

# RESEARCH TERMINOLOGIES AWARENESS AND PROJECT WRITING CHALLENGES OF EDUCATION UNDERGRADUATE STUDENTS IN FEDERAL UNIVERSITIES IN SOUTH WEST, NIGERIA

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## Abstract

*The study ascertained education undergraduate students' awareness of research terminologies and challenges in executing, completing and reporting research projects, findings and referencing. The study adopted the survey research design. The multistage sampling procedure was used to select 143 students who are at their three and four hundred levels in the Faculty of Education, Federal University of Oye-Ekiti, Oye, Nigeria. Two instruments, namely; Students Research Terminologies Awareness Scale ( $r = 0.74$ ) and Students' Research Writing Challenges Scale ( $r = 0.81$ ) were adopted for data collection; two research questions and one hypothesis were raised. Data was collected and analysed using descriptive and inferential statistics at  $p < 0.01$ . The result of the study showed that majority of education undergraduate students as sampled in the study; are not fully aware of some research terminologies and have challenges in writing their research projects, from the very conception of the research topic to referencing. There is a significant moderate relationship between undergraduate students' research terminologies awareness and project writing challenges. It is recommended that the teaching of research related courses should begin from the hundred level and research trainings, workshops/seminars should be regularly conducted for students.*

**Keywords:** Research, Research Projects, Nigerian University Students, Challenges in Research Writing, Research Terminology Awareness.

## Introduction

Research is a methodological way of identifying and solving problems, and providing essential information for the enlightenment of the populace in order to enhance self-efficacy and efficiency of the citizenry and foster the economic, social, political and technological growth and development of nations. Paneerselvan (2010) defined research as an organized set of activities to study and develop a model or

procedure to find the results for a realistic problem using literature and data, and making recommendations for implementations. Koul (2007) defined research as a systematic attempt to obtain answers to meaningful questions about phenomena or events through the application of scientific procedures.

Many researchers, particularly from the United States, have recognized the benefits students derive in engaging in undergraduate research (Kinkead, 2011; Spronken-Smith, Brodeur, Kajaks, Luck, Myatt, Verburgh, Walkington, & Wuetherick 2013; Tatalovic, 2008). Bauer and Bennett (2003) reported an increase in satisfaction among learners who combined undergraduate research components with their college knowledge. They showed a higher academic curiosity, communication skills and development of research. Undergraduate research may entail stimulating research-teaching relationships that promote students' interest in research in their various disciplines. It includes the application of instruction and learning methods that feign research procedures and use coursework that involve research or features of the research methods. These give these undergraduates an understanding of research grounded consultancy; such as live projects (Anderson & Priest, 2014). Tertiary institutions in Nigeria compel students to write a project on any issue they consider a problem in their disciplines. The project, which forms a major prerequisite for their graduation is usually divided into five sections: chapters one to five, references and appendices (if any).

Chapter one, introduces the study along with its focus, starting with contextual information concerning the problem under investigation. It offers a precise summary of literature related to the problem being examined, showcases the statement of the problem, the purpose of the study, the significance of the study, the research questions and hypotheses, the scope of the study, definition of terms and acronyms. Chapter two provides a comprehensive review of literature related to the problem under investigation. It expands upon the introduction and background information presented in the first chapter. It may contain theories and models relevant to the problem at hand, a historical overview and current trends related to the problem, and possibly significant research data published about the problem. The chapter presents evidence and deductions drawn by other researchers along with the citations. Its length depends on the number of variables in the study, the research problem, the volume of existing literature about the problem at the time of the study, the scope and the researcher.

The third chapter is on methods. It presents a discussion of the specific steps employed in the study, the research design adopted, the study population, sample and sampling technique, instruments and instrumentation, collection of data, method of data analysis, instrument validity and reliability, and methodological challenges. The facts and data regarding methodology should be all-inclusive and detailed enough to permit the repetition of the study by other researchers. Chapter four showcases results of data analyses, discoveries of the study and discussions. It may begin with an overview which

outlines the main segments to be incorporated in the chapter, and may comprise a reiteration of the research problem, including the hypotheses or research questions). Sometimes, researchers prefer to show the response rate and respondent demographics before reporting the results of data analysis for each of the research questions or hypotheses. The reporting formats from the data analysis are usually tabular or graphical, complemented by text recounting the significant facts contained in each of the tables or figures. Chapter five offers a concise review of the whole study. Usually, this segment recapitulates the introduction, problem statement and research questions and hypotheses, literature review, methodology, findings, conclusion and recommendations.

