

---

**EFFECTIVE STRATEGIES FOR MINIMIZING THE GAP BETWEEN  
TEACHING AND RESEARCH IN TECHNICAL EDUCATION FOR  
SUSTAINABLE YOUTH ENGAGEMENT IN RIVERS STATE**

---

**UKELABUCHI ILOMA**

*Department of Electrical Electronics Technology Education,  
Federal College of Education (Technical) Omoku,  
Rivers State.*

**DR. OKECHUKWU AMADIKE**

*Department of Industrial Technology Education,  
Michael Okpara University of Agriculture,  
Umudike.*

*and*

**OBIAZI AUGUSTA OSAJI**

*Department of Building Technology Education,  
Federal College of Education (Technical) Omoku,  
Rivers State.*

**Abstract**

*This study was on effective strategies for minimizing the gap between teaching and research in technical education for sustainable youth engagement in Rivers State. Two research questions and two hypotheses guided the study. The population of the study consists of all male and female teachers of government technical colleges in Rivers State. Sixty two respondents consisting of 38 male and 24 female respondents were purposively sampled from four schools. The instrument used for data collection was a 20 - item questionnaire which was face validated by three research experts and a reliability index of 0.87 was obtained using Cronbach Alpha Reliability for estimate of internal consistency. Mean and standard deviation were*

*used to answer all research questions while Z- test was used to test the hypotheses. The findings, among others show that: research active instructional strategies and the use of student-centered pedagogies are effective strategies for minimizing the gap between teaching and research in technical education. Recommendations include socializing information obtained from research as well as follow up and monitoring of formal processes of research transfer to teaching in technical education department.*

Rivers state is one of the six states in the South-South geopolitical region of Nigeria. It was created in 1967. According to census data released in 2006, the state has a population of 5,185,400, making it the sixth-most populous state in the country of which youth constitute significant percentage of this population. The state has 5 technical colleges and one Federal college of education (Technical) and it plays host to numerous indigenous and multinational companies (River State government, 2015). The pride of any government is the attainment of higher values and levels of skilled manpower in such a way that its citizens would enjoy dividends of socio-economic development and sustainability that would yield to natural attachment to governance. It is necessary that the youth be purposeful engaged if they have to contribute their quota meaningfully to better the society. The role of education towards this noble task is imperative because education is an essential tool for achieving economic growth by bringing about important changes in the way people think and do things and thus popularly accepted to be the core instrument for any meaningful development at all levels of human endeavors.

Education is an instrument that transforms the totality of the individual into a functional citizen (Ogakwu & Isife, 2012). Noting the significance of education in human survival, National Policy on Education (2004) describes it as an instrument “par-excellence” for effecting national development. According to Alumode (2010), education is the process by which the child, the youth and the adults are adequately prepared for physical, mental, moral and spiritual growth to enable them live and contribute positively towards the development of the society. Education therefore facilitates the process of transmitting culture, knowledge, skills and positive attitude for the socio-economic and political development of any society.

The aspect of education that leads to the acquisition of practical and applied skills as basic scientific knowledge is technical education (Federal Republic of Nigeria, FRN, 2004). Its aim among others is to provide technical and vocational skills necessary for agricultural, industrial and economic development (FRN, 2004). Obunadike (2012) noted that technical education is a prerequisite for human, material, socio-economic and technical development of any nation. Technical education synthesizes education and training, ensuring that there is smooth transfer of relevant skills to learners which enable them possess the relevant competencies that will make

them adopt the new changes of technology and thus apply them to earn improved standard of living.

The National Policy on Education (2004) emphatically stated the goals of technical education to include provision of trained manpower in the applied sciences, technology, business and management leading to the production of trained manpower; to give training and impart the necessary skills for the production of technicians, technologists and other skilled personnel who shall be enterprising and self-reliant. Technical education is therefore the process that leads to the successful acquisition of skills, knowledge and morality through formal learning and application of scientific theories and principles for the purpose of developing techniques and or providing goods and services as well as developing technology itself (Ali, 2001).

