

PSYCHOLOGY OF 'LEARNING' AND 'DOING' RESEARCH AMONG THE NIGERIAN POST-GRADUATE STUDENTS

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Abstract

This research studied the connection between learning of research methods and conducting research, among postgraduate students in the universities of south eastern Nigeria. The purpose was to describe the experiences of postgraduate students with regards to learning and doing research. Two research questions and two null hypotheses guided the study. A mixed-methods employing descriptive-survey and grounded theory designs were adopted. 102 postgraduate students from four universities were sampled through a snow-ball convenience technique. The study used 20-item structured and unstructured surveys to collect data over a period of twenty six months. Major findings of the research revealed that there was disconnect between what post-graduate students learned in research methods classes and what they experienced during the conducting of research. Studied postgraduate students fell into LEDOR quadrants, and their percentile ranking reported high-high LEDOR = 42%, low-high LEDOR = 3%, low-low LEDOR = 39%, high-low LEDOR = 16%. Based on the findings, it is recommended that teacher-researchers provide commensurate hands-on during research classes, and supervisors provide differentiated mentoring.

Introduction

By the time they are in the University, learners are expected to have developed a higher aptitude for critical thinking and problem solving. For the most part, this aptitude is shown in their final year studies, not necessarily in the examination, but in their research project. What they leave as foot-prints are cumulative records of their grade point average (GPA) in transcripts and a copy of their research report in the library.

Evidence-based method of inquiry into issues and problems in education is believed to have proven the most authentic way of addressing issues and solving of the problems (Problems in the government, in the society and in academia a better solved through research. Universities have been the *bona fide* institutions entrusted with the task of using scientific and evidence-

based methods to solve problems and address issues, through research. If the task of research is not done satisfactorily, the implication is that universities have failed in their duties to the society, the academia and the government which rely on them for evidence-based information and findings. Research is *knowledge* as well as *skill*. It is in the conducting and reporting of research that its contribution to the society is sharpened out.

Researchers and educators agree that the basic steps of research include *introduction, literature review, methodology, results and analysis, and discussion of findings* (Okpala, 1995; Akubailo, 2003; Creswell, 2009; Nworgu, 2015). Educational researchers and educators have grouped research into three major categories. One category is qualitative model and major components include ethnography, grounded theory and narrative. Another category is quantitative model which comprises correlational, experimental and survey designs. The last group is the mixed-methods and action which consists of designs in qualitative and quantitative models (Strauss & Corbin, 1998; Creswell, 2009; Woolfolk, 2010). Whichever model is used to address an education research problem, there is need to be rigorous in the conducting of research.

Research intensity makes postgraduate programmes scholarly in knowledge, and scientific in practice. For postgraduate students in education, when emphasis is on practice, then more hours are spent on training and developing skills; whereas a great deal of time is spent on developing and training researchers and thinkers when emphasis is on scholarship (Shulmann, Golde, Bueschel & Garabedian, 2007). Scholars argue that the field of education has struggled to balance between producing experts in the *practice* and producing experts in *research* (Fraser, Walberg, Welch, Hattie, 1987; Page, 2001; Metz, 2001; Lagamann & Schulman, 2006; Nwagwu & Ivowi, 2014).

Teaching and learning are improved through evidence-based inquiry. Societies and economy are improved and sustained through evidence-based investigations, and scientific enquiry methods of answering perturbing questions and addressing problems. Research helps to test theories and inform practices, substantiating what works efficiently, while questioning or jettisoning what does not work and what is no more relevant. Worthwhile research studies provide fillings for gaps in theories and in praxes.