The process of research can be achieved by using internet databases (Abiddin, 2011; Olmos, Juanjo, Eva & Ana, 2015), continuous evaluation of research previously conducted (Jalan, Nusantara, Subanji & Chandra, 2016) and concerted work (Igun, 2010). Pravikoff, Tanner & Pierce (2014) noted that educationalists need to create awareness that research is valuable, gratifying, exciting, and meaningful for its inventive and collaborative approaches to finding solutions to the need of society. However, Nigerian university undergraduates encounter various difficulties in the course of writing research projects and dissertations, which is a major prerequisite for graduation. Writing research projects is a skill that every student should possess; as it is a criterion which educational evaluators use in assessing student's ability to search, collect information, write, compile, analyze a topic or a situation.

Conducting researches and reporting the findings is one of the criteria for graduation and certification in most Nigerian universities. Undergraduate courses are designed to advance inquiry-based learning skills that allow learners the opportunity to ask questions, develop hypothesis and identify methods that would allow them to explore their questions. A compulsory research oriented course, 'Research Methods and Statistics in Education', is taught from the third year to ensure that students are exposed to research along with its fundamentals. Researchers have exposed the relationship between teaching and research, and how each influences the development of students' skills in research (Maher, Timmerman, Hurst, & Gilmore, 2009; Deen & Lucas, 2006). Ganobscik & Williams (2009) report that research writing plays a key role in higher education both in students' understanding of the course content and in the subsequent assessment of students' knowledge of the course. Bernardo (2010) described research writing as a complicated macro skill. However, Graduate students have a great deal of research skills because of their participation in graduate teaching fellowship programmes which are not available to undergraduates (Lyons, Fisher & Thompson, 2005).

Many studies have been conducted on masters and doctoral students' needs, difficulties, and coping strategies (Hsu, 2009; Li, 2006, 2007; Lin & Joe, 2011) with little or none on undergraduates. This study investigated students' level of research

terminology awareness and the project writing challenges they encounter in writing and reporting their researches. Phakiti & Li (2011) carried out a study examining the general academic difficulties and academic reading and writing difficulties among Asian ESL international postgraduate students at an Australian university and reported that students encountered different types of academic writing and reading difficulties. Dadipoor, Ramezankhani, Aghamolaei & Safari-Moradabadi (2019) explored the barriers to research activities as perceived by Hormozgan medical university students and revealed that students inadequate knowledge of research methodology and inadequate research skills were their major difficulties.

Similarly, Ashrafi-Rizi, Fateme, Khorasgani, Kazempour & Imani (2015) conducted a study to determinate the rate of research self-efficacy among students of Isfahan University of Medical Sciences and found that the quality of research conducted by students was low. Carla (2016) assessed undergraduate students' perceived abilities in performing research-related tasks and their difficulties in research and reported that most students had satisfactory level of perceived ability in performing research related tasks, confident in literature review and research summary; they had difficulties in choosing the appropriate statistical analysis and results discussion. Borca (2012) conducted a study on the difficulties encountered by student -researchers and the effects on their research output among political science students in La Salle University. The result revealed that lack of cooperation, time, stress management and other personal problems were the difficulties affecting their research output. Huda, Ramsha, Humaira & Haneen (2014) assessed the attitude and level of awareness of medical and pharmacy students towards research paper writing in universities in Karachi, Pakistan; and found that students lacked research paper writing awareness, exposure to research seminars and research trainers.

Education undergraduate students often view the writing of their research project as burdensome and unachievable, as they seem not to be sufficiently conversant with the terminologies used in research studies. To what extent can these students adequately write and prepare their project works from start to finish, considering the areas they find challenging at one point or the other. The study therefore investigated students' level of research terminology awareness and project writing challenges in implementing, writing and reporting their researches.