Skills improve security and enable individuals to create more wealth. It facilitates increased productivity and sustainability of manpower thereby increasing opportunities for the employed and those seeking self-employment to thrive in a dynamic and competitive economy and thus increases youth engagement in productive ventures. Youth engagement is the meaningful participation and sustained involvement of a young person in an activity, with a focus to better his life and that of others (Centres of Excellence for Children's Well being, 2015).

The viability of any economy depends to a large extent on the availability of trained and competent youthful manpower of all genders. Functional training institution which guarantees equity in enrolment, participation, training and acquisition of relevant skills is essential in meeting this demand (Iloma & Amadike, 2013). However, for any educational goal to be achieved, the teachers' role plays prominence. A teacher is a person whose job is teaching (Hornby, 2004). The teacher is one who engages students in learning activities with the intentions of imparting knowledge that will result to a relatively permanent change in the behavior of the learners. Mkpa (2000) describes the teacher as the fulcrum around which the curriculum lever revolves. The Federal Ministry of Education (2002) describes the competent teacher as one who imparts knowledge to learners.

Teachers' competency is functions of training, experience and the mastery of the instructional methods used in facilitating the achievement of teaching objectives. Alio (2010) therefore opines that technical instructor should be a master of the subject matter or the skill he teaches, he should be resourceful, healthy and very conversant with various teaching method that is capable of facilitating teaching and learning processes in technical institutions. Ozioko (2011) also stated that a productive teacher is one who is conversant with the use of various modern teaching strategies for optimal goal achievement. Teaching involves creative thinking and experimentation, hence teachers' exposure, experience and educational qualifications synthesized with innovations obtained through systematic research processes which are aimed at improving the teaching and learning of technical education for youth engagement through innovative instructions becomes imperative.

Innovation in the teaching of technical education is the process of adding new ideas to the teaching and learning of technical education in order to make the system more productive for the purpose of achieving improved economy through the acquisition and application of relevant skills (Iloma, 2013). Quality information that facilitates innovations in the instructional processes in technical education may be achievable through the systematic process of data collection, collation, analysis, interpretation and application of the collected data. The awareness that human endeavors including instructional processes are characterized by different forms and magnitudes of problems capable of frustrating goal achievement makes it necessary for innovative solutions to be sought thus making research in technical education imperative.

Research is the systematic inquiry directed towards finding solution to the problems that confront man in all aspects of human endeavors (Wali, 2002). In education, it is the purposeful and systematic process of data collection, collation, analysis and subsequent interpretation of the result of the analysis with the view of using the result to add, improve or modify, refute or change current knowledge, skill and habit associated with teaching and learning (Idoko, 2011). Idoko further opined that no aspect of the educational enterprise is free from problem be it theory, policy, programme, planning, implementation, evaluation, staff and staffing, facilities, equipment etc. Alio (2008) defined educational research as the systematic process of finding solution to educational problems. Problems are basically sequential impediments that have the tendency of obstructing effective functioning of the educational system leading to low achievement of set objectives. Research in technical education is therefore the systematic process of finding solution to various problems associated with technical education.

Research is significant in technical education because it contributes to solving problems, yield data in form of facts, principles and generalizations which are necessary for formulating or up-grading existing theories, policies, evaluation and innovations. It also yields data for improving skills resulting from new findings, increases the scope of knowledge and hence modifies instructional process and the products of technical education. Knowledge economy demands academics to be creative and gain ability to create, find, and synthesize new knowledge to solve academic problems (Jenkins 2000).

In deliberate efforts to encourage and improve the teaching process through the application of quality research findings, the Federal Government of Nigeria established research institutions and intervention agencies. Such include Tertiary Education Trust Fund (TETFund) established in June 2011 and Nigerian Educational Research and Development Council (NERDC) which was established in 1988 (FGN, 2014) among others. While TETFund responsibilities include but not limited to sponsoring researches in academic institutions, that of NERDC include but not limited to encouragement, promotion and co-ordination of educational research programmes

carried out in Nigeria; identification of education problems in Nigeria in which research is needed, and financing research projects as well as periodical compilation and publication of a list of research projects.

