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Innovative Pedagogical Methods: Effect of Jigsaw With Respect to Rural–urban disparity in students' scholarly performance in upper basic social studies

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Abstract
The study examined jigsaw innovative pedagogical method,with respect to rural-urban disparity in students' scholarly performance in Upper Basic Social Studies. The design for the study was a quasi-experimental pretest posttest control group design. The sample of 120 students was drawn from four upper basic schools. Social Studies Scholarly Performance Test (SSSPT) was used as the instrument for measuring students' scholarly performance. The study's research question was answered using mean, standard deviation and the hypotheses were tested using Analysis of Covariance (ANCOVA). The study revealed that jigsaw innovative pedagogical methodhad significant effects on Upper Basic students' scholarly performance in Social Studies; urban-ruraldisparity does not affect Upper Basic students' scholarly performance in Social Studies. It was suggested thatteachers should adopt the jigsaw innovative pedagogical method in schools' lessons and classrooms to boost students' scholarly performance in social studies;workshops and seminars should be organised for Social studies teachers by the Ministry of Education on usingJigsaw innovative pedagogical method in the social studies classrooms; jigsaw innovative pedagogical method should be engaged in the teaching of Social Studies, and while doing this, no special attention should be attached to urban and rural location of the students concerned.

Key Words: 1. Social Studies **2**. Jigsaw; innovative pedagogical method **3.** jigsaw innovative pedagogical method **4.** Urban-Rural **5.** Urban-Rural disparity **6.**Upper Basic **7.** Scholarly performance.

Introduction

Since the inclusion of Social Studies in the school curriculum in Nigeria, the problem of lack teachers usage of innovative pedagogical methods has been much discussed. The teaching Social Studies in upper basic education level in Nigeria is not encouraging. Efforts have been made bydifferent stakeholders in the education industryto tackle teachers use of teacher-centred pedagogical methods and the lack of usage of innovative pedagogical methodsin Social Studies classrooms but it appears that the problem is still prevalent. Teachers reliance of the traditional methods which are teachers centred could be due to many reasons. The problem is viewed from several angles, including lack of teachers knowledge, unwillinglyness, laziness and lack of infrastructures or school facilities.

Literature has consistently reported teachers over reliance on the traditional teaching methods in Social Studies lessons and classrooms; but Social Studies is a core subject at the Upper Basic level in Nigeria, therefore, to improve students scholarly performance, activity-based teaching methods in Social Studies classroomsis necessary. It has been observed that the problem identified in the teaching and learning of Social Studies at the Upper Basic Level include poor instructional or teaching strategy (Awofala, 2011, Arzel, 2012, Gambari & Olumorin, 2013, Obeka, 2014, Fan, Odidi & James, 2016,Obro, Ogheneaokoke& Akpochafo, 2021). The teaching and learning of Social Studies at the Upper Basic Level follow the traditional strategy (lecture method) of instruction, which have been discovered to impede the development of students' creativity, imagination and intuition. It is also believed that it is limited to some extent and its classroom sceneries are teacher-centred where the teacher habitually talks or pass facts to the students rather than inspiring them to understand or comprehend the lesson thoroughly, interact, or ask questions (Anyichie & Onyedike, 2012; Okon & Archibong, 2015). consequently, there is a need to try out other instructional strategies, such as such as the jigsaw innovative pedagogical methods.

Globally, there have been debates on students' poor performances in Social Studies concerningurban-rural disparity. Some educationists also feel that the school's location (urban-rural schools) has a role to play.Urban-rural disparity is a factor also pointed out in literature as having a possible effect on Upper Basic students' academic performance in Social Studies. Urban and rural in this study refers to where a school is sited or located, whether the school is in an urban centre or a rural area. The significance of examining performance in relation to urban and rural is based mainly on the infrastructural provisions in both the urban and rural schools. The issue of whether urban and ruralaffect students' academic performance is extremely important in education. Agboghoroma (2009) argues that school location plays a significant role in students' knowledge and academic performance. Obiyai (2010) opined that parents and guardians attach so much importance to good academic performance and this has made them transfer their children and wards from one school to another, particularly from rural schools to urban schools.

