Students’ Performances, Secondary Schools, Chemistry

Background to the Study
The pursuit of scientific and technological education is imperative for any nation that wants to maintain its independence, sovereignty and to ensure its continual growth and development. This is evident in the high priority placed on science and technology education in the educational development of many countries of the world including Nigeria (Jinks, 1997). Science is defined variously by many people. For instance, Agogo and Otor (2013) defined it as the study of the natural environment containing living and non-living things. Science is considered very important, as it has contributed to man’s peaceful living in his environment. Chemistry is a core-science subject that is usually introduced to students at the senior secondary school level in chemistry. Chemistry is the aspects of science that deals with the structure and composition of matter including the transformation it undergoes (Agogo & Otor, 2013).

Chemistry, according to Ezechukwu (2009) is a branch of science that deals with the structure of matter as well as its properties and reactions. According to her, man’s environment is made up of matter. Accordingly, Mohammed, Bello and Gwandu (2010) informed that chemistry is very important to man’s survival in his environment. In addition, chemistry provides career opportunities in Agriculture, Pharmacy, Medicine, Engineering,
Teaching and host of other science-based disciplines. This makes it an important science subject. Culture is seen as the sum total of what man has learnt and passed to the next generation (Agogo, 2010). Culture is a set of guidelines that individuals inherit as members of a given society that tells them how to view the world, to experience it emotionally and how to behave in it in relation to other people in their natural setting. This implies that, people are not born with any knowledge of culture, rather they learn it by growing in that society (Nyior, 2004, Ochima, 2012; Agogo & Tor, 2013). Cultural practices of a people or community help to guide their way of life. This involves the values that the people attach to particular things or events in the community. According to Nyior (2004:26), “each society has approved value system which helps to define for its members what goals they should aspire to and also provides them with criteria to adhere to a set of values held by the community. Among the Tiv people of Benue State, Nigeria, a pregnant woman should not look into a grave to avoid abnormal birth. It is also speculated that a man whose wife is pregnant should not dig a grave to avoid miscarriage by his wife, among others. A culture-based man is therefore expected to be against cultural beliefs. The culture in which one grows up affects his personality and the way he/she views the world and particularly his environment (Nyior, 2004). By implication, Agogo (2010) informed that cultural practices of the people have very important influence on many aspects of the people’s lives, including their beliefs, behaviour, perceptions, emotions, language, body image, attitudes and their general performance in whatever they set out to learn. In African’s world view, the child does not question the elders’ authority instead, it is to subject the events, issues or situations to rationality. The child merely believes verbal explanations made about them by the elders or the persons in projection to do so. The implication is that, authoritative generalizations made by the elders supersede an individual’s findings or any scientific discovery (Agogo, 2010).

The superimposition of the scientific culture on the traditional African belief system and worldviews create problems for the Nigerian science learners. The Nigerian learners’ scientific potentials are overshadowed by their cultural practices, so children no longer acquire desirable scientific attitudes, so no meaningful science (including chemistry) is learnt (Nyior, 2004). This research work investigated into the influence of cultural practices on chemistry students’ performance in Gboko Local Government Area of Benue State, Nigeria.

Statement of the Problem
Students of chemistry enter their chemistry class with certain cultural values, experiences and beliefs. It is possible that the chemistry teachers may not be aware of the nature and scope of these cultural values and beliefs which may invariably affect the students’ academic performance in chemistry. In similar studies, Agogo and Toor (2013) and Ochima (2012) found that certain cultural practices affect students’ achievement in Biology. Some of these cultural practices affect students’ performance in science subjects, because they antagonize scientific principles. Thus, there is need to find out the extent to which Tiv ethnic group’s cultural practices affect students’ performance in secondary school chemistry.

Purpose of the Study
The purpose of this study is to investigate into the influence of cultural practices on students’ performance in secondary school chemistry in Gboko Local Government Area of Benue State, Nigeria. Specifically, the sought to;

i. Find out cultural practices chemistry students’ take to the chemistry class.
ii. Determine cultural practices that affect the performance of chemistry students’ in the study area.

iii. Ascertain whether male and female in the type of cultural practices they come to the chemistry class with

iv. Find out how the influence of cultural practices on chemistry students’ performance can be curbed.

Research Questions

Four research questions were raised and answered to guide the study.

1. What cultural practices do the chemistry students of Gboko local government area bring to the chemistry class?
2. What are the cultural practices that affect the performance of chemistry students in Gboko local government area?
3. How do male students differ from female students in the type of cultural practices they come to chemistry class with?
4. How can the influence of cultural practices on chemistry students’ performance be curbed?

