Pedagogical Content Knowledge, School Climate and Instructional Effectiveness of Secondary Schools Business Teachers in Ogun State, Nigeria

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This research examined the relative influence of pedagogical content knowledge and school climate on instructional effectiveness of secondary schools business teachers in Ijebu Division, Ogun State, Nigeria. Descriptive survey design was adopted for the study. Pedagogical Content Knowledge Scale (PCKS), Organizational Climate Index (OCI) and Teacher Effectiveness Questionnaire (TEQ) were used as the instrument for data collection. The statistical method of analysis used for testing the raised questions were Simple percentage, Pearson Product Moment Correlation (PPMC) and Regression Analysis at 0.05 level of significance. The findings revealed that there was a positive relationship between pedagogical content knowledge, school climate and instructional effectiveness of secondary schools business teachers in Ijebu Division, Ogun State. Furthermore, pedagogical content knowledge, school climate significantly influenced the business teachers’ instructional effectiveness in secondary schools. It was recommended among others that principals should ensure that cooperative school climate that can inspire teachers to effectively fulfil their duties is created. The government should persuade and support business teachers to focus on conferences, workshops and seminars that will boost their pedagogical content knowledge in the fulfilment of their duties efficiently.

Key words: pedagogical content knowledge; school climate; instructional effectiveness; teachers; secondary schools

Introduction

Education is a dynamic instrument of progress, both developed countries and those seeking advancement have embraced it as an apparatus of qualification for affecting national progress. The value of education relies on the excellence of teachers and this influences the instructional quality in the schools accordingly, the teacher is basic to the accomplishment of any educational system. The incapability of the teachers in the classroom interaction would have a bearing on the school success. Studies on teachers’
instructional effectiveness in classes have gained importance in recent years. Teachers’ instructional effectiveness is thought to be an imperative school variable that should be investigated even in the area of teaching business subjects. Teachers need to possess various knowledge and skills to get ready for and execute a successful training that will promote students’ understanding and learning. However, they not only need to have in-depth knowledge of the subject-matter, instructional method, educational modules, and students, in addition, they should have the capacity to convey this knowledge successfully while instructing (Kilic, 2009).

Pedagogical content knowledge (PCK) can be defined as a capacity to consolidate knowledge of the specific disciplines and how to teach those disciplines. It can clarify that the content knowledge ought to be mixed with the components of the teaching process and the instructional method (Nuangchalerm, 2012). Kilic (2009) defined PCK as having four segments: knowledge of subject-matter (knowing specific subject ideas, actualities, and methodology and the connections between them), knowledge of pedagogy (knowledge of planning a lesson and teaching strategies), knowledge of learners (knowledge of students’ common difficulties, errors, and misconceptions), and knowledge of curriculum (knowledge of learning objectives for different grade levels and instructional materials such as innovative manuals, and course books) (Kilic, 2009).

PCK is not quite the same as the knowledge of the subject itself and the general pedagogical knowledge. It includes the knowledge of teaching strategies that incorporate the appropriate methods and prior conceptions, and create a learning environment (Kane & Russell, 2005; Nuangchalerm, 2012). PCK is viewed as a transformation of teacher knowledge from a variety of domains of knowledge, which includes subject matter knowledge, pedagogical knowledge, and knowledge about the content (Botha & Reddy, 2011). Earlier research had similarly demonstrated that pedagogical and subject content knowledge of teachers were observed to be critical indicators of teachers’ performance and students’ accomplishment (Olasehinde-Williams, Yahaya & Owolabi, 2018; Sultan & Shafi, 2014).

The significance of the school climate to teachers’ effectiveness is additionally applicable to a high degree since it is demonstrative of how well the teacher manages to understand his/her maximum capacity. Hence, the school climate certainly influences the teachers’ performance in school (Bai, Heydari & Niknahad, 2014). The school climate is depicted as the quality and character of school life. School climate depends on students, parents or guardians’ and school work force’s involvement into school life and reflects standards, objectives, values, interpersonal relationships, educating and learning practices, and organizational structures (The National School Climate Council, 2007). The school climate is a generally continuing nature of the school condition that is experienced by members, influences their conduct, and depends on their aggregate view of conduct in schools. It is vital to portray and analyse the school climate because the atmosphere of a school has a major impact on the organisational behaviour and because the administrators can have a significant positive influence on the development of the image of the school (Adejumobi & Ojikutu, 2013).