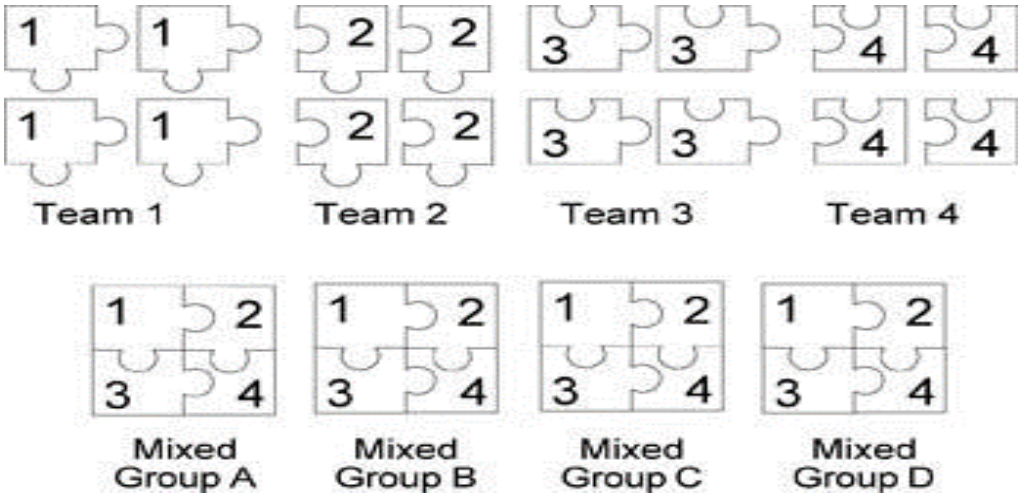
R.Q.

1. What is the effect of Jigsawinnovative pedagogical method on Upper Basic students' scholarly performance in Social Studies?
2. Is there any significant effect of urban and rural disparity on Upper Basic students' scholarly performance in Social Studies?
3. Is there any interaction effect of Jigsaw innovative pedagogical method, urban and rural disparity on Upper Basic students' scholarly performance in Social Studies?

Hypotheses

1. There is no significant effect of Jigsawinnovative pedagogical method on Upper Basic students' scholarly performance in Social Studies.
2. There is no significant effect of urban and rural disparity on Upper Basic students' scholarly performance in Social Studies.
3. There is no significant interaction effect of Jigsaw innovative pedagogical method, urban and rural disparity on Upper Basic students' scholarly performance in Social Studies.

Literature Review
Jigsaw Innovative Pedagogical Method



The jigsawinnovative pedagogical method is a cooperative pedagogical method initially devised by a man named Elliot Aronson. It is a method in which the teacher chooses a central theme and some subtopics around that theme. Learners are divided into heterogeneous groups of 4 or 5, as the home groups. Each learner in the group becomes asubtopicexpert by discussing their topics of expertise with other members of the groups who had similar subtopics. The learners/students then return to their home groups, and through discussion or exchange of ideas, assistand teach other group members their topic. They teach their group, then acquired knowledge and learn the primary theme facts/information from fellow learners or peers. This is followed by an evaluation of

individual students. The evaluation allows for individual accountability(Abdullahi & Salisu, 2017). Thus,the jigsaw method allows each member of a cooperative-learning group to become "specialised," mastering a discrete part of the subject matter required to complete the project. He or she thereby possesses knowledge critical to the rest of the group (Ojekwu, 2020).