### **Research Questions**

1. To what extent are students aware of research terminologies?
2. What is the extent of challenges undergraduate students encounter in writing their research projects from the first to the last?

**Research Hypothesis**

Ho,: There is no significant relationship between students' research terminology awareness and project writing challenges.

**Methods**

The study is a survey research type of the non-experimental design; as the researchers had no direct control of the dependent and the independent variables. The population for the study involved all 300 and 400 level education undergraduate students' in the Federal University of Oye-Ekiti, Oye, Nigeria. The multi-stage sampling procedure was used in selecting the requisite number of subjects for the study. Simple random sampling technique was used to select one geo-political zone (South West) out of the six in the country. Ekiti State and its only federal university were purposively selected from the geo-political zone. Simple random sampling was used to select 300 and 400 level students in the faculty of education as they were the only students who had been taught research methods as a course. The study sample constituted 143 undergraduate education students. Two instruments, the Students' Research Writing Challenges Scale (SRWCS) with Cronbach Alpha reliability coefficient index of 0.72 and Students' Awareness of Research Terminologies Scale (SARTS) with Cronbach Alpha reliability coefficient index of 0.84; were developed, pilot tested, validated by the researchers and adopted in collecting the data for the study. For content validation, the questionnaires were made available to four faculty members to check the relevance, simplicity and clarity of each statement. To establish the reliability, the test–retest method was used.

The Students' Research Writing Challenges Scale (SRWCS) consisted of six subsections bordering on questions intended to elicit students difficulty levels in chapters one, two, three, four, five and references. There were thirty four questions in all. These questions were placed on a four point Likert Scale of Extremely Challenging (1), Somewhat Challenging (2), Fairly Easy (3) and Very Easy (4). The Students' Awareness of Research Terminologies Scale (SARTS) comprised twenty items that measured students' awareness of research terminologies as used in research; the items were placed on a dichotomous scale of Aware (2) and Not Aware (1). Two graduate students were trained as research assistants. The researchers along with the research assistants administered the instruments simultaneously. The data collected were analyzed at 1% level of significance; using inferential statistics (correlation) and descriptive statistics (frequencies and percentages).

**Table 1: Students awareness of research terminologies**

S/N	Statements	Aware	Not Aware	Mean	Std. Dev	Remark
1	Plagiarism in research	51 (35.7%)	93 (65.1%)	1.97	0.86	NA
2	The APA referencing style	16 (41.2%)	127 (88.9%)	1.65	0.67	NA
3	Research journals/articles	79 (55.3%)	64 (44.8%)	2.27	0.75	A
4	Mentoring in research	93 (65.1%)	50 (35.0%)	2.12	0.76	A
5	Research Misconduct	93 (65.1%)	50 (35.0%)	2.08	0.78	A
6	Research Ethics	90 (63.0%)	53 (35.7%)	2.13	0.78	A
7	How to publish a completed research work	92 (64.4%)	51 (35.7%)	2.09	0.79	A
8	Journals in my area of specialization	87 (60.9%)	56 (39.2%)	2.07	0.85	A
9	Research Manuscripts	92 (64.4%)	51 (35.7%)	2.09	0.79	A
10	Open access journals	90 (63.0%)	53 (35.7%)	2.06	0.83	A
11	Research process	82 (57.4%)	61 (62.7%)	2.19	0.80	A
12	Team research	94 (65.8%)	49 (34.3%)	2.10	0.76	A
13	Triangulation in research	40 (28.0%)	103 (72.1%)	1.90	0.81	NA
14	Research Designs	98 (68.7%)	45 (31.5%)	2.03	0.78	A
15	Sampling Techniques in research	95 (66.6%)	48 (31.5%)	2.07	0.78	A
16	Statistical tools used for data analysis	40 (28.0%)	103 (72.1%)	1.95	0.78	NA
17	The SPSS or other Statistical analysis software	32 (27.3%)	111 (77.7%)	1.93	0.72	NA
18	Instruments and Instrumentation	39 (27.3%)	104 (72.8%)	1.96	0.77	NA
19	Pilot survey or Pretesting	28 (19.6%)	115 (80.5%)	1.76	0.76	NA
20	Instrument validity and reliability	93 (65.1%)	50 (35.0%)	2.10	0.77	A