Since educational research has been identified as a veritable instrument that leads to the acquisition of new and relevant knowledge required for solving problems in education (Idoko, 2011), it implies that the transfer of such knowledge obtained in the research to useful applications through formal processes that will ensure that youth are meaningfully engaged is important. Knowledge transfer is the movement of knowledge via some channel from one individual or firm to another (Sexton & Barrett 2004).

Instructional processes in technical education have been more of research - dormant making the application of research knowledge difficult. Findings have however revealed that it is essential for academics to be research-active in order to deliver good quality teaching (Sepani & Dilanthi, 2015). Sepani & Dilanthi further stated that if academics are research-active the transfer of research into teaching will happen naturally and informally. Badley (2002) also opined that research-informed teaching is a dialogical and dialectical processes between teachers and students and hence an effective way to link research and teaching.

The use of teachers-centered pedagogies like the lecture method (which is a process whereby the teacher verbally delivers a pre-planned body of knowledge to the students who listens and jot down points) in science and technical courses have also been identified as impeding indebt inquiry among teachers and students (Epeya, 2010) and may not be facilitative in stimulating research transfer processes. Student-centered instructional strategies such as constructivism and interactive pattern among others which has the tendency of stimulating critical thinking among teachers and students may be significant in minimizing the gap between teaching and research. Student-centered learning, also known as learner-centered education, broadly encompasses methods of teaching that shift the focus of instruction from the teacher to the student (Wikipedia, 2015). It exposes teachers and students to processes of seeking solution to instructional processes and thus facilitate the smooth and natural application of research findings in the teaching process. Sepani and Dilanthi (2015) have also opined that effective teaching methods such as student-focused teaching stimulate critical thinking, providing those with research training and knowledge skills that facilitate research to teaching transfer. Sepani and Dilanthi further opined that research into teaching and teaching into research in which learning becomes the overlapping concept is a veritable way of linking research and teaching.

Although extensive volumes of quality research as well as means of facilitating teaching and learning in technical education has accumulated over the years, the persistence utilization of the old instructional processes in technical education may mean that adequate applications of research results is lacking. Brew (2003) observed that research-based departments (such as technical education) are poor at transferring

their research knowledge into teaching especially at undergraduate level. This gap may not only result to waste of time and scarce resources but can as well impact negatively on the achievement of the goals of technical education as stipulated in the National policy on education (2004) and thus hinder meaningful and productive youth engagement. This negation has the tendency of increasing poverty, unemployment and encouraging anti-social behavior among the youths. Scott (2004) opines that in the knowledge society, research and teaching are no more separable activities and that the impact of the knowledge society has been to make research and teaching even more intimate. This study is therefore on effective strategies for minimizing the gap between teaching and research in technical education for youth engagement in Rivers State. Specifically, this study sought to:

- i. determine the perception of male and female technical college teachers on the use of research-active instruction as a strategy for minimizing the gap between teaching and research in technical education
- ii. find out the perception of male and female technical college teachers on the use of student-centered pedagogy as strategy for minimizing the gap between teaching and research in technical education.

### **Research Question**

The study is guided by the following research questions:

- i. what is the perception of male and female technical college teachers on the use of research-active instructions as a strategy for minimizing the gap between teaching and research in technical education?
- ii. What is the perception of male and female technical college teachers on the use of student-centered pedagogy as a strategy for minimizing the gap between teaching and research in technical education?

