# Attitude of Female Students to Research-Teaching Linkage: A Case Study of Students of Lagos State Polytechnic, Ikorodu

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## Abstract

*The connection between teaching and research is an important element of learning in higher institution. Thus, this study measured attitude of female students of Lagos State Polytechnic, Ikorodu-Lagos to the connection between teaching and research. It also identified the module (s) of research-teaching linkage in terms of curriculum design most preferred by students. Frequency table, mean score, standard deviation and bar chart were used to analyze data obtained through questionnaire and personal interview of respondents. Result revealed that students had strong positive attitude towards teaching and research connection with slight deviance in teaching with skill of research-teaching models by the teachers. The study therefore recommends that students should be motivated more to attend and participate in conferences, workshops and seminars related to their field of study and application of research findings be incorporated into the curriculum.*

**Keywords:** *research, teaching, learning, institution, female-students*

## 1. Introduction

The ability to seek critically, evaluate and integrate appropriately is an evidence for a good research and innovations which is recognized as an important aspect of effective development in professional practice (Willians and Coles, 2003). The emphasis on the linkage between research as a discipline for student in higher institution has increase in recent years. Most institutions have formulated strategies to link teaching and research effectively which have stimulated the staff to become more active in research. This reason is based on the belief that research has a positive effect on teaching as it keeps teaching up-to-date on new methodological approaches. And on development which are of theoretical or applied significance to their subjects. The consequence of this is that students should be kept up-to-date with the subject they are learning. Ball and Mohammed, (2010) viewed that teaching and research are inseparable. They are of the opinion that we live in an age where intersections and integration are the breeding ground of novelty. It is at the intersection and integration of learning, discovery, and citizenship, and through integration of all these fundermental that will inspire students to achieve their potential. In such an intellectual climate where gifts are discovered, passions are ignited, and purpose is imagined. We must

integrate to discovery into all aspects of learning (Halliwell, 2008).

Attitude has recently received considerable attention from all spheres of learning. Most researchers have concluded that student's attitude is an integral part of learning and that should become an essential component of learning pedagogy. Attitude according to Saracaloglu, (2005) is a manner of consistency toward an object. It is characterized by a large proportion of emotional involvement such as feelings, self-relationship in community. It is an evaluative reaction to some referent or attitude object, inferred on the basis of the individual's beliefs and opinions about the referent.

Developing educational sector requires repositioning of female within the sector. The reality of the gross under-representation of sub-Saharan African girls and women in science, mathematics, and technology (STM) is unsettled (Kouassi, 1999). The 'unbalanced' complex and inequality of female towards scientific findings and teaching mirrors the situation found in the level of technological transformation. The government's focus on the continuing professional development of teachers; the standards and requirements being set for registration and the renewed attention to bridging the gap between research and practice from professional bodies, indicate that the professional teacher is expected to be a user of research evidence. This is further emphasized by new attempts to enhance access to research for teachers such as online access to research digests and reports and provision of systematic reviews of research information by organizations and institutional journals.

To this end, the connection between research and teaching, sometimes referred to as the nexus, should be emphasized as a core business in learning institutions. The curriculum has become the central site where the teaching research linkage has been realizing (Ball and Mohamed, 2010). There are numbers of possible reasons for seeking a greater understanding of the ways in which research and teaching are inter-related. These include increasing student motivation; flexibility in the curriculum in order to keep pace with the fast rate of change within the research and development agenda of the discipline; and providing an educational experience preparing them to be independent and life-long learning. Only a few students will specialize in research. But many will be professional and their roles will require them to constantly update their own skills, keep pace with ongoing change, and apply the high level skill associated with design, understanding and analysis. These are often associated with a curriculum that has successfully been integrated to teaching and research perspectives.

To develop linkages between research, learning and teaching in which academic staff build the teaching-research nexus through approaches will include:

- Drawing on personal research in designing and teaching courses;
- Placing the latest research in the field within its historical context in classroom teaching;
- Designing learning activities around contemporary research issues;
- Teaching research methods, techniques and skills explicitly within subjects;
- Building small-scale research activities into undergraduate assignments;
- Involving students in departmental research projects;
- Encouraging students to feel part of the research culture of departments;
- Infusing teaching with the values of researchers; and
- Conducting and drawing on research into student learning to make evidence based decisions about teaching.

The challenges for higher institutions which support the student experience of research are to recognize the complexities of the potential relationships between research and teaching. Therefore they develop practical integrated strategies to manage any tension and disruptive interactions. Moreso, they exploit positive relationships to deliver strategic aims. Thus, the central objective of this linkage is how research informs teaching and does not consider how teaching might inform research; which it can in many disciplines. An ideal way to achieve many of the dimensions of the teaching-research nexus is to draw on the knowledge, skills and experience of the visiting researchers/teachers who pass through an institution each year; through presentations and

lectures to undergraduates, or through their leadership of class discussions.