\*Aggregate Mean Score = 2.03, A= Aware, NA=Not Aware

Table 1 shows the extent to which students are aware of research terminologies. As evident from the table, education undergraduate students are well aware of the following terminologies as used in research: research journals and articles, mentoring in research, research misconduct, research ethics, how to publish a completed research work, journals in my area of specialization, research manuscripts, open access journals, research process, team research, research designs, sampling techniques in research and instrument validity and reliability. Some of these students said they were not aware of these following terminologies: plagiarism in research, APA referencing style, triangulation in research, statistical tools used for data analysis, SPSS or other statistical analysis software, instruments and instrumentation and pilot survey or pretesting.

**Research Question 2:** What is the extent of challenges undergraduate students encounter in writing their research projects from the first to the last?

**Table 2: Students' difficulties in writing research projects**

S/N	Items	Difficulty Level				Remark
		VE	FE	SC	EC	
<b>CHAPTER ONE</b>						
1	Conceiving an idea and formulating it into a researchable topic	23 (16.1%)	46 (32.2%)	50 (35.0%)	24 (16.8%)	Challenging
2	Relating a research topic to my area of specialization	13 (9.1%)	41 (28.7%)	59 (41.3%)	30 (21.0%)	Challenging
3	Deciding on the research variables to study	17 (11.9%)	50 (35.0%)	56 (39.2%)	19 (13.3%)	Challenging
4	Writing the background to the study	13 (9.1%)	35 (24.5%)	58 (40.6%)	37 (25.9%)	Challenging
5	Establishing the statement of the problem of the study	25 (17.5%)	46 (32.2%)	43 (30.1%)	29 (20.3%)	Challenging
6	Deciding the main aims of the study	15 (10.5%)	33 (23.1%)	44 (30.8%)	51 (35.7%)	Challenging
7	Deciding the specific objectives of the study	13 (9.1%)	30 (21.0%)	52 (36.4%)	48 (33.6%)	Challenging
8	Framing the research questions/hypothesis	29 (20.3%)	42 (29.4%)	52 (36.4%)	20 (14.0%)	Challenging
9	Deciding the geographical scope of the study	28 (19.6%)	59 (41.3%)	37 (25.9%)	19 (13.3%)	Easy
<b>CHAPTER TWO</b>						
10	Able to get current body of literature for the study	27 (18.9%)	53 (37.1%)	43 (30.1%)	20 (14.0%)	Easy
11	Able to state the conceptual/theoretical framework	15 (10.5%)	53 (37.1%)	57 (40.0%)	18 (12.6%)	Challenging
12	Able to review related empirical studies	33 (21.1%)	51 (35.7%)	44 (36.8%)	15 (10.5%)	Challenging
13	Able to link previous studies with the current.	18 (12.6%)	35 (24.5%)	69 (48.3%)	21 (14.7%)	Challenging
14	Stating the gap in literature	20 (14.0%)	54 (37.8%)	47 (32.9%)	22 (15.4%)	Easy
15	Summarizing the literature review	15 (10.5%)	46 (32.2%)	54 (37.8%)	28 (14.6%)	Challenging