The school climate is a result of social interactions among students and teachers, is impacted by instructive and social qualities, and has been shown to relate to social situations in classrooms and within the school as a whole (Thapa, Cohen, Guffey, &
Higgins, 2013). The National School Climate Center (2012) as referred to by Chinelo and Ogbah (2013) uncovered that the school climate is a multidimensional construct that incorporates physical, social and scholastic measurements. How students and staff feel about their school climate (either positive or negative) underlies individual attitudes, practices, and group standards (Chinelo & Ogbah, 2013). It affects the teachers responsibility for setting out the school vision about where the school is going to, reflects upon the attributes of respect, individual nobility of spirit, trustworthiness, decency, and security. If the school climate neglects to reflect this set of characteristics, then integration, maintenance of sustainability, the establishment of the sense of equality among students with constrained scholarly abilities or not, is absent (Rapti, 2013).

School climate is made up of several factors and behaviours that determine people’s attitude, feelings, and behaviour within the school or organization. The correlation between the school climate and the PCK cannot be overruled because if the knowledge of pedagogical content is the transformation and mixing of knowledge and beliefs and pedagogy into instructional achievements in the classroom, the PCK of a teacher enables content issues and expertise to be tailored to the learner’s skills and interests. The PCK integrates unique knowledge, beliefs and values that are all imperative for improving professional teaching experience. They are: (a) knowledge of subject matter content, (b) pedagogical knowledge, (c) knowledge of curriculum, (d) student knowledge (how they understand their conceptions and common errors), (e) understanding of teaching functions, and (f) general pedagogical knowledge (Amade-Escot, 2000). Effective teaching will take place if teachers integrate all PCK factors and observe them in their specific teaching environments.

School climate influences teacher motivation and commitment at work, work fulfilment, and adequacy. In an organization with a high degree of the humanistic relationship, collegiality, and interest, the teaching effectiveness is high, triggering a higher success of education, too (Babu & Kumari, 2013; Bai, Heydari & Niknahad, 2014). Several past studies had uncovered that school climate had an effect on teachers’ productivity, teachers’ innovation and morale (Oder & Eisenschmidt, 2018; Eboka, 2017; Bai, Heydari & Niknahad, 2014; Okoye, 2012; Yusuf & Adigun, 2010). While pedagogical content knowledge and school climate are believed to influence teachers viability in some science-related subjects, little is thought about its impact on business studies teachers’ instructional effectiveness, if there are any of such studies at all, it is not to the knowledge of this researcher; consequently the justification of this investigation. It is on the basis of this premise that the researcher seeks to find out the influence of pedagogical content knowledge and school climate on the instructional effectiveness of secondary schools business teachers in Ijebu-Division, Ogun State, Nigeria.

The objective of this study was to examine the influence of the pedagogical content knowledge and school climate on the instructional effectiveness of secondary schools business teachers in Ijebu-Division, Ogun State, Nigeria. The specific objectives are:

— to assess the relationship among pedagogical content knowledge, school climate and instructional effectiveness of business teachers in secondary schools;

— to examine the influence of pedagogical content knowledge on the teacher’s instructional effectiveness;
— to determine to what extent the school climate affects the teacher’s instructional effectiveness in the secondary school.

The following research questions are raised to guide the study:

1) What is the relationship between pedagogical content knowledge, school climate and instructional effectiveness of business teachers in the secondary schools?
2) What is the influence of pedagogical content knowledge on the business teacher’s instructional effectiveness?
3) To what extent does the school climate affect the business teachers’ instructional effectiveness in the secondary schools?

Methodology

The descriptive research design was adopted for this study. The target population is 199 business studies teachers of junior secondary schools in Ogun State. A sample of 120 respondents was selected for this study. A simple random sampling technique was used to select 60% of the teachers in the division.

Three research instruments were used to collect data. The instruments are Pedagogical Content Knowledge Scale (PCKS), Organizational Climate Index (OCI) and Teacher Effectiveness Questionnaire (TEQ).