Methodology

The area of study is Gboko local government area who are predominantly Tiv ethnic group of Benue State, Nigeria. The study employed descriptive survey design. According to Akem (2011), it is an appropriate design for such a study. A total of 75 chemistry students, comprising of 40 boys and 35 girls were selected for this study. The instrument used was validated by two Science Education Lecturers of the Department of Curriculum and Teaching, Benue State University, Makurdi, Nigeria, based on face-validity. The instrument was divided into three sections. Section A was on biodata of the respondents, Section B was on cultural practices of the Tiv ethnic group to establish which of them influence chemistry students’ performance, while Section C is unstructured questions. The research questions were answered using percentages and pie chart. Research questions one, two and three were answered through computation, using simple percentages. While research question four was answered using pie chart and percentages. A cultural practice is considered relevant and can influence chemistry students’ performance if at least 50% of the respondents agreed to it. The value is obtained on each item by dividing the number of students who identified that cultural practice with the total number of students in all the schools. The value obtained is then multiplied by 100 to obtain percentage value.

Results

The research questions earlier raised are analysed and interpreted.

Research Question One: What cultural practices do the chemistry students of Gboko local government area bring to their chemistry class?

The cultural practices chemistry students of Tiv ethnic group from Gboko local government area, Benue State, bring to their class include the following?

1. Pregnant women should not look into a grave to avoid abnormal birth.
2. Nobody should sweep in the night to avoid becoming poor since he has swept away his/her wealth in the night.
3. Short people should eat half-cooked yam so as to grow fast and taller.
4. A man whose wife gives birth to only female children is a cheat in the village and that the fore-fathers have placed a curse on his family.

5. If a woman looks at a newly dug grave, she would be inflicted with a curse called “war akombo” in which all her children will die one after another.

6. A man whose wife is pregnant should not dig graves to avoid miscarriage by the wife.

7. If a pregnant woman goes out in the afternoon, she will be visited by the spirits, which may result into miscarriage.

8. If a toad or a chameleon runs across the road at noon, anyone who sees it may loose one of his/her closest relations (death).

9. If groundnuts are shelled for planting, the shells should be spread on a footpath where people will match on it if not they will not yield well.

10. If any woman gives herself for love making in anybody of water, she would have stomach ache- “ambe” with white watery discharge from her genital organ.

11. Killing of green snake called “Ikyareen” is a taboo because it helped the Tiv people to cross a river during their migration.

12. Twins should be given the same type of clothes of not one of them will grow angry and may die.

13. When one of the twin children dies, he/she should not be mourned if not the second person would die. The dead one is only missing or gone hunting.

14. Yellow yam, called “inumbe” in Tiv should not be given to children, if not they will not be able to talk clearly.

15. A pregnant woman should not eat meat from animals indiscriminately, if not she will deliver a child that resembles that animal. If she is to eat it, it should not be known to anybody else.

16. The “chikigbe” leaves are only cooked and eaten using right hand to avoid death to anybody who violates this order.

Research Question Two: What are the cultural practices that affect the performance of chemistry students in Gboko local government area?

Table 1: Cultural Practices that influence students’ performances in chemistry

<table>
<thead>
<tr>
<th>S/No.</th>
<th>Items</th>
<th>F</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Pregnant women should not look into a grave to avoid abnormal birth</td>
<td>51</td>
<td>68</td>
</tr>
<tr>
<td>2.</td>
<td>Short men should eat half-cooked yam so as to grow fast and taller</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>3.</td>
<td>If a woman looks at a newly dug grave, she would be inflicted with a curse called “war akombo” in which all her children will die gradually.</td>
<td>56</td>
<td>75</td>
</tr>
<tr>
<td>4.</td>
<td>A man whose wife is pregnant should not dig graves to avoid miscarriage by the wife.</td>
<td>50</td>
<td>67</td>
</tr>
<tr>
<td>5.</td>
<td>Killing of green snake called (Ikyareen) is a taboo because it helped the Tiv people to cross a river during their migration.</td>
<td>40</td>
<td>53</td>
</tr>
<tr>
<td>6.</td>
<td>Twins should be given the same type of clothes of not one of them will grow angry and may die.</td>
<td>49</td>
<td>65</td>
</tr>
<tr>
<td>7.</td>
<td>Yellow yam, called “inumbe” in Tiv should not be given to children, if not they will not be able to talk clearly.</td>
<td>56</td>
<td>75</td>
</tr>
<tr>
<td>8.</td>
<td>A pregnant woman should not eat meat from animals indiscriminately, if not she will deliver replica of that animal.</td>
<td>53</td>
<td>71</td>
</tr>
<tr>
<td>9.</td>
<td>The “chikigbe” leaves are only cooked and eaten using right hand to avoid death to anybody who violates this order.</td>
<td>41</td>
<td>55</td>
</tr>
</tbody>
</table>
From Table 1, nine out of 16 cultural practices are found to influence chemistry students’ performance. This represents 56% of the total cultural practices that students take to class.

**Research Question Three:** How do male students differ from female students in the type of cultural practices they come to chemistry class with?