<b>CHAPTER THREE:</b>						
<b>Methodology</b>						
16	Deciding and justifying the appropriate research design to employ	36 (25.2%)	19 (13.3%)	33 (23.1%)	55 (38.5%)	Challenging
17	Choosing and justifying the choice of the population/sample for the study	13 (9.1%)	53 (37.1%)	56 (39.2%)	21 (14.7%)	Challenging
18	Deciding and justifying the sampling technique(s) to adopt for the study	28 (19.6%)	50 (35.0%)	48 (33.6%)	17 (11.9%)	Easy
19	Describing and justifying the sample size adopted	23 (16.1%)	33 (23.1%)	61 (42.7%)	26 (18.2%)	Challenging
20	Deciding and justifying the choice of instrument(s) to adopt	26 (18.2%)	40 (28.0%)	54 (37.8%)	23 (16.1%)	Challenging
21	Able to adapt a pre-existing instrument	20 (14.0%)	41 (28.7%)	58 (40.6%)	24 (16.8%)	Challenging
22	Determining the validity and reliability of the instrument	21 (14.7%)	46 (32.2%)	53 (37.1%)	26 (16.1%)	Challenging
23	Able to administer and collect data	19 (13.3%)	32 (22.4%)	58 (40.6%)	34 (23.8%)	Challenging
24	Deciding and justifying the choice of statistical tool(s) for data analysis	17 (11.9%)	57 (40.0%)	44 (30.8%)	25 (17.5%)	Easy
25	Able to effectively use the chosen method of data analysis	23 (16.1%)	38 (26.6%)	51 (35.7%)	31 (21.1%)	Challenging
26	Able to use the SPSS or other analysis software to analyse	29 (20.3%)	40 (28.0%)	54 (37.8%)	20 (14.0%)	Challenging
<b>CHAPTER FOUR: Result Presentation and Discussion</b>						
27	Able to present results in tables and graphs	18 (12.6%)	37 (25.9%)	44 (30.8%)	44 (30.8%)	Challenging
28	Able to interpret results	10 (7.0%)	26 (18.2%)	60 (42.0%)	47 (32.9%)	Challenging
29	Able to discuss the findings of the study	13 (9.1%)	38 (26.6%)	48 (33.6%)	44 (30.8%)	Challenging
30	Able to link the discussions to previous studies	14 (9.8%)	35 (24.5%)	50 (35.0%)	44 (30.8%)	Challenging
31	Able to summarize major findings from the study	14 (9.8%)	31 (21.7%)	45 (31.5%)	53 (37.1%)	Challenging



**CHAPTER FIVE:  
Summary, Conclusion and  
Recommendations**

32	Able to summarize and conclude the study	20 (14.0%)	21 (14.7%)	55 (38.5%)	47 (32.9%)	Challenging
33	Able to make appropriate recommendation(s) from the study	21 (14.7%)	28 (19.6%)	49 (34.3%)	45 (34.5%)	Challenging

**REFERENCES**

34	Able to consistently reference in line with the APA, MLA etc. format	26 (18.2%)	44 (30.8%)	44 (30.8%)	29 (20.3%)	Challenging
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\*VE=Very Easy, FE=Fairly Easy, SC=Somewhat Challenging, EC=Extremely Challenging

Table 2 shows the extent to which students' face challenges in writing research projects. Education undergraduate students do have challenges with conceiving ideas and formulating them into a researchable topics; relating a research topic to their area of specialization; deciding on the research variables to study; writing the background to the study; establishing the statement of the problem of the study; deciding the main aims of the study; deciding the specific objectives of the study; framing the research questions and hypotheses; deciding the geographical scope of the study. They are able to state the conceptual or theoretical framework, review related empirical studies and link previous studies with theirs. They are also confident summarizing the literature review, deciding and justifying the appropriate research design to employ, choosing and justifying the choice of the population and sample for the study, describing and justifying the sample size adopted, deciding and justifying the choice of instrument(s) to adopt. They are able to adapt a pre-existing instrument, determine the validity and reliability of the instrument, administer and collect data, effectively use the chosen method of data analysis, use the SPSS or other analysis software for data analysis, present results in tables and graphs, interpret results, and discuss the findings of the study. They are also able to link the discussions to previous studies, summarize major findings from the study, summarize and conclude the study, make appropriate recommendation(s) from the study and consistently reference in line with APA, MLA formats. However, a large percentage of the students affirmed that they can get current body of literature for the study; state the gap in literature; decide and justify the sampling technique(s) to adopt for the study, decide and justify the choice of statistical tool(s) for data analysis.

**Research Hypothesis 1:** There is no significant relationship between students' research terminology awareness and project writing challenges.