Pedagogical Content Knowledge Scale (PCKS) developed by Aksu, Metin, and Konyalioglu (2014) consisted of 50 items on a five point rating scale. The Cronbach-Alpha internal integrity coefficient of the scale was found to be 0.967.

The Organizational Climate Index (OCI) was used to measure school climate. It is a short descriptive measure for schools (Hoy et al., 2002). It is a 27-item 4-point Likert-type scale that assesses critical aspects of the school workplace with RO — rarely occurs, SO — sometimes occurs, OO — often occurs, VFO — very frequently occurs. The OCI has four dimensions: collegial leadership, teacher professionalism, academic press, and institutional vulnerability to the community. The reliability scores for each dimension were as follows: Collegial Principal Behaviour (.94), Professional Teacher Behaviour (.88), Achievement Press (.92), and Institutional Vulnerability (.87).

For measuring teacher effectiveness, the scale developed by Sujata Mishra (2013) was adopted. The instrument assesses teacher effectiveness by 48 items on the innovations implemented in the school and the changes they created in the school performances on a five-point Likert scale from level 1 (strongly agree) to level 5 (strongly disagree). The instrument gave high Cronbach Alpha Coefficient which is 0.925 for teacher effectiveness.

The researcher personally visited the schools that were selected for the study. The permission was sought from the school management to allow administering the questionnaire. The respondents were asked to fill in the questionnaire independently before returning them to the researcher. One hundred and twenty (120) questionnaires were distributed but one hundred and seventeen (117) were properly filled in and retrieved back from respondents. Therefore, the analyses were based on the 117 questionnaires properly filled in representing 97.5% return rate.

Simple percentages, Pearson Product Moment Correlation (PPMC) and Regression analysis at 0.05 level of significance were used to analyse the raised research questions of this study.
Results

Demographic Characteristics of Respondents

Table 1

<table>
<thead>
<tr>
<th>Demographic Variables</th>
<th>Options</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>51</td>
<td>43.6</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>66</td>
<td>56.4</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>117</td>
<td>100</td>
</tr>
<tr>
<td>Age</td>
<td>Below 25 yrs.</td>
<td>24</td>
<td>20.5</td>
</tr>
<tr>
<td></td>
<td>26—30 yrs.</td>
<td>37</td>
<td>31.6</td>
</tr>
<tr>
<td></td>
<td>31—40 yrs.</td>
<td>46</td>
<td>39.3</td>
</tr>
<tr>
<td></td>
<td>41—50 yrs.</td>
<td>10</td>
<td>8.5</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>117</td>
<td>100</td>
</tr>
<tr>
<td>Highest Level of Education</td>
<td>NCE</td>
<td>12</td>
<td>10.3</td>
</tr>
<tr>
<td></td>
<td>B.Sc (Ed) / B.Ed</td>
<td>88</td>
<td>75.2</td>
</tr>
<tr>
<td></td>
<td>PGDE</td>
<td>10</td>
<td>8.5</td>
</tr>
<tr>
<td></td>
<td>M.Sc/M.Ed</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>117</td>
<td>100</td>
</tr>
<tr>
<td>Years in Teaching Service</td>
<td>1—10 yrs.</td>
<td>104</td>
<td>88.9</td>
</tr>
<tr>
<td></td>
<td>11—20 yrs.</td>
<td>13</td>
<td>11.1</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>117</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 1 presents the distribution of respondents’ demographic data. The result of the analysis showed that 51 (43.6%) respondents are male while 66 (56.4%) respondents are female. For the age, 24 (20.5%) are below 25 years, 37 (31.6%) are within 26—30 years, 46 (39.3%) are within 31—40 years and 10 (8.5%) are within 41—50 years. For the marital status, 44 (37.6%) respondents are single, 70 (59.8%) respondents are married, 2 (1.7%) respondents are divorced and 1 (.9%) respondent is widowed. This analysis showed that 12 (10.3%) respondents are NCE holders, 88 (75.2%) respondents hold B.Sc (Ed)/B.Ed certificates, 10 (8.5%) respondents holds PGDE certificates and 7 (6%) respondents hold M.Sc/M.Ed certificates. Furthermore, the analysis showed that 104 (88.9%) respondents have 1—10 years teaching experience and 13 (11.1%) respondents have 11—20 years teaching experience.