It is a cooperative learning technique in which students work in small groups of four to six (Areelu & Ladele, 2018). It is used to develop the skills and expertise needed to participate effectively in group activities, focusing on listening, speaking, co-operation, reflection, and problem-solving skills in the students (Timayi, Bolaji & Kajuru, 2015) . There are generally four stages in the jigsaw process. First, the instructor organises students into heterogeneous home groups (if the instructor has assigned students to base groups during the term, the base group may constitute the homegroup for a given project). Each member of the homegroup is assigned or chooses a part of the subject matter to be explored. In the second stage, students re-form into focus groups centred on their selected topics. In the third stage, these focus groups disband, and the original groups re-form. The home groups now include an "expert" on each subtopic. The experts report their findings to the rest of their home group, and the group discusses the issues in depth. The fourth and final stage of the project requires the group to apply this information. The Jigsaw method is an efficient way to learn in a cooperative learning style (Abdullahi & Salisu, 2017).

In Jigsaw practice, the students act interdependently to assist and learn the academic content from each other. This is becausejigsaw learning strategy revolves around task specialisation (Areelu & Dawodu, 2015). Jigsaw technique can be modified based on the teaching and learning process.

2.1.2. Steps for Implementing the Jigsaw Method (see appendix 3)

Step1- Students are broken up into groups of 4 to 5 students per group. These are called the "home groups". These groups are diverse according to ethnicity, gender, and ability.

Step 2- A team leader is assigned from among the students in each group. Their function is to facilitate group discussions and sharing.

Step3- A different sub-topic is assigned to each student in the home groups. Each student receives a card with their subtopic on it and a few leading questions to help them learn about their topic.

Step 4- Students are given time to work independently to research their topics. The teacher guides them in the right direction.

Step 5- Students form temporary "expert groups" by having the same sub-topic students get into one group. Students are given time to discuss their sub-topics in the expert groups and decide how they would present this information to their home groups.

Step 6- Students present their subtopics to the other group members. Group members are encouraged to ask questions for clarification.

Step 7-A quiz on the material is given at the end so that students can realise that the sessions are not just for fun and games, but that they count.

Studies related to Jigsaw Instructional Method and Scholarly Performance

Several studies have examined the effect of the jigsaw instructional method on students' scholarlyperformance in different subject areas. For instance,Timayi (2016) examined the effects of the Jigsaw method on students performance in Geometry. The study showed a significant difference in performance in favour of studentsinstructed using the jigsaw method. Qaseem (2017)explored jigsaw strategy effect in the teaching of scientific concepts of fourth-graders. The study demonstrated that statistically significant differences were in favour of those instructed using the jigsaw strategy.Areelu and Ladele (2018) examined jigsaw and personalisation instructional strategies in mathematics. The study indicated that students exposed to the jigsaw method improved their performance.Ojekwu (2020) explored the effect ofjigsaw teaching strategy on students' performance. The findings showed a significant effect of the Jigsaw pedagogical method on students performance.

However, others still found no effect of the jigsaw pedagogical method and students performance. Bratt (2008), in his study on the usefulness of jigsaw to reduce prejudice, the study discovered no effect of the jigsaw pedagogicalmethod on the variables investigated. Mark (2011) determined the effect of the jigsaw pedagogicalmethod on content knowledge and attitude toward science learning. The study indicated that performance was essentially the same and learning were higher using the frontal method.

Studies Related to Urban and Rural Disparityand ScholarlyPerformance

Researches have shown a significant difference in students' scholarly performance between rural and urban located schools. For example, Ronfeldt, Kwok and Reininger (2016) revealed significant differences in urban and rural disparity and students scholarlyperformance, where schools in urban centres performed better than schools in rural centres. However, other researchers such as Alokan (2013),Igwebuike and Ikponmwosa (2013) and Genshenson and Langbein (2015)found contrary results from the oneelaborated above. For instance, Abamba(2015)explored the effects of 5E learning cycle on students' achievement in secondary school Physics. The results showed that school location had no significant effect on students achievement.