**Table 3: Relationship between students' research terminology awareness and project writing challenges**

Correlations	Students' Research Terminology Awareness (SRT)	Project Writing Challenges (PPC)
SRT Pearson Correlation	1	.546**
Sig. (2-tailed)	.000	.000
	N 143	143
PPC Pearson Correlation	.546**	1
Sig. (2-tailed)	.000	.000
	N 143	143

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

Table 3 reveals the relationship between undergraduate students' research terminology awareness and project writing challenges. From the table, there is a positive moderate and significant relationship between undergraduate students' research terminology awareness and project writing challenges ( $r = 0.55$ ,  $p < .001$ ). This means that students' awareness of the various terminologies in research is related to their project writing challenges.

## Discussion

This study has revealed that most education undergraduate students as sampled in this study; do have challenges in writing research projects. This reaffirms the findings of Phakiti & Li, (2011) that research writing is one macro skill that is complicated to learn and cultivate. The finding also corroborated those of Dadipoor et al (2019) and Ashrafi-Rizi *et al.* (2015) which indicated that students have inadequate knowledge of research methodology and skills in conducting research. Carla (2016), disclosed that students were most confident when searching for related studies and when writing a summary of their research. They have difficulties when selecting appropriate statistical treatment and discussing research results. Bocar (2012) opined that lack of skills in analysing and interpreting results was one of the obstacles to research in the majority of students. The study further reveals that education undergraduate students are barely aware of the various terminologies as used in research such as, plagiarism, APA referencing style, Triangulation, statistical tools used for data analysis, the SPSS or other statistical analysis software, instruments and instrumentation and survey pretesting. The finding also supports those of Huda et al (2014) that students' levels of awareness of the significance and method of research paper writing is low.

## **Conclusion and Recommendations**

The study highlighted education undergraduate students' research terminology awareness, and project writing challenges in Nigerian federal universities. It showed that majority of undergraduate students in Nigerian universities are not fully aware of some research terminologies and have challenges in writing their research projects, from the very point of conceiving the research topic to the referencing, and that there is a positive significant relationship between undergraduate students' research terminology awareness and project writing challenges. This study therefore recommends the teaching of research related courses to students beginning from the hundred level as against what is obtainable now. This will create a sound foundation for students on research and research ethics. Research trainings, workshops, seminars and conferences should be regularly conducted for students to inculcate in students the interest, motivation, knowledge and skills of research.

## **References**

- Abiddin, Z. N. (2011). Attrition and completion issues in postgraduate studies for student development. *International Review of Social Sciences and Humanities*, 1 ( 1 ) , 1 5 - 2 9 . Retrieved from : [http://irssh.com/yahoo\\_site\\_admin/assets/docs/2\\_NZB-1.15015009.pdf](http://irssh.com/yahoo_site_admin/assets/docs/2_NZB-1.15015009.pdf).
- Anderson, J. & Priest, C. (2014). 'Developing an inclusive definition, typological analysis and online resource for Live Projects'. In H. Harriss& L. Widder (Eds.) *Architecture Live Projects. Pedagogy into Practice*, Oxford: Routledge.
- Ashrafi-Rizi H. Fateme Z. Khorasgani Z. G. Kazempour Z. & Imani S.T. (2015). Barriers to research activities from the perspective of the students of Isfahan University of Medical Sciences. *Acta Inform Med*; 23, 155-9.
- Bauer, K. W. & Bennett, J. S. (2003). Alumni Perceptions Used to Assess Undergraduate Research Experience. *The Journal of Higher Education*, 74(2), 210-230.
- Bernardo, A. (2010). *Creative ways of teaching research paper writing*. University of Santo Tomas, Philippines.
- Bocar, A. C. (2012). Difficulties encountered by the student–researchers and the effects on their research output. Proceeding of the Global Summit on Education (GSE 2013). Worldconferences.net.
- Carla M. M. (2016). Undergraduates' perceived abilities in research. *International Journal of Education and Research*, 4(6).
- Dadipoor S. Ramezankhani A. Aghamolaei T. & Safari-Moradabadi A. (2019). Barriers to research activities as perceived by medical university students: A cross-sectional study. *Avicenna J Med*; 9, 8-14.