### **Hypotheses**

- i. there is no significant difference between the mean perception of male and female respondents on the use of research active instructions as a strategy for minimizing the gap between teaching and research in technical education
- ii. there is no significant difference in the perception of respondents on the use of student-centered pedagogy as a strategy for minimizing the gap between teaching and research in technical education

### **Method**

A descriptive survey research design was adopted for this study. According to Nworgu (2006), descriptive survey describes in a systematic manner the characteristics, features and facts about a given population. Stratified random sampling was used to purposively draw a sample of 62 out of 102 teachers consisting of 38 male and 24 female teachers from four technical colleges in Rivers State. A structured questionnaire

consisting of 20 items in a four point rating scale of Strongly Disagree (1 point), Disagree (2points), Agree (3points), and Strongly agree (4 points) was used to generate information from the respondents. The instrument was face validated by three experts from the faculty of education, Ignatius Ajuru University of Education, Port Harcourt. Cronbach Alpha reliability was used to determine the reliability of the instrument and it yielded 0.87 indicating that the instrument was reliable for this study. Respondents were asked to indicate their opinion on the item of the instrument. The instrument was distributed and retrieved by the researcher on the spot after completion. Mean statistic and standard deviation were used to answer the research questions while the hypotheses were tested at 0.05 level of significance using Z- test. Items with mean value of 2.50 and above were accepted while those items with mean value below 2.50 were rejected.

## **Results**

### **Research Question 1**

What is the perception of male and female technical college teachers on the use of research-active instructions as a strategy for minimizing the gap between teaching and research in technical education?

**Table 1: Mean ratings and standard deviation on the use of research-active instructions as a strategy for minimizing the gap between teaching and research in technical education.**

S/N	Item	Male N=38			Female N= 24		
		X <sub>1</sub>	SD <sub>1</sub>	Dec	X <sub>2</sub>	SD <sub>2</sub>	Dec
1	It enables teachers/students participate actively in research	4.19	0.67	A	4.15	0.83	A
2	Instructions are rooted on findings made by teachers and students	4.70	0.43	A	4.66	0.50	A
3	Experimentations are stimulated	4.15	0.67	A	3.95	0.70	A
4	Answers to tasks are often based on findings made by teachers and students	3.28	0.65	A	4.00	0.88	A

5	teachers are challenged to make more realistic findings to address class room problems	4.53	0.50	A	4.51	0.49	A
6	the teacher harnesses various findings by students and utilize them to facilitate classroom instructions	4.29	0.70	A	4.33	0.44	A
7	New findings are naturally and informally applied	4.11	0.54	A	4.09	0.70	A
8	Teaching is facilitated by innovations	4.19	0.73	A	4.21	0.68	A
9	Innovations in classroom instruction improves students' retention and interest	4.65	0.46	A	4.71	0.35	A
10	Promotes skills in relating research results to classroom activities	4.10	0.63	A	4.03	0.82	A
	Grand X and SD	3.82	0.59	A	4.26	0.64	A

Table 1 show that both male and female technical teachers agree to each of the ten items. The overall mean scores of both respondents show that they agree to each of the ten items on the use of research-active instructions as a strategy for minimizing the gap between teaching and research in technical education. A grand mean score of 3.82 with standard deviation of 0.59 was obtained for male while a grand mean score of 4.26 with a standard deviation of 0.64 was obtained for female technical teachers respectively on the items of the instrument which are greater than the cutoff point of 2.50.

### **Research Question 2**

What is the perception of male and female technical college teachers on the use of student-centered pedagogy as a strategy for minimizing the gap between teaching and research in technical education?



**Table 2: Mean ratings and standard deviation on the use of student-centered pedagogy as a strategy for minimizing the gap between teaching and research in technical education.**

S/N	Item	Male N=38			Female N=24		
		X <sub>1</sub>	SD <sub>1</sub>	Dec	X <sub>2</sub>	SD <sub>2</sub>	Dec
11	teaching is facilitated by teacher and students' knowledge	4.19	0.67	A	4.15	0.83	A
12	Knowledge outside the class plays prominence in the teaching/learning process	4.70	0.43	A	4.66	0.50	A
3	Stimulated experience in pseudo-teaching situation is induced	4.15	0.67	A	3.95	0.70	A
14	There is always the need to apply new knowledge by the teacher	3.28	0.65	A	4.00	0.88	A
15	Teacher requires current skills to handle students' divert findings	4.53	0.50	A	4.51	0.49	A
16	Teacher must be familiar with current trends in accomplishing instructional objectives	4.29	0.70	A	4.33	0.44	A
17	Teachers needed upgraded skills in order to appropriately harness students' knowledge	4.11	0.54	A	4.09	0.70	A
18	Instructional processes are research driven	4.19	0.73	A	4.21	0.68	A
19	Teachers knowledge on instruction is often challenged by students quality findings	4.65	0.46	A	4.71	0.35	A