Postgraduate students are the hope of future research life of any university. If postgraduate students learn and do research correctly and well, chances are that they pass on the baton correctly as it has been passed unto them by their teachers and supervisors. If postgraduate students fail to learn and do research properly, there may be problems in the future with regards to

scholarly investigations and evidence-based practices in problem-solving logistics. This study investigates how postgraduate students report their competence and confidence, related to research learning and research doing. The study examines some of the psychological influences on the postgraduate students when they go through the process of a research cycle such as studying, conducting, evaluating and reporting research projects. Specifically, this research focuses on the postgraduate students' *learning* and *doing* of research. The area of the study covers Nigerian universities of the south east geopolitical zone. When research is taught as a subject, the effort is to develop critical thinking and creative problem-solving skills in the learners (Resnick & Schofield, 2003; Booth, Colomb & Williams, 2003; Hostetler, 2005). Scientific method of thinking and problem-solving is learned through research instructions. As learning of research goes on, training, presumably, goes on hand-in-hand during classes on research methods.

Mentoring is an aspect of expert development. An important aspect of mentoring during supervision of postgraduate research work is the guidance provided during literature review. Boote and Beile (2005) believe that a substantive, thorough and sophisticated literature review is the foundation for scholarly useful research, particularly when using quantitative designs. Literature review in chapter two provides scientific framework for analytic findings in chapter four and discussions in chapter five. Although the onus of literature review is on the supervisee, the supervisor's mentoring includes helping the supervisee with resourcing for literature materials. In that regard, the supervisor also helps the supervisee to make connections between what is reviewed and the research problem at hand.

Expert-novice interaction model (ENIM) below provides useful information with regards to the type of *interaction-spaces* in mentoring for supervision. Interaction-space is a term coined to describe the expert-novice, teacher-learner, adult-child relationship in which the experienced-other instructs, advises or mentors the inexperienced-other. Interaction-space is scheduled into four quarters, namely quadrant one, quadrant two, quadrant three and quadrant four. Students are dependent on the teachers for supervision, guidance and mentoring purposes in the expert-novice interaction model. The teacher's mentoring effect brings about the changes that take place in the student's development. The psychological preparedness that students bring in, and graduate with, is believed to border around interests, drives, *flow*, motivation, abilities and existing cognitive templates (Hill, 2002).

Quadrant One: In this mentoring space, teacher and learner are actively engaged. Activities initiated in this mentoring space include scaffolding, discussions, differentiation, connective trajectories, and self-

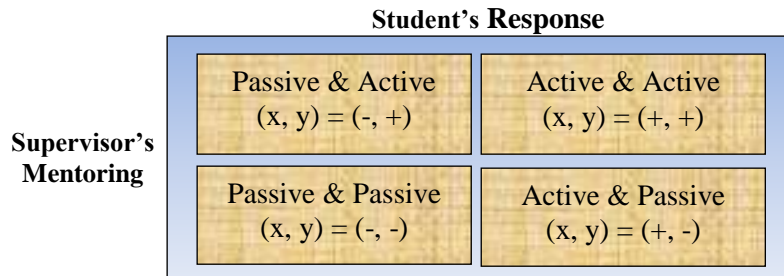
regulatory strategies. Differentiated mentoring and provision of intensity for gradient level of supervision takes place at quadrant one mentoring space. Supervisor's tones are emphasized during differentiated mentoring and supervision. Some students need harsh corrections from the onset while some require only moderate corrections at the beginning of supervision. The levels of challenge are tailored by the supervisor to suit the cognitive ability of the student-researcher. The supervisor constantly and steadily provides a step-by-step guide designed to help the learner-researcher make a gradual improvement within his/her zone of proximal development (ZPD) (Santrock, 2004). Teacher-researcher reading experience is astronomical in this space. In a study to examine development of epistemic identity, Udoye, (2007) discovered that years of experience is not a significant factor in the development of epistemic identity related to mentoring and guiding in expert-novice supervision within this space. The supervisor in quadrant one mentors the supervisee in the use of self-regulatory strategies, such as development of time-line; use of timetable and learning styles (Zimmerman & Schunk, 2002).

Quadrant Two: Teacher is passive while learner is active in this mentoring space. The supervisee is eager to learn how to do research and practise what is learned in the research class. The supervisor in this space knows little or nothing about the research topic in question or research methods in general. It is the *escape* practice of the teacher-researcher that makes this quadrant unique. Student-researcher challenges the teacher-researcher while the latter uses intimidation or ego-inflation to subjugate the mentored.