In order to identify the nature of research-teaching link, it is important to understand that there are many ways of linking research and teaching other than students learning about subject knowledge through lectures. Students may learn about research methods and techniques by undertaking their own projects, whether individually or in teams; they may assist staff with their research' and they may gain experience of applied research-based approaches in the way they teach through, for example, adopting an inquiry-based learning and investigating the learning that takes place in their courses, to enhance their own teaching.

Ball and Mohamed (2010) provided a useful distinction between research-led, research-oriented, research-based and research-informed teaching thus:

1. Research-led: The curriculum is structured around subject content and the content selected is directly based on the specialist research interests of teaching staff. Teaching is often based on a traditional information transmission model. The emphasis tends to be on understanding research finding rather than research processes and limited emphasis is placed on maximizing the potential positive impacts of teaching on research.

2. Research-oriented, in this case, the curriculum places emphasis as much on understanding the processes by which knowledge is produced as on learning the codified knowledge that has been achieved. Careful attention is given to the teaching of inquiring skills and on acquiring a research ethos. The research experiences of teaching staff are brought to bear in more diffuse way.

3. Research-based: The curriculum is largely designed around inquiring based activities, rather than on the acquisition of subject content. The experiences of staff in processes of inquiry are highly integrated into the student learning activities; the division of roles between teacher and student is minimized; the scope for two-way interaction between research and teaching is deliberately exploited.

4. Research-information/tutored, There is drawn consciously on systematic inquiring into the teaching and learning process itself.

The core of research activity according to Ball and Mohamed (2010) should be 'knowledge pursuit and creation by academics within an intellectual space that celebrates scientific inquiry, integrity, rigor, critique and autonomy. If this is achieved then it will be beneficially economical and social; consequences may flow in the form of knowledge dissemination, education, funding, and institutional, career and academy status' (Morrison, 2002).

Many different discussions have been advanced in support of the idea that doing research will improve teaching. Literature revealed that exposure to a person who is actively engaged in research will result in students acquiring the "qualities of mind". Furthermore, if academic teachers are not involved in research, then they are simply not at the forefront of their discipline. Hence the students are at disadvantage. Students seeking a higher education do so because they expect to have teachers who have gone beyond the average level of knowledge. Profound knowledge of teacher about subject is considerably more important in the students' eyes than the instructional skills of an academic.

Therefore, this study shall provide answer to the following research questions:

1. Which mode of research-teaching linkage in terms of curriculum design is most preferred by female students?

2. What is the attitude of the female students toward research-teaching linkage?

The focus of the study is to investigate the attitude of female students to research-teaching linkage and repositioning of female education for technology transformation, with the objectives:

1. To identify which mode of research-teaching linkage in terms of curriculum design is most preferred by students, that is, research-tutored; research-based; research-led; or research-oriented.

2. To measure attitude of students towards research-teaching linkage.

## 2. Methodology

The study population was the 95 number of final year female students of school of agriculture and technology selected from department of Agricultural Extension and Management, Hospitality Management Technology and Computer Science of the Lagos State Polytechnic, Ikorodu in 2011/2012 session. The rationale for the selection of final year students was that it is expected that their views about the linkage would be more discerning. For this study, a random sample of 80 students was chosen and questionnaire and interview schedule were used as the most appropriate means of obtaining independent data from students. The instruments were face validated by expert teachers in research methodology. The questionnaire used was divided into three parts. The first aimed to obtain demographic data of the respondents, the second part sort to find the knowledge of students about research-teaching linkage in term of the curriculum design: research-tutored, research-based, research-led or research-oriented. Students were provided explanations of these four modules. The third part included 21 variables which were considered as indicators of the extent to which respondents' attitude towards the research-teaching linkage.

Likert scale of 5 (most preferred), 4 (preferred), 3 (undecided), 2 (less preferred) and 1 (not preferred) was used to measure the respondents' response to their preference on the four modules listed. While, scales of 1 (strongly disagree), 2 (disagree), 3 undecided, 4 (agree) and 5 (strongly agree) was used to measure the respondents' attitudes towards the nexus. In addition bar charts, standard deviation, percentages and the mean difference were used to measure and analyze data obtained, using the Statistical Packages for Social Science (SPSS) version 11. A total of 71 valid and usable questionnaires were completed and used for analysis, given a response rate of 88.75%.

## 3. Results

The results show that most of the female students surveyed (62.0%) were within 21 – 25 years of age (Fig. 1) with majorities (94.4%) being single and 85.9% as prospecting Higher National Diploma (HND) graduates.