20	Application of research findings in the teaching process occurs naturally	4.10	0.63	A	4.03	0.82	A
<b>Grand X and SD</b>		<b>3.82</b>	<b>0.59</b>	<b>A</b>	<b>4.26</b>	<b>0.64</b>	<b>A</b>

Table 2 shows that the respondents agree to each of the ten items of the instrument. The overall mean score shows that the respondents agree that the use of student-centered pedagogy is a strategy for minimizing the gap between teaching and research in technical education. Grand mean score of 3.47 and a standard deviation of 0.61 were obtained for male while a grand mean score of 3.46 and a standard deviation of 0.60 were obtained for female technical college teachers on the items of the instrument which is greater than the cutoff point of 2.50.

### **Hypotheses**

Ho<sub>1</sub>: there is no significant difference between the mean score of male and female respondents on the use of research active instructions as a strategy for minimizing the gap between teaching and research in technical education for youth engagement.

**Table 3: Z-test summary of the mean rating of technical college teachers' perception on the use of research active instructions as a strategy for minimizing the gap between teaching and research in technical education.**

Respondents	N	X	SD	Df	Z-cal	Z-crit	Decision
Male	38	3.82	0.59	60	0.57	1.96	Not rejected
Female	24	4.26	0.64				

Table 3 shows a Z-calculated value of 0.57 which is less than the Z-critical value of 1.96. Hence the null hypothesis is not rejected. This implies that there is no significant difference between the mean perception of male and female respondents on the use of research active instructions as a strategy for minimizing the gap between teaching and research in technical education

Ho<sub>2</sub>: there is no significant difference in the perception of respondents on the use of student-centered pedagogy as a strategy for minimizing the gap between teaching and research in technical education for youth engagement

**Table 4: Z - test summary on the use of student-centered pedagogy as a strategy for minimizing the gap between teaching and research in technical education.**

Respondents	N	X	SD	Df	Z-cal	Z-crit	Decision
Male	38	3.47	0.61	60	0.12	1.96	Not rejected
Female	24	3.46	0.60				

Table 4 shows a Z-calculated value of 0.12 which is less than the Z-critical value of 1.96. Hence the null hypothesis is not rejected. This implies that there is no significant difference between the mean perceptions of male and female respondents on the use of student-centered pedagogy as a strategy for minimizing the gap between teaching and research in technical education.

### **Discussion of Findings**

The study revealed that respondents agree that among others, research-active instructions enable teachers /students to participate actively in research, instructions are rooted on findings made by teachers and students, experimentations are stimulated, the teacher harnesses various findings by students and utilizes them to facilitate classroom instructions, teaching is facilitated by innovations and the strategy makes research knowledge to be applied in classroom instructions naturally and informally.

This result is in consonance with the findings of Sepani and Dilanthi (2015) and Badley (2002). They opined that for a smooth and natural transfer of research to teaching, research-informed-teaching is imperative as it will enable both the teacher and students to always find new knowledge to facilitate tasks in instruction. The technical colleges should device a means of ensuring that teaching is research-active to enable smooth transfer of the accumulated research knowledge to teaching and thus enhance youth competencies for meaningful engagement.

The findings further revealed that the respondents agree that in the use of student-centered pedagogies, teaching is facilitated by teacher and students' knowledge, knowledge outside the class plays prominence in the teaching/learning process, stimulated experience in pseudo-teaching situation is induced and there is always the need to apply new knowledge by the teacher due to the dynamic nature of the class. This makes it imperative for teachers to update their skills to aid them in handling students' divert opinion satisfactorily and hence impact the needed competencies that will promote meaningful youth engagement among learners.