Quadrant Three: In this space, the teacher-researcher and student-researcher are passive. Research is poorly conducted. Research engagement lacks quality. *Hidden curriculum* is used by the student-researcher while the teacher-researcher lacks *withitness* to notice. The research report and its quality in this mentoring space fall short of anything called standards.

Quadrant Four: The last quadrant provides a platform of interaction on which the teacher-researcher is active while the learner-researcher is passive. Teacher-researcher provides reading materials and information on how to use and get more materials. In this space, the teacher-researcher does much of the reading and extensive corrections as though the research is being written by him or her, while the learner-researcher does much of the complaining. The learner in this space does little or nothing about the research, providing excuses for his or her passivity.

Figure 1. Expert-novice Interaction Model



Expert-novice Interaction Model (ENIM). Adopted from Udoye on RTI at University of Saint Francis, Forte Wayne, 2012.

The following research questions and hypotheses guided this study:

- How do postgraduate students describe their research ‘doing’ experiences?
- How does research ‘learning’ connect to research ‘doing’ for the postgraduate students?
- There is no significant difference between male and female postgraduate students related to their categorical responses on the LEDOR-survey.
- The postgraduate students’ LEDOR-survey responses to research methods do not significantly differ from their mean achievement scores on the research methods classwork.

Method

This study adopted a descriptive-survey and grounded theory methods. Over a period of twenty six months, data was collected from four universities in the south east Nigeria purposefully coded A, B, C, and D. The codes were used to assure respondents of protected confidentiality which enabled them participate objectively with ease and freedom. Snow-ball sampling of 102 postgraduate students from faculty of education was used where either course reps or categories of postgraduate students identified others in their category. Categories included 15 Ph.D. students, 38 Masters students, and 49 Postgraduate Diploma in Education (PGDE) students. A 20-item survey, termed LEDOR, which consisted of structured and unstructured response types, was used. Spearman rank-order and axial coding were used for data analyses. The hypotheses were tested at $p < .05$ level of significance.

Results

In response to research question one, 73% of the participants used the words *bush, house, ocean, forest, farm, child, tree, desert, and creation* to

describe their experiences. A few of the participants says it is like *giving birth to a child*. When completing the sentence in the question ***Doing research is like ...***, some said, *lost in the desert, climbing, swimming in a big ocean, steps-climbing, tree-climbing, mountain-climbing, forest-adventure, entering bush, building, house-building, and creating an art*. 95% of participants categorically described their research experience as ‘stressful’ while 86% of the participants responded that they wish they *could graduate without having to do research*. 58% of the participants reported that their *supervisor was helpful* while 41% of them *felt like they were on their own*, without a supervisor. 39% of those who participated said that they did not do their research by themselves. 42% of the participants fell in the category of first LEDOR belonging to the *high-high* space. 3% reported in the second LEDOR categorized in the *low-high* space. The third LEDOR space of *low-low* has 39% of the participants while the fourth LEDOR category of *high-low* registered 16% (see **Figure 3** below).

Table 1 Summary of responses to research question two (**LEDOR-Survey 2**)

S/N	Description of LEDOR-survey items	True	False	% T	% F
1	Conducting research connects to learned research methods in class.	28	74	27%	73%
2	Doing research more interesting than learning research.	21	81	21%	79%
3	Use learned research methods to do research project.	25	77	25%	75%
4	Doing research different from learned research in class.	75	27	74%	26%
5	Research doing more stressful than research learning.	64	38	63%	37%
6	Understood learned research methods during classes.	23	79	23%	77%
7	Had enough practices and <i>hands-on</i> during research methods classes.	20	82	20%	80%
8	Learning research methods when on the field.	78	24	76%	24%
9	Research methods classes helpful in doing real research.	27	75	26%	74%
10	Competent to do research project for graduation.	65	37	64%	36%
	SUMMARY of TOTAL responses	409	611	40%	60%

In response to research question two, an average of 74% of postgraduate students who participated reported that in their view there was disconnect between the research methods they learned in class and the research project they were doing for graduation. Nonetheless, 64% of the participating students reported that they were competent in conducting their graduating research project. While twenty respondents from one University reported that they had *enough practice* and *hands-on* during their research methods classes.