Test of Research Questions

Research Question One. What is the relationship among pedagogical content knowledge, school climate and business teachers’ instructional effectiveness of the secondary schools?

Table 2

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>PCK</th>
<th>SC</th>
<th>IE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedagogical Content Knowledge (PCK)</td>
<td>59.547</td>
<td>10.982</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Climate (SC)</td>
<td>51.992</td>
<td>5.605</td>
<td>.570**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Instructional Effectiveness (IE)</td>
<td>61.435</td>
<td>11.988</td>
<td>.204*</td>
<td>.199*</td>
<td>1</td>
</tr>
</tbody>
</table>

Notes: * p ≤ 0.05 (2-tailed); ** p ≤ 0.01 (2-tailed).
Table 2 presents the mean scores and standard deviations of the responses to the variables measured in the study. For PCK, the mean score — 59.54, standard deviation — 10.98; School Climate, the mean score — 51.99, standard deviation — 5.60; and Teachers’ Instructional Effectiveness, the mean score — 61.43; standard deviation — 11.98. It also showed that there is a significant positive relationship between pedagogical content knowledge and school climate \((r = .570; p \leq .01)\); there is a significant positive relationship between pedagogical content knowledge and teachers’ instructional effectiveness \((r = .204; p \leq .05)\); and there is also a significant positive relationship between school climate and teachers’ instructional effectiveness \((r = .199; p \leq .05)\). This implies that there was a significant relationship between PCK, school climate and the secondary school business teachers’ instructional effectiveness.

**Research Question Two.** What is the influence of pedagogical content knowledge on the teacher’s instructional effectiveness?

**Table 3**

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>693.679</td>
<td>1</td>
<td>693.679</td>
<td>14.993</td>
<td>.000</td>
</tr>
<tr>
<td>Residual</td>
<td>15977.091</td>
<td>115</td>
<td>138.931</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>16670.769</td>
<td>116</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Summary of Model: \(R = 0.204; R^2 = 0.042; \) Adjusted \(R^2 = 0.033; \) Standard Error = 11.78691.

Table 3 revealed the influence of pedagogical content knowledge to the prediction of teachers’ instructional effectiveness \((F = 14.993; p \leq .000)\). This means that PCK influenced teachers’ instructional effectiveness. The analysis also yielded a co-efficient of multiple regressions \((R)\) of .204 with corresponding \(R^2\) of .042 indicating that the independent variable accounted for 4.2% of the total variance in teachers’ instructional effectiveness in secondary schools. Therefore, the postulated research question two concludes thus that PCK had a significant influence on the instructional effectiveness of secondary schools business teachers in Ijebu Division, Ogun State, Nigeria.

**Research Question Three.** To what extent does the school climate affect the teacher’s instructional effectiveness in the private secondary schools?

**Table 4**

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>663.011</td>
<td>1</td>
<td>663.011</td>
<td>4.463</td>
<td>.031</td>
</tr>
<tr>
<td>Residual</td>
<td>16007.758</td>
<td>115</td>
<td>139.198</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>16670.769</td>
<td>116</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Summary of Model: \(R = 0.199; R^2 = 0.040; \) Adjusted \(R^2 = 0.031; \) Standard Error = 11.79822.

Table 4 revealed the influence of the school climate on the prediction of teachers’ instructional effectiveness \((F = 4.463; p \leq .05)\). This means that school climate influenced teachers’ instructional effectiveness. The analysis also yielded a co-efficient of multiple
regressions ($R$) of .199 with corresponding $R^2$ of .040 indicating that the independent variable accounted for 4% of the total variance in teachers’ instructional effectiveness in private secondary schools. Therefore, the postulated research question three concluded that school climate had a significant influence on the instructional effectiveness of the secondary schools business teachers in Ijebu Division, Ogun State, Nigeria.