Similarly, Ekeke (2016) investigated environmental factors as correlates of senior secondary school students' and urban-rural disparity on students performance. The findings proved that disparity existed between urban and rural school students. Adeniyi and Yusuf (2016) examined effect of Computer Assisted Instruction on economics students learning skills. The study showed that the effectiveness of C.A.I. was not affected by urban-rural disparity. Ntibi and Edoho (2017) explored the influence of urban-rural disparity on student's attitudestowards mathematics**.**Analysed data showed a significant difference existed between students in urban centres and those in rural centres. In their study, Osadebe and Oghomena (2018) established a statistically significant relationship between urban and rural disparity and students' performance in Mathematics.

Theoretical Framework.

This study is hinged on Bandura Collective Efficacy of**1986**. The theory postulated that a resilient sense of efficacy enriches human personal well-being and success and in many ways. Students with high assurance in their capabilities approach complex tasks as challenges to be mastered rather than as threats to be avoided. Such an efficacious outlook fosters intrinsic interest in activities. These activities include learners academics, group endeavours and leadership. Theyheighten and sustain their efforts in the face of failure. They quickly recover their sense of efficacy after failures or setbacks. They attribute failure to insufficient effort or deficient knowledge and skills, which are acquirable.

Collective efficacy theory assumes that generally, people with a high level of self-efficacy typically tend to involve themselves in or commit themselves to difficulties with which they are faced. He further states that self-efficacy with motivation effect plays a positive role in making a learner continue his or her learning behaviour. Therefore, this theory is relevant to this study because it explains a close relationship between collective efficacy and intrinsic motivation associated with maximising durability and efficiency while performing a specific task. Furthermore, the theory provides an approach for realising learner-centred meaningful learning effectively for which this study is meant. Primarily, it addresses free real-time interaction between learners based on the expectation of remedying their shortcomings through peer learning, spontaneous correction activities and a factor of increasing scholarly performance.

Methodology

Design

The study was quasi-experimental with a 2x2 factorial design.

SampleSelection

The sample comprised 120 students drawn from four schools. The four schools used were carefully chosen through the multistage sampling technique. Intact classes were used as both the experimental and control groups.

Instrument

Social Studies Scholarly Performance Test (SSSPT) was used to measure students' scholarly performance. The instrument consisted of 30 multiple-choice items.

Reliability

For reliability, the test was administered to 20 students outside the research area, and their statistical scores were used to determine the reliability co-efficient using the

Pearson correlation, which produced an estimated value of 0.77and was considered suitable for thestudy.

Experiment Procedure

The experiment and the control groups were taught by the Social Studies teachers in the selected schools. The SSSPT was administered as a pretest, and at the end of experimentation/teaching, a posttest was given to all groups (experimental and control).

Data Analysis

The data collected were analysed using descriptive statistics and ANCOVA.

Results
RQ1

What is the effect of Jigsawinnovative pedagogical method on Upper Basic students' scholarly performance in Social Studies?

Table 1: Descriptive Statistics of Jigsaw innovative pedagogical method on Upper Basic students' scholarly performance in Social Studies.

Teaching Methods/Treatment	PreTest			PostTest			Gain Value
	N	X	SD	N	X	SD	
Jigsaw innovative Pedagogical Method	56	52.53	13.15	56	71.97	12.97	19.44
Control Group	64	43.54	13.28	64	55.38	11.82	9.84

Table 1 shows that pretest,students instructed using the jigsawinnovative pedagogical methodhad a mean value of 52.53 and 45.54 for the control group. However, at posttest, the jigsawinnovative pedagogical methodgroups had a mean value of 71.97, while the control group had an overall performance mean value of 55.38. This result points out that the jigsawinnovative pedagogical methodgroup improved in their performancethan the control group. Thus, jigsawinnovative pedagogical methodproved to be better than the lecture method in increasingUpper Basic students' scholarly performance in Social Studies.

RQ2

Is there any significant effect of urban and rural disparity on Upper Basic students' scholarly performance in Social Studies?

Table 3: Descriptive Statistics of urban and rural disparity on Upper Basic students' scholarly performance in Social Studies.