The finding is in line with that of Scott (2004) and Brew (2003) that as a result of the quality of knowledge obtained from research, research and teaching should not be separable but even more intimate. This can be stimulated by the use of systematically planned student-centered pedagogies in technical education. Hence, the

use of student-centered pedagogies is a strategy in minimizing the gap between teaching and research in technical education for youth engagement.

The study also found that there is no significant difference between the mean score of male and female respondents on the use of research active instructions as a strategy for minimizing the gap between teaching and research in technical education for youth engagement. Furthermore, the study found that there is no significant difference between the mean score of male and female respondents on the use of student-centered pedagogy as a strategy for minimizing the gap between teaching and research in technical education for youth engagement. The result agrees with the findings of Okeke (1999) and Udofia (2009) on male and female achievement in technical related subjects.

### **Conclusion**

Based on the findings of this study the respondents identified among others that research-active instructions enable teachers /students to participate actively in research, instructions are rooted on findings made by teachers and students, experimentations are stimulated, the teacher harnesses various findings by students and utilizes them to facilitate classroom instructions, teaching is facilitated by innovations and the strategy makes research knowledge to be applied in classroom instructions naturally and informally for a facilitated skill acquisition for youth engagement. Hence the use of research active instructions is a strategy for minimizing the gap between teaching and research in technical education for youth engagement. The findings also identified that in the use of student-centered pedagogies, teaching is facilitated by teacher and students' knowledge, knowledge outside the class plays prominence in the teaching/learning process, stimulated experience in pseudo-teaching situation is induced and there is always the need to apply new knowledge by the teacher due to the dynamic nature of the class and hence minimizing the gap between teaching and research in technical education for youth engagement.

### **Recommendations**

The following recommendations were made:

- i. department should socialize research knowledge by ensuring periodic interaction on research issues among staff of technical education
- ii. follow-up and monitoring of formal process of research transfer should be encouraged by authorities in technical education
- iii. research active teachers should be encouraged to teach all levels of technical education to facilitate research transfer
- iv. periodic evaluation of the transfer process should be encouraged

#### Reference

- Alumode, B. E. (2010). *Education for national development in the 21<sup>st</sup> century Nigeria*: A lead paper presented at the 2<sup>nd</sup> national conference of the Faculty of Education, Enugu State University of Science and Technology (ESUT), Enugu.
- Ali, A. (2001). *Science and Mathematics Education as tools for poverty alleviation*. A lecture presented at the Federal College of Education (Technical), Umuze.
- Alams, G. (2008). The role of technical and vocational education in the national development of Bangladesh. *Asia Pacific Journal of Co-operative Education*. 9(1), 25-44.
- Alio, A. N. (2008). *Fundamentals of educational research*. Enugu: Samireen Nig. Ltd.
- Badley, G. (2002). A really useful link between teaching and research. *Teaching in Higher Education* 7(4): 443-455.
- Centers for Excellence for Children's Well-Being (2015). Youth engagement. [http://www.tgmag.ca/aorg/pdf/Whatis\\_WEB\\_e.pdf](http://www.tgmag.ca/aorg/pdf/Whatis_WEB_e.pdf). Retrieved 20/8/2015
- Elton, L. (2001). "Research and teaching: conditions for a positive link." *Teaching in Higher Education* 6 (1) 43-56.
- Epeya, S. (2010). *Relative effectiveness of constructivist, guided-discovery and expository instructional strategies on achievement of senior secondary students in Physics*. Unpublished doctoral thesis, Rivers State University of Science and Technology, Port Harcourt.
- Federal Republic of Nigeria (2004). *National Policy on Education*. 4<sup>th</sup> Edition. Lagos: NERDC Press.
- Federal Republic of Nigeria (2014). Nigerian Educational Research and Development Council (NERDC)
- Hornby, A. S. (2004). *Oxford advanced learners dictionary of current English*. Oxford: University Press.
- Rivers State Government (2015). Available at [https://en.wikipedia.org/wiki/Rivers\\_State](https://en.wikipedia.org/wiki/Rivers_State). retrieved 30/8/15