**Table 1:** Level of preference of research-teaching linkage

| S/N | Variable | Most preferred (5) MP | | Preferred (4) P | | Undecided (3) U | | Less preferred (2) LP | | Not preferred (1) NP | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | F | % | F | % | F | % | F | % | F | % |
| 1 | **Research-Led:** Teaching curriculum structured around current subject content. | $9_b$ | 15.8 | 7 | $12.3^L$ | 10 | 17.5 | 19 | $33.3^H$ | 12 | 21.1 |
| 2. | **Research-Oriented:** Curriculum emphasizes teaching process of knowledge construction in the subject area. | $7_c$ | 12.3 | 9 | 15.8 | 5 | $8.8^L$ | 18* | $31.6^H$ | 18* | $31.6^H$ |
| 3. | **Research-Based:** Curriculum designed on students undertaking inquiry based learning rather than acquisition of subject content. | $4^L$ | 7.1 | 9 | 16.1 | 17 | 30.4 | 15 | $26.8^H$ | 11 | 19.6 |
| 4. | **Research-Tutored:** Curriculum emphasizes on focused learning on students writing and discussion skills of essay and papers. | $4^L$ | 6.7 | $20_a$ | $33.3^H$ | 8 | 13.3 | 14* | 23.3 | 14* | 23.3 |

NB: F=frequency, %=percentage, $^H$ & $^L$ = highest and lowest variable scale, * = variable scales with same number of frequency and $_{a\text{-}c}$= level of preference of linkage.

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**Table 2:** Attitude of female students toward research-teaching linkage

| Variable | N | S | M | *SD |
|---|---|---|---|---|
| Teacher should use examples from his/her research in lectures | 62 | 239 | 3.85[1] | 1.14 |
| Research in your discipline is important. | 61 | 230 | 3.77[2] | 1.24 |
| An academic researcher makes a good teacher. | 62 | 232 | 3.74[3] | 1.38 |
| You feel that academic research carried out in LASPOTECH is credible. | 60 | 213 | 3.55[4] | 1.17 |
| Being involved in research activities is beneficial | 58 | 204 | 3.52[5] | 1.33 |
| There is a two way transfer of knowledge in the class, i.e.; between you and the teacher | 60 | 211 | 3.52[6] | 1.38 |
| Research modules enabled you to have a positive attitude towards knowledge | 62 | 218 | 3.52[7] | 1.25 |
| Due to research modules, you have gained an analytical approach | 58 | 203 | 3.50[8] | 1.22 |
| The research modules gave you much more self confidence | 61 | 212 | 3.48[9] | 1.21 |
| Research plays an important role in enhancing the quality of your educational experience in general | 63 | 217 | 3.44[10] | 1.38 |
| It could be stated that you are generally satisfied with the links between research and teaching | 61 | 210 | 3.44[11] | 1.16 |
| The research-modules approach is of a great value to you | 62 | 213 | 3.44[12] | 1.28 |
| Teacher facilitates teaching through illustration from personal experience | 62 | 213 | 3.44[13] | 1.25 |
| You feel the currency of teacher's knowledge | 62 | 212 | 3.42[14] | 1.17 |
| Due to research modules, your opportunity to enquire and criticize has been increased | 60 | 199 | 3.32[15] | 1.30 |
| Much more applied practical curricula are needed. | 62 | 204 | 3.29[16] | 1.35 |
| You are aware of the majority of research that goes on in your field | 59 | 193 | 3.27[17] | 1.11 |
| The link between teaching and research has motivated you to study and attend classes. | 64 | 207 | 3.23[18] | 1.42 |
| You feel that teacher is too busy in his/her own research and should give more time to students | 61 | 196 | 3.21[19] | 1.31 |
| Teacher shows eagerness in class to teaching. | 60 | 190 | 3.17[20] | 1.18 |
| You have many opportunities to present/publish research work. | 61 | 185 | 3.03[21] | 1.44 |

NB: N= frequency, S= sum statistic M= mean statistic, SD= standard deviation, superscripts [1-21]; descending means score of respondents.

Result shows that 58.6% of respondents first learn about research methodology after secondary school, majorly, at higher school. This result is further affirmed by the mean score of 2.44 and the variance of response from the scale showing a slight nearness in responses of respondents (SD=0.79). Also, valid percentage of 54.9 and 19.7 revealed that female students surveyed learn/heard about research methodology as subject taught by teacher and when they undertake research project respectively. Thus, mean score of 3.74 showed that respondents perceived the relationship between research and teaching as tangible connection relating to the transmission of advanced knowledge and the most recent information and as an intangible connection relating to the development in student's approach and attitude towards knowledge. However, about 40.5% also perceived the relationship as global connection describing the interaction between teaching and research at both department and individual levels. Fig. 2 shows that respondents were more familiar with research-oriented as research-teaching modules (36.5%), research-based (22.2%), research-tutored (20.6%) and research-led (4.8%) respectively and about 15.9% of respondents were not familiar with any of the modules listed.