Location	PreTest			PostTest			Gain Value
	N	X	SD	N	X	SD	

Urban	56	51.59	11.24	98	65.13	12.85	13.54
Rural	64	48.71	13.63	82	60.76	14.51	12.05

Table 3 shows that students in urban centres had a mean value of 51.59 in the pretest, and a mean value of 65.13 in the posttest, thus having a gain value of 13.54. The rural students had a mean value of 48.71 in the pretest. The posttest recorded a mean of 60.76 and a gain value of 12.05. The result demonstrated that urban students improved in their scholarly performance than the students in the rural centres.

RQ3

Is there any interaction effect of Jigsaw innovative pedagogical method, urban and rural disparity on Upper Basic students' scholarly performance in Social Studies?

Table 5: Descriptive Statistics of interaction effect of Jigsaw innovative pedagogical method, urban and rural disparity on Upper Basic students' scholarly performance.

Strategies	**School Location**	**PostTest**		
		N	**X**	**SD**
Jigsaw Innovative Pedagogical Method	Urban Rural	30 26	70.71 70.90	9.90 14.17
Control Group	Urban Rural	36 28	57.63 50.43	12.01 7.84

Table 5 shows that urban students in the jigsawinnovative pedagogical methodhad a mean value of 70.71 and the control method 57.63. On the other hand, the students in rural centres had a mean value of 70.90 in the jigsawinnovative pedagogical method, and the control grouphad 50.43. Comparatively, the jigsawinnovative pedagogical methodhad a more significant interaction on students' scholarly performance in urban and rural schools, as shown in their posttest mean value of 70.71 (urban) and 70.90 (rural). In addition, the jigsawinnovative pedagogical methoddiffered from the control group of 57.63 (urban) and 50.43 (rural).

Hypothesis 1

There is no significant effect of jigsawinnovative pedagogical methodon Upper Basic students' scholarly performance in Social Studies.

Table 2: Summary of ANCOVA on Effect of Jigsaw Innovative Pedagogical Methodon Students' Scholarly Performance.

Source	Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	5395.034	1	5395.034	33.354	.000
Intercept	682415.044	1	682415.044	4450.248	.000
Jigsaw	5395.034	1	5395.034	33.354	.000
Error	27568.078	118	169.984		
Total	766568.000	120			
Corrected Total	34834.121	119			

Table 2 shows that Jigsawinnovative pedagogical method on Upper Basic students' scholarly performance in Social Studies. Data in the table revealed that the effect of Jigsawinnovative pedagogical method on students' scholarly performance in Social Studieswas significant (F (1,118) = 33.354, p = 0.000). Thus, the no effect of Jigsawinnovative pedagogical method on Upper Basic students' scholarly performance in Social Studies null hypothesis was rejected. This additional information led to the conclusion that the effect of the pedagogical method hasa significant and substantial recommendation of the jigsawinnovative pedagogical method may be correct based on this result.

Hypothesis 2:
There is no significant effect of urban and rural disparity on Upper Basic students' scholarly performance in Social Studies.

Table 4: ANCOVA of urban and rural disparity on Upper Basic students' scholarly performance in Social Studies.

Source	Type III Sums of Squares	df	Mean Square	F	Sig.
Corrected Model	867.331	1	867.331	4.669	.532
Intercept	710618.797	1	710618.797	3825.294	.000
Urban and Rural	867.331	1	867.331	4.669	.532
Error	33066.780	118	185.768		
Total	754668.000	120			
Corrected Total	34834.212	119			

Table 4 reveals no significant effect of urban and rural disparity on Upper Basic students' scholarly performance, F (1,118) = 4.669, p= .532). This means that urban and

rural disparity does not affect Upper Basic students' scholarly performance. In other words, there is no urban-rural effect and differences in students'scholarly performance. Thus, the hypothesis of no significant effect of urban and rural disparity on Upper Basic students' scholarly performance in Social Studies was upheld.

Hypothesis 3: There is no significant interaction effect of Jigsaw innovative pedagogical method, urban and rural disparity on Upper Basic students' scholarly performance in Social Studies.