- Scott, P. (2004). Knowledge work in a knowledge society: rethinking the links between university teaching and research, The keynote speech presented at the Higher Education Academy Learning and Teaching conference, The University of Hertfordshire, UK., [http://www.heacademy.ac.uk/curriculum\\_ICO18D\\_KnowledgeWork.doc](http://www.heacademy.ac.uk/curriculum_ICO18D_KnowledgeWork.doc).
- Sepani S., Mike K., Dilanthi A., David B., Ghassan A. & Andy B, (2005). "Research knowledge transfer into teaching in the built environment", *Engineering, Construction and Architectural Management*, 12 (6), 587 – 600. Retrieved on 25<sup>th</sup> August, 2010 from <http://www.emeraldinsight.com/doi/abs/10.1108/09699980510634146>
- Idoko, C. E. (2011). *Research in Education and social sciences (practitioners' companion)*. Enugu: Our Saviour Press Ltd.
- Iloima, U. (2013). Effect of digital technology on the teaching and learning of basic technology in junior secondary schools in Rivers State. *Journal of Studies in Education*, vii (1),59-66.
- Iloima, U. & Amadike, O. (2013). Gender Disparity in Electrical Electronics Technology in Rivers State of Nigeria: Influence of Culture in the 21<sup>st</sup> Century. *Nigerian Journal of Education, Science and Technology*,2(1),174-182.
- Jenkins, A. (2000). "The relationship between Teaching and Research: where does geography stand and deliver?" *Journal of Geography in Higher Education* 24(3): 325-351.
- Mkpa, M. A. (2000). Teacher's preparation for successful UBE in Nigeria: A commission paper presented at the 43<sup>rd</sup> Annual National Congress of ANCOPPS, Umuahia, Abia State, August 16
- Nworgu, B.G. (2006). *Educational research: Basic issues and methodology*. Nsukka: University Trust Publishers.
- Obunadike, J. C. (2012). Effective staff management: A sine qua non for quality assurance in education. *Lit Academic Journal*. 1(1), 191-200.
- Okeke, E. A. C. (1999). Sex differences in understanding important biological concepts. *Nigerian Journal of Education*, 12 (1), 125 – 132.

*Effective Strategies for Minimizing the Gap Between Teaching and Research in Technical Education For Sustainable Youth Engagement in Rivers State - Ukelabuchi Iloma ; Dr. Okechukwu Amadike and Obiazi Augusta Osaji*

---

- Sepani, S. & Dilanthi, A. (2015). Principles of integrating research into teaching in higher education: A knowledge transfer perspective. Retrieved 23<sup>rd</sup> August from [http://usir.salford.ac.uk/9910/1/188\\_Senaratna\\_S\\_and\\_Amaratunga.pdf](http://usir.salford.ac.uk/9910/1/188_Senaratna_S_and_Amaratunga.pdf)
- Sexton, M. & Barrett, P. (2004). "The role of technology transfer in innovation within small construction firms." *Engineering, Construction and Architectural Management*, 11(5): 342-348.
- Udofia, A. E. (2009). *Effects of e-learning and project methods on students psychomotor skill acquisition in Electrical Installation works in technical colleges in Akwa Ibom State*. Unpublished Ph. D. thesis, University of Uyo, Uyo.
- Wali, G. I. (2002). *Educational research: A functional approach*. Port Harcourt: Harey Publications Company.
- Wikipedia (2015) [https://en.wikipedia.org/wiki/Teaching\\_method](https://en.wikipedia.org/wiki/Teaching_method) retrieved 24/8/2015.
- Wikipedia (2015). *Student-centred learning - Wikipedia, the free encyclopedia* [https://en.wikipedia.org/wiki/Student-centred\\_learning](https://en.wikipedia.org/wiki/Student-centred_learning). Retrieved 24/8/2015