- Deen, R. & Lucas, L. (2006). Learning about research: Exploring the teaching/research relationship amongst educational practitioners studying in higher educational institution. *Teaching in Higher Education*, 11(1), 1 – 18.
- Ganobscik Williams, L. (2009). *Teaching academic writing in UK higher education*. Hampshire. Palgrave MacMillan.
- Hsu, Y. (2009). *Writing RA introduction: Difficulties and Strategies*. Paper presented at the 2nd International Conference on English, Discourse, and Intercultural Communication, Macau, China, June 18–24, 2009.
- Huda Kafeel, RamshaRukh, HumairaIshaq & Haneen Rasheed (2014). Awareness about significance and method of research paper writing (RPW) in *Medical and Pharmacy Students International Journal of Emerging Trends in Pharmaceutical Sciences*; 2(5) Website: www.ijetps.com.
- Igun, S. E. (2010). Difficulties and motivation of postgraduate students in selected Nigerian Universities, Retrieved January 13, 2018, from <http://www.webpages.uidaho.edu/~mbolin/lpp2010.htm>.
- Jalan, S. Nusontara, T. Subanji, S. & Chandra, T. D. (2016). Students' thinking process in solving combination problems considered from assimilation and accommodation framework. *Educational Research and Reviews*, 11(16), 1494-1499. Retrieved from <https://files.eric.ed.gov/fulltext/EJ1111471.pdf>.
- Kinhead, J. (2011). The Impact of Undergraduate Research. ACE Fellows Newsletter 33 : 21 - 22 . Accessed January 2 2013. [http://works.bepress.com/joyce\\_kinhead/68](http://works.bepress.com/joyce_kinhead/68).
- Koul, L. (2007). *Methodology of Educational Research*. New Delhi: Vikas Publishing House.
- Li, Y. (2006). Negotiating knowledge contribution to multiple discourse communities: A doctoral student of computer science writing for publication. *Journal of Second Language Writing*, 15, 159–178.
- Li, Y. (2007). Apprentice scholarly writing in a community of practice: An interview of an NNES graduate student writing a research article. *TESOL Quarterly*, 41, 55–79.
- Lin, C. H. & Joe, S. G. (2011). *Exploring Taiwanese business doctoral students' needs in English academic writing*. Paper presented at 2011 PAC and the Twentieth International Symposium and Book Fair on English Teaching. Taipei, Taiwan.
- Lyons, J. Fisher, S. & Thompson, S. (2005). *Effects of participating in a gk-12 program on the graduate students' programmes of study*. Paper presented at the American Society for Engineering Education Annual Conference & Exposition, Portland, Oregon, June 12-15.

- Maher M. Timmerman B. Hurst M. & Gilmore, J. (2009). *Graduate students' descriptions of research-teaching relationships across academic disciplines: Separating, balancing, or integrating identities?* Paper presented at the annual meeting of American Educational Research Association, San Diego, CA.
- Olmos, S. Juanjo, M. Eva, T. & Ana, I. (2015). Improving graduate students' learning through the use of <http://hes.ccsenet.org> *Higher Education Studies*, 8(2), 2018.
- Panneerslvam, R. (2010). *Research Methodology*. New Delhi: PH Learning Private Limited.
- Phakiti, A. & Li, L. (2011). General academic difficulties and reading and writing difficulties among Asian ESL Postgraduate Students in TESOL at an Australian University. *RELC Journal*, 42(3), 227–264.
- Pravikoff, Tanner & Pierce (2014). Teaching research strategies for a successful learning equation. <https://www.ncbi.nlm.nih.gov/pubmed/25007506>.
- Spronken-Smith, R. A. Brodeur, J. J. Kajaks, T. Luck, M. Myatt, P. Verburgh, A. Walkington, H. & Wuetherick B. (2013). Completing the research cycle: A framework for promoting dissemination of undergraduate research and inquiry. *Teaching and Learning Inquiry* 1, 105-118.
- Tatalovic, M. (2008). Student science publishing: An exploratory study of undergraduate science research journals and popular science magazines in the US and Europe. *Journal of Science Communication*, 7(3), 1-9.