Table 6: ANCOVA of Interaction between Jigsaw innovative pedagogical method, urban and rural disparity on Upper Basic students' scholarly performance.

Source	Type III Sums of Squares	df	Mean Square	F	Sig.
Corrected Model	9828.170	4	1965.634	14.188	.000
Intercept	706230.913	1	706230.913	5.098E3	.000
Jigsaw * Urban/Rural Disparity	9828.170	4	1965.634	14.188	.000
Error	33066.780	116	138.540		
Total	754668.000	120			
Corrected Total	34834.212	119			

Table 6 reveals that the interaction between Jigsaw innovative pedagogical method, urban and rural disparitywas significant. This is so because the calculated F-value of F 14.188 is greater than the critical F value of p< 0.001 using df 4 and 116 at 0.05 level of significance. Therefore, the null hypothesis of no significant interaction effect was rejected. Itwould, therefore,meanthat there was a significant interaction effect of Jigsaw innovative pedagogical method, urban and rural disparityon Upper Basic students' scholarly performance in Social Studies.

The finding in Table 5 is graphically presented in Figure 1. Figure 1 shows interaction, meaning there is a significant interaction between instructional strategy, urban and rural. This indicated that students in urban and rural centres were responsive to the jigsaw innovative pedagogical method;hence, the interaction did exist graphically. Furthermore, the interaction was experienced at the jigsaw innovative pedagogical methodlevel. Urban and rural, thus, does combine with Jigsaw innovative pedagogical method to improve students' performance.

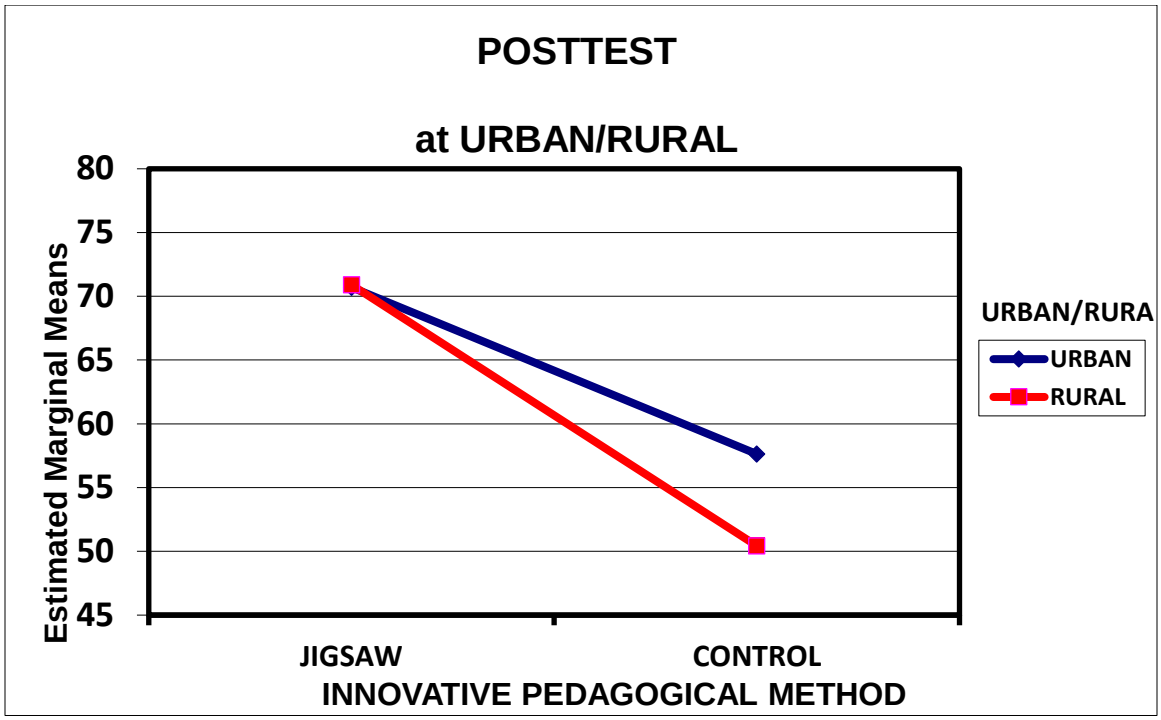


Fig. 1: Interaction between Jigsaw innovative pedagogical method, Urban and Rural Disparity on scholarlyperformance.