To provide answer to the first research question in this study, respondents revealed that both research-tutored and research-led modules were the most preferred linkage (33.3% and 15.8% respectively), whilst research-oriented and research-based were less preferred (31.6% and 26.8% respectively) despite been familiar with these two modules (Table 1). Also, it was gathered from

interview that they were familiar with the project report style of discussion of their research work during departmental viva (oral examination). The students' attitudes toward research-teaching linkage were measured with variables shown in Table 2. Results revealed the level of mean statistics in descending order, showing that respondents agreed that teacher should use examples from his/her research in lectures (M=3.85) and undecided response towards having many opportunities to present/publish research work (M=3.03) as the highest and lowest mean score respectively. Also, the variability between each score and the mean was evidence as responses of respondents surveyed were nearer to the mean score (*SD=1.14 & 1.44)

Majority of the respondents agreed that (M=3.52) the modules enabled them to have positive attitude towards knowledge, this is further affirmed as they felt that being involved in research activities is beneficial and aid transfer of knowledge between teacher and student. Also, it aid students in getting an analytical approach and a remarkable development in their research skills and self-confidence. The positive attitude of respondents toward the linkage, development of research skill and self-confidence was confirmed by the work of White and Irons (2007) cited by Ball and Mohamed (2010) as the modules are crucial to satisfying students with the teaching-research linkage. Ball and Mohamed (2010) suggested that lecturers could be considered as power engines, generating satisfaction amongst students through their enthusiasm, currency of knowledge and effective communication. However, students needed more examples derived from their research to be discussed in lectures which is in consonance with the level of response by the respondents in this study that teacher should use examples from his/her research in lectures (M=3.85).

**Fig. 1:** Age distribution of respondents
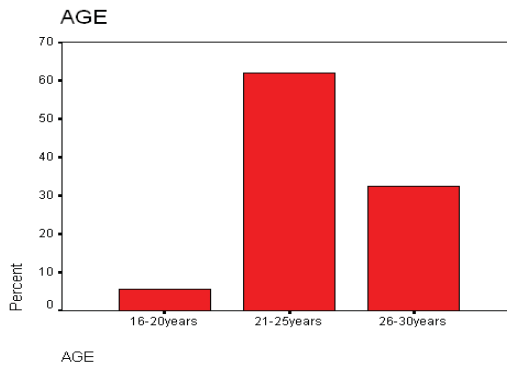


**Fig. 2:** Research-teaching modules respondents are familiar with
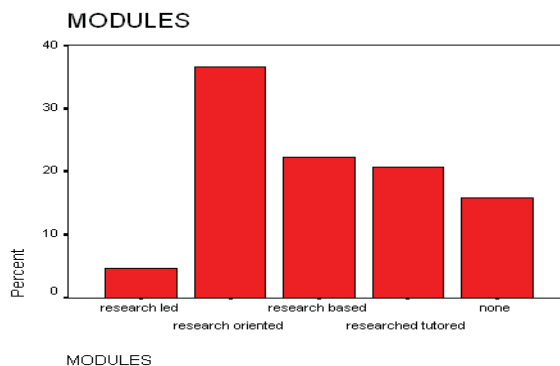
## 4. Conclusion and Recommendations

This study investigated the attitude of female students to research-teaching linkage and which of the modules the students' preferred. Results showed that the students surveyed had a positive attitude towards this linkage since it helped them develop their research methodology skills and aid their research project work. The study also unexpected found that teachers are too busy in their own research and thus do not give their students enough time was not supported, showing that the teachers plan their time well to enabled a balanced approach to research and teaching. Furthermore, research-tutored module that allows curriculum emphasizes on focused learning on students writing and discussion skills of essay and papers. Thus, this module is students focused and allow students participation in research.

To this end, the following recommendations were deduced from the study:

1. Female students should be motivated more to take part in conferences, workshops, and seminars and any other related academic exercise related to their course.
2. Some of the implications and applications of the researcher's work should be incorporated in the curriculum content of study.
3. Female students should be provided with updates of the school research activities to enhance the credibility of the institute to the students.

This study required more investigation on how institutions respond to students' disposition in their policies and strategic planning and further study is required in testing the attitude of male students towards the linkage. Moreover, given the complex nature of the research-teaching nexus, more success factors and other stakeholders, such as academics and managers, and also, male students should be investigated using multivariate analysis to build collaborative system with stronger links between research and teaching.

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