**Table 2:** Cultural Practices that Male and Female Chemistry Students bring to their class

<table>
<thead>
<tr>
<th>Gender</th>
<th>F</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>7</td>
<td>44</td>
</tr>
<tr>
<td>Female</td>
<td>9</td>
<td>56</td>
</tr>
</tbody>
</table>

Table 2 shows that 44% of the cultural practices are relevant and related to male chemistry students while 56% of them are relevant and related to female chemistry students only.

**Research Question Four:** How can the influence of cultural practices on chemistry students’ performance be curbed?

From the respondents, the cultural practices of the Tiv people that influence chemistry students’ performance can be curbed as follows:

<table>
<thead>
<tr>
<th>S/No.</th>
<th>Items</th>
<th>F</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The Tiv people should involve chemistry teachers in ensuring that areas of chemistry that tend to contradict Tiv cultural practices are reviewed to reconcile learners’ background knowledge and to remove conflicts.</td>
<td>35</td>
<td>47</td>
</tr>
<tr>
<td>2.</td>
<td>All chemistry students who come to chemistry class with wide range of cultural practices should be encouraged to embrace science (chemistry), rather than being punished to reduce their influence on chemistry students’ performance.</td>
<td>25</td>
<td>33</td>
</tr>
<tr>
<td>3.</td>
<td>Chemistry teachers teaching in the locality should meaningfully interact with the Tiv communities to enable them become familiar with the people’s cultural practices, and so work towards modifying the, to reduce their negative influence on students’ performance in the subject.</td>
<td>15</td>
<td>20</td>
</tr>
</tbody>
</table>

![Pie Chart](image)
Figure 1: Pie Chart showing ways to curb influence of Tiv cultural practices on students’ performance in Chemistry

Fig 1 shows that items one on the pie chart is 47% of the respondents, item two gave a 33% of the respondents, while 20% of the respondents have item three as a way to curb influence of cultural practice in the learning of chemistry at the secondary school in Gboko, Nigeria

Discussion of Findings
The study isolated 16 cultural practices of Tiv ethnic group that students bring to their chemistry class. Out of this, nine were found to influence students’ performance in chemistry at the secondary school. This is in agreement with Agogo (2002), Ochima (2012) & Agogo and Toor (2013) who separately found some cultural practices influencing integrated science and biology students’ performance respectively. Some of the science (Chemistry inclusive) tends to antagonize with the peoples cultural practices.

On how male students differ from female students in the type of cultural practice they bring to chemistry class, it was found that 44% of them are relevant and related to male students while 56% of them are relevant and related to female chemistry students. According to Agogo (2002), 43% of the cultural practices were relevant and pertains to male Integrated Science students, while 57% of them were relevant and related to female Integrated Science students. This meant that there was a significant difference between cultural practices of male and female students among the four ethnic groups. To Asaru (1997), the issue of some activities said to be male and other females’ activities all start from the students’ homes, where they usually acquire their frontier education. The implication is that, the female chemistry students are more influenced by their people’s cultural practices than their male chemistry students.

On how the influence of cultural practices on chemistry students’ performance can be curbed, the respondents have three ways in which they may be addressed. Agogo (2002) in his study had advised to down play and minimize the effects of Africans’ cultural practices to mitigate their harsh influence on the students. This was expected to help in laying good foundation for improving the teaching and learning of integrated science, instead of trying forcefully to remove these established cultural practices. Agogo (2002) further found that a careful study of these cultural practices show that they are control measures that society employs to guide against mischief, though they are scientifically unstable. This is why Ali and Agogo (2001) concluded that cultural practices of a people, including Tiv people of Benue State, are unscientific and to Smart (1979:164), they “have the ambiguity of mystic thinking”, so would negatively affect students’ performance in science, especially chemistry because of its abstract nature.

Conclusion
Culture as the sum total of man’s efforts to adjust himself to his environment and to improve his modes of living (Pannerselvan & Ramakrishnan, 2007) is a social component that binds men together in a society. Culture is on acquired behaviours that are shared by and transmitted among the members of the society. Man learns the rules and procedures of behaviour when he is born, therefore the people’s cultural practices are expected to influence the children’s learning later in their formal system of education. The same is true of the Tiv ethnic group where the people’s cultural practices form parts of what the learners take to their chemistry class. These cultural practices are found to influence the students’ learning of
chemistry. It is also found that these cultural practices tend to influence more female students than the male counterparts.

**Recommendations**

Based on the findings of the study, it is recommended that:

1. The chemistry teachers should be better prepared to devise ways to interact with and interpret the people’s beliefs so as to teach these cultural practices to the learners with minimal “cultural injury” to the students and their cultural practices.

2. Some people may query other’s cultural practices, especially when they look from their own cultural perspectives. The chemistry teachers should therefore help to reconcile these cultural differences so that they do not unduely influence students’ performance in chemistry.

**References**