**Discussion**

The result of Question One research indicated that there was a significant and positive relationship between PCK, school climate, and teachers’ instructional effectiveness. The implication of this is that for effective teaching of Business studies to take place in our schools, better school climate and pedagogical content knowledge of teachers should be considered in order to have appropriate preparation and delivering of lessons that will achieve its objectives. This was in line with the findings of Sultan and Shafi (2014) that indicated that teachers’ subject knowledge predicted the school performance. This result is also in consonance with the assertion of Rivkin, Hanushek, and Kain (2005) that school climate is a perfect representation of the physical and psychological aspects of the school that are more vulnerable to change, which provide the essentials necessary for teaching and learning to be effective.

The result of the research of Question Two also indicated that PCK had a significant influence on the instructional effectiveness of the secondary schools business teachers in Ijebu Division, Ogun State, Nigeria. This result is in consonance with the findings of Olasehinde-Williams, Yahaya and Owolabi, (2018) who revealed that the pedagogical and subject content knowledge of teachers significantly predicted teachers’ performance and students’ achievement.

Furthermore, the result of Question Three research revealed that the school climate had a significant influence on the instructional effectiveness of the secondary schools business teachers in Ijebu Division, Ogun State, Nigeria. The finding implies that the teachers’ instructional effectiveness is a product of the school climate and that a better school climate and conducive environment would create an atmosphere that would enhance the teachers’ instructional effectiveness. This result corroborated the findings of Ozgan and Toprak (2012) that discovered that teachers’ perceptions, their interactions with students, problem-solving strategies, learning habits, perceptions about learning, and how these perceptions are transferred to the student are of high importance in creating an effective class. It also supported the assertion of Bai, Heydari, and Niknahad (2014) that school climate definitely affects the teacher’s performance in school.

**Conclusions**

The objective of this study was to find out the influence of the pedagogical content knowledge and school climate on the instructional effectiveness of the secondary schools business teachers in Ijebu Division, Ogun State, Nigeria. With the result of the analyses, it can, therefore, be concluded that there was a significant relationship between the pedagogical content knowledge and school climate, and there was also a significant relationship between the pedagogical content knowledge and instructional effectiveness
of the secondary schools business teachers in Ijebu Division, Ogun State, Nigeria. Furthermore, the pedagogical content knowledge and school climate had a significant influence on the instructional effectiveness of the secondary schools business teachers in Ijebu Division, Ogun State, Nigeria.

**Recommendations**

Based on the findings of the present research, the following are hereby recommended.

1. The Principals and School Authorities should ensure that the cooperative school climate that can inspire teachers to viably carry out their duties is made or created.
2. The government should persuade and support Business teachers to focus on conferences, workshops, and seminars that will boost their pedagogical content knowledge in carrying out their duties productively.
3. The government should inspire and encourage mentoring practice among teachers in schools; the veterans with skilled pedagogical content knowledge should be compelled to serve as mentors for the young teachers.
4. The Ministry of Education officials should always ensure that effective supervisory team is made available to keep an eye on the improvement of each teacher during class sessions.

**References**


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**PSYCHOLOGICAL AND PEDAGOGICAL PROBLEMS OF EDUCATION**
Исследовательская статья

Соотношение педагогических знаний, школьного климата и эффективности преподавания учителей бизнеса в средних школах штата Огун, Нигерия

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В исследовании изучалось относительное влияние педагогических знаний и школьного климата на учебную эффективность учителей бизнеса средних школ в округе Иджебу, штат Огун, Нигерия. Одним из методов исследования был описательный дизайн; для сбора данных применялись «Шкала педагогических знаний», «Индекс организационного климата» и «Опросник эффективности учителей»; для статистической обработки — методы описательной статистики, корреляционный анализ Пирсона и регрессионный анализ. В результате было выявлено, что существует положительная связь между педагогическими знаниями, школьным климатом и эффективностью преподавания у учителей бизнеса средних школ в округе Иджебу, штат Огун, Нигерия. На основе результатов исследования даны рекомендации директорам школ с целью лучшего обеспечения и создания благоприятного школьного климата, способствующего успеху учителей и студентов.
ног о стимулировать учителей эффективно выполнять свои обязанности; правительство Нигерии должно поддерживать участие учителей средних школ в конференциях, мастер-классах и семинарах, что позволит им повысить педагогические знания для эффективного выполнения своих обязанностей.

**Ключевые слова:** педагогические знания; школьный климат; учебная эффективность; учителя; средние школы

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