To test the first H₀ data analysis revealed that there was no significant relationship between gender and LEDOR-survey responses, *except* for items Nos. 2 and 7. When a chi-square test was computed for LEDOR-survey items' categories Nos. 2 and 7, and gender, the result showed that there was significant relationship between gender and LEDOR-survey responses ($X^2 = 4.2$, $df = 1$, $p = .04$) for *doing research is more interesting than learning research*; and ($X^2 = 5.0$, $df = 1$, $p = .03$) for *I had enough practices and hands-on during research methods classes*. More female postgraduate students than female reported more affirmatively to *doing research is more interesting than learning research*; but more male students than female reported *use of hands-on and practices*.

Table 2

Testing for relationship between achieved learning in research methods classes and LEDOR-survey

		LEDOR_Surv	AchvtinRClass
Spearman's rho	Correlation Coefficient	1.000	.052
	LEDOR_Surv Sig. (2-tailed)	.	.601
	N	102	102
AchvtinRClass	Correlation Coefficient	.052	1.000
	Sig. (2-tailed)	.601	.
	N	102	102

** . Correlation is significant at the 0.01 level (2-tailed).

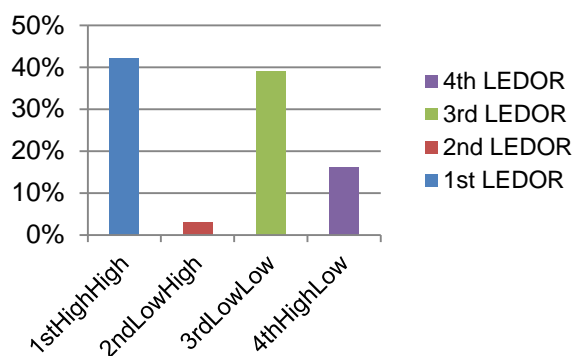
* . Correlation is significant at the 0.05 level (2-tailed).

While degree-in-view has significant negative relationship with responses on LEDOR-survey $n = 102$; $r = -.426$; $p = .000$, two-tailed; achievement in learned research-methods classes is not significantly related to LEDOR-survey responses, $n = 102$; $r = .601$; $p > .05$ as seen above on *Table 2*. Interpretive analysis of the result could be that the high scores reported by the students do not mean that students actually mastered the subject-matter of research methods, and the high scores do not insinuate that they are skilled in the science of research conducting and reporting. It is worth noting that close to the number of students who said they wish to *graduate without having to do research* reported that they are *competent with research conducting*. The

discrepancies in the participants' responses drew the analytic attention of the researcher.

Figure 3

Result of LEDOR-Space Representation



Discussion

Research skills are learned during research-methods classes and lessons. The skills learned from these classes are termed 'tools' by different educators. The tools include investigating parts of the whole, investigating relationships of the parts, logic principles and modules in reasoning, use of abstract thinking, creative criticisms and critical critiquing skills, and use of scientific techniques in problem-solving (Creswell, 2009; Taines, 2008; Labaree, 2003; Page, 2001). It is during instructions on research methods that students learn the skills of using these tools in thinking, and many students score high in research class achievement results. Meanwhile, a large number of participants report that there is disconnect between what is learned in research methods classes and the actual conducting of research. Research projects describe and interpret specialties and specializations. Labaree, (2003) argues that postgraduate students of education are 'grown-ups', insinuating that they are prepared to start contributing to the research productions from their level and after they graduate.

The observations revealed that the LEDOR-space of the quadrant one yielded students' optimal satisfaction. Supervisees in this LEDOR-space felt their interest in research conducting increased. They became interested in doing further research as their interest in scientific problem-solving increased. Such supervisees in this space were more exposed to further educational problems. Participants who fell in this space completed their research project on a satisfactory timeline with reduction in stress.