Graphically, Fig 1 shows that Jigsaw innovative pedagogical method was better than the control group. Thus, Jigsaw innovative pedagogical method affects Upper Basic students' scholarlya performance in Social Studies in urban and rural locations.

Discussion of Findings

Jigsaw innovative pedagogical methodwas discovered to be more effective than the lecture or control method. Furthermore, students exposed to Jigsaw innovative pedagogical methodperformed better than those exposed to the control method. This implies that Jigsaw innovative pedagogical method would significantly increase students' scholarly performance than the control lecture strategy if used effectively. This result, therefore,is in conformity with Timayi (2016), Qaseem (2017),Areelu and Ladele (2018),and Ojekwu (2020)on the efficacy of Jigsaw innovative pedagogical methodon Upper Basic students' scholarly performance in Social Studies. Additionally, the result of this study is also in agreement with the works ofTimayi, Bolaji and Kajuru, 2015) andAbdullahi and Salisu(2017), who had reported that the effectiveness of Jigsaw innovative pedagogical method on Upper Basic students' scholarly performance; but at discrepancy with Bratt (2008) and Mark (2011) whose studies reported no effect of the jigsaw innovative pedagogical method on Upper Basic students' scholarly performance

The resultof hypothesis two showed that urban and ruraldisparity does not affect Upper Basic students' scholarly performance in Social Studies. In other words, the disparity between urban and rural students performance did not exist. Therefore, as long as the innovative pedagogical methodprovides equal chances or opportunities for the students

irrespective of whether the school is situated in an urban or rural location, students' scholarly performance will probably be the same.This finding is in agreement with those of Obomanu and Nbina (2011), Borisade (2011), Alokan (2013),Igwebuike and Ikponmwosa (2013),Genshenson and Langbein (2015),Bulala1, Ramatlala and Nenty (2014), Misan-Ruppee (2015); while it disagrees with those of Hassan (2001), Agboghoroma (2009), Yusuf and Adigun (2010), Alordiah, Akpadaka and Oviogbodu (2015), Mhiliwa (2015), Opoku-Asare andSiaw (2015), OkorieandEzeh (2016), and Ellah and Ita (2017),Ntibi and Edoho (2017) and Osadebe and Oghomena (2018), that found that urban and rural has significant effect on students' performance. To this extent, the finding concluded that urban and ruraldoes not affect Upper Basic students' scholarly performance in Social Studies.

Conclusion

The study established that jigsaw innovative pedagogical methodboosted students' scholarly performance in Social Studies. This is demonstrated in the higher and improved performance values achieved by students who were exposed to it. It was also observed that dispassionateis urban and rural disparity unbiased or dispassionatesince urban and rural students improved their scholarly performance equally. As long as the Jigsaw innovative pedagogical methodprovides equal chances or opportunities for the students, irrespective of whether the school is situated in an urban centre or rural area, students' scholarly performance is likely to be the same.

Recommendations

1. Teachers should adopt the jigsaw innovative pedagogical methodin schools' lessons and classrooms to boost students' performance in social studies.
2. Workshops and seminars should be organised for Social studies teachers by the Ministry of Education on usingJigsaw innovative pedagogical methodin the social studies classrooms.
3. Jigsaw innovative pedagogical methodshould be engaged in the teaching of Social Studies, and while doing this, no special attention should be attached to urban and rural location of the students concerned.
4. Social Studies teachers in both urban and rural schools should be encouraged to use Jigsaw innovative pedagogical method;
5. Social Studies teachers should not consider the variable of urban-rural disparity when presenting Social Studies materials in the classroom.
6.

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