Students in quadrant two LEDOR-space tended to be unguided and, because students were on their own with a passive supervisor, they were easily misguided. High achieving students were lowered and levelled with average achievers. The supervisor's incompetence was covered up, and replaced with inactive research profile and blame-game such as being busy. 'Sub-standard or low-standard' type of research projects was reported. Students in this space did not have back-ups and support for research. They either became peer-teachers to one another or became their own teacher through the internet browsing, downloading, copying and pasting.

Quadrant three LEDOR-space provided a platform where teacher and learner struggled. The contents of the research projects were reported in substandard or unstandardized forms and shapes. Sometimes, the contents were reported with a lot of loopholes to errors and disconnects. In this space, poor analyses were presented and supervisee's analytical powers were weak. From participants' responses, one could suggest the possibility of copying others' work or plagiarizing, since the motivation to graduate over-powered the motivation to contribute to research. The significant number of students who fell in this space drew a critical attention of the researcher.

In quadrant four of the LEDOR-space, supervisees were overwhelmed and could suffer *stuck syndrome*. If the syndrome persisted, the students might achieve failure by, sometimes, dropping out of the programme. Stress and coping problems increased in this space. Those on this platform who determined to graduate but could not move on with the research project hired other researchers to do the work for them. It was in this space that supervisee's research '*lies*' were reported. *Copy-and-paste* was used by participants on this platform as escape route from the cul-de-sac of stuck-syndrome.

In summary, one could say that research learning and research doing follow the pattern of information processing – GIGO principles. What a student does during research conducting and reporting largely depends on what he or she learns during research methods classes. The knowledge base for research forms the long-term storehouse from where all unique experiential, individual, personal, normative and particular researchers' creativity taps from, to bring out a new product during research studies (Phye, 1997; Labaree, 2003). If there is discrepancies in the learning and doing of research as discovered in the reports above, then the goal of research is defeated and there is a problem at the roots.

Conclusion

In this academic epoch the *impact factor* piece was introduced into the university system to check excesses and abuse of *publish or perish*

phenomenon. Impact factor assures the public, as a control measure, the quality of the quantity of research production. Why would a producer continue to manufacture products that no consumer is interested in? Would a producer continue to mass-produce if all the past products are sitting in the warehouse or recycled by other producers? These are rhetoric but critical questions to be answered about intellectual productions of research projects. It can be deduced from aforementioned questions that it is a sheer waste of time unless research projects reach the hands of the consumers. The postgraduate students whose research products sit on the university library shelves, other than being *used as copy materials*, fall into same category unless their research projects begin to impact upon the academic and government systems, as well as wider societies.

This study showed some discrepancies between what the postgraduate students claim they have learned and what they do on the field. The LEDOR-spaces provide an insight in the learning and doing of research by the postgraduate students. LEDOR-space three, though least reported, requires a critical look. Like any other *space*, motivation is needed to move students out of it. If postgraduate students do not get adequate motivation on their LEDOR-space, they may drop to the LEDOR-space next to it and lower in standard. If the supervisor in first LEDOR-space does not keep to the upbeat, the space could gradually erode into second or fourth LEDOR-space. The goal of every worthwhile research experience is to sustain learners in the first LEDOR-space.

References

- Akubuilu, E. (2003). *Research and statistics in education and social sciences: Methods and application*. Awka: Nuel Centi Publishers and Academic Press Ltd.
- Babbie, E. (1998). *The practice of social research*. Belmont, CA: Wadsworth.
- Boote, D. N. & Beile, P. (2005). Scholars before researchers: On the centrality of the dissertation literature review in research preparation. *Educational Researcher*, 34(6), 3 – 15.
- Booth, W. C., Colomb, G. G. & Williams, J. M. (2003). *The craft of research*. Chicago: The University of Chicago Press.
- Bullough, R. V. (2006). Developing interdisciplinary researchers: Whatever happened to humanities in education? *Educational Researcher*, 35(8), 3 – 10.
- Creswell, J. (2009). *Educational Research: Planning, conducting and evaluating quantitative and qualitative research*. Upper Saddle River, Boston: Pearson.

- Creswell, J. (2012). *Educational Research: Planning, conducting and evaluating quantitative and qualitative research*. Upper Saddle River, Boston: Pearson Publishers..
- Eisenhart, M. & DeHaan, R. L. (2005). Doctoral preparation of scientifically based education researchers. *Educational Researchers*, 34(4), 3 – 13.
- Fraser, B. J., Walberg, H. J., Welch, W. W., & Hatties, J. A. (1987). Synthesis of educational productivity research. *International Journal of Educational Research*, 11, 145 – 252.
- Hostetler, K. (2005). What is “good” education research? *Educational Researcher*, 34(6), 16 – 32.
- Johnshon, D. W. (2012). *Learning together and alone: Cooperative, competitive and individualistic learning*. Boston: Allyn and Bacon.
- King, B. M. & Minium, E. M. (2003). *Statistical reasoning in psychology and education*. Hoboken, N. J.: John Wiley and Sons, Inc.
- Labaree, D. F. (2003). The peculiar problems of preparing educational researchers. *Educational Researcher*, 32(4), 13 – 22.
- Lagamann, E. E. & Schulman, L. S. (1999). *Issues in education research: Problems and possibilities*. San Francisco: Jossey-Bass.
- Lester, J. O. (2002). *The essential guide: Research writing across the disciplines*. New York: Longman.
- Miller, M. & Linn, R. (2005). *Measurement and assessment in teaching*. Upper Saddle River, NJ: Merrill and Prentice Hall Publishers.
- Nwagwu, N. A. and Ivowi, U. M. O. (eds). (2014). *Education in Nigeria: Development and Challenge*. A book of Readings in Memory of Prof. A. B. Fafunwa, p. 209 – 229.
- Nworgu B. G. (2015). *Educational research basic issues & methodology*. (3rd ed.). Nsukka, Enugu State: University Trust Publisher.
- Okpala, P. N. (1995). *Research in education: A critique of what to do and how to do it*. Lagos: Stirling-Horden Publishers.
- Olson, D. (2004). The triumph of hope over experience in the search over experience in the search for “what works”: A response to Slavin. *Educational Researcher*, 33(1), 24 – 26.
- Page, R. N. (2001). Reshaping graduate preparation in education research methods: One school’s experience. *Educational Researcher*, 30(5), 19 – 25.
- Phye, C. D. (Editor) (1997). Learning and remembering: The basis for personal knowledge construction. *Handbook of academic learning and construction of knowledge: A volume of educational psychology series*, 2, 47 – 64.

- Resnick, L. B. & Schofield, J. (2003). Rigorous research. In R. A. Clay (2010), *Moulding effective teachers*, (pp. 50 – 53). *Monitor on Psychology*. Washington D. C.: American Psychological Association.
- Santrock, J. (2004). *Educational psychology*. New York: Mc Graw-Hill Publishers.
- Shulman, L. S., Golde, C. M., Bueschel, A. C. & Garabedian, K. J. (2006). Reclaiming education's doctorates: A critique and a proposal. *Educational Researcher*, 35(3), 25 – 32.
- Strauss, A. & Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. New Delhi, India: Sage Publications.
- Taines, C. (2008). *A practical guide to writing for psychology*. Australia: McGraw-Hill Publishers.
- Udoye, N. (2007). *A description and critical examination of epistemic identity among graduate students, researchers and teachers in school of education*. Ann Harbor, Michigan: ProQuest Learning.
- Woolfolk, A. (2010). *Educational psychology*. Upper Saddle River, NJ: Merrill/Prentice Hall.
- Zimmerman, B. J. & Schunk, D. H. (2002). *Self-regulated learning and achievement*. Mahwah, N. J. Lawrence Erlbaum