Issues in Research Ethics and Data Integrity

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Abstract
This study investigated the extent research ethics and data integrity is prevalent in carrying out any research. The study employed cross sectional research design, the three (3) higher institutions in Rivers State were selected for the study and they also constituted the population for the study. Purposive sample technique was employed to get a sample of three hundred and fifty (350). The instrument for data collection was titled "Issues in Research ethics and data integrity". The validity of the instrument was carried out by three experts in the area of measurement and evaluation. The internal consistency of the instrument produced a coefficient of 74, data collected were analyzed using analysis of variance and a t-test to test the hypotheses, the results showed no significance difference existed when gender was compared. The ANOVA also showed no difference among the variables. In view of this, it was therefore recommended that any researcher carrying out empirical research should in all honesty all the codes of research ethics and introduce Alcon principle to ensure that all data are genuine.

Keywords: *Research Ethics, Data Integrity, Paradigm Shift, Decorum, Ethical Standards and malicious intent.*

Introduction

The world is on a digital plan, there have been a paradigm shift from analogue to digital, and this has turned the world into a global village. The mechanism that is driving this development is research. The role of research is very apt in ensuring that the society moves in an upward direction. There are many issues in research ethics. It is ethics that provides the norms that must be done well, no matter the challenges) Obowu-Adutchay and Ukwuije 2018). A conventional look at ethics in research suggest that, the prescribes ethics are far from being realized.

It is expected from every researcher to maintain decorum and uprightness when dealing with crucial issues. The ethical standards required from a researcher include honesty (ii) objectivity (iii) integrity (iv) carefulness (v) openness (vi) confidentially (vii) responsible mentoring (ix) application of fairness (ix) equity and cultural bias. Resnik in Obowu-Adutchay and Ukwuije (2018). Because the standard is now under serious threat, what has thitherto being ethics is now jettison and in its place, of a lazes fair syndrome comes to play. It is a common feature that researches(s) in bid to get it done quickly and cart away with whatsoever is a stake, they strife to make the result go in the direction the sponsors wants, that is very pathetic

What goes around, comes around in every research, the most crucial point is convention, that which is expected to guide any reputable scholar into an ethical standard worthy of repute. The ethical issue worthy to be considered here are fairness, confidentiality, fidelity and truthfulness. The idea of stay at home and constitute an arm chair investigate should be jettisoned outrighly.

Off and Dicsomin Obowu-Adutchay & Ukwuije (2018) avers that education in this global age is meant to produce individual who can articulate, have a better understanding of the values, the need for good mentoring and encouragement through research. China is what it is today because of research, in faraway Finland they have the best education globally. All these are the result of research, they maintain good research ethics. Germany, Korea, Great Britain, France etc all these countries are what they have become today because of research.

Amaechi, Amaechi and Emerole in Amaechi (2017) defined research as a systematically controlled investigation of an event place, individual or object with the aim of understanding or verifying knowledge that will help the researcher achieve his purpose. Analyzing this definition, if the researcher refuses or relegates the ethics of research to the background, the purpose of research will be is upheld. We are not confining ourselves to educational research but research as a veritable quest geared at investigating a given phenomena with a view to proffering solution to the issue at stake in other to move the society forward.

In all, research ethics is very vital, because the significant role it plays in research. It has become imperative that researchers globally maintain considerable standard ethics. That is the rational for this quest to investigate among researchers how convenient or ideal it is for them to maintain and uphold ethics in research work. Is when the data is manipulated to give wrong results that will render the entire work invalid. Therefore there is the need to ensure that data integrity is maintained and upheld ethics in every research.

Most researchers are in the habit of joking with data, they considers it very strenuous and energy sapping to undertake the rigours of data construction. Data is what gives any research the incredents it needs to be kept aloft. Without data a research will be inconclusive and the worst thing that will happen to a research work is when the data is manipulated to give a wrong data containing this will render the entire work invalid. Therefore there is need to ensure that data integrity is maintained in every research.

According to Wikipedia, the free encyclopedia (jump to migrate jump to search) data integrity is the maintenance of, and assurance of the accuracy and consistency of data over its life-cycle, and is a critical aspect of the design, implementation and usage of any system which stores, processes, or retrieves data. According to them the term is broad, scope and may have widely different meaning depending on the specific context given under the same genering umbrella of computation. Any unintended changes to data as the result of storage, retrieve or processing operation including malicious intent, unexpected hardware failure and human error, these are failure of data integrity. Some researchers deliberately does this by merely being an arm-chair investigator and ensuring that they cook up data and present as an outcome of their research.

Finestone (2018) refers to data integrity as data that must be reliable and accurate over its entire life cycle. Data integrity and data security go hand in hand even though they are separate concepts. Uncorrupted data (integrity) is considered to be whole and then stay unchanged relative to that complete state. A reliable data is the data that exhibits these five (5) qualities

(1) Attributable-data should clearly demonstrate who observed and recorded, and who it is about.

(2)   Legible-Data should be easy to understand recorded permanently and original entries should be preserved.

(3)   Contemporaneous-Data should be recorded as it was observed and at the time it was executed.

(4)   original-Source data should be accessible and preserved in its original form

(5)   Accurate-data should be free from errors and confirm with the protocol.

Data integrity has plenty of risk inherent in it. How can this data integrity risk be minimized. According to Firestone (2018). There are effective strategies that may be implemented to manage their data integrity risk and ensure that their data respects the ALCOA principle by moving from a reactive to a proactive way of thinking, she further maintained that the following key requirement and controls may put in place to ensure data integrity and minimized risk they are:

1.   Ensure all computer systems are 21 CFR part II compliant,

2.   Follow a software development lifecycle,

3.   Validate your computer system,

4.   Implement audit trails,

5.   Implement error detection software,

6.   Secure your records with limited system,

7.   Maintain backup and recovery procedures,

8.   Design a quality management system with Sops and Logical controls,

9.   Protect the physical and logical security of systems,

10.   Establish a vendor management qualification programme

11.   Properly train users and maintain training records

12.   Conduct internal audits to evaluate controls and processed.

This study is targeted at investigating the extent to which issues in research ethics and data integrity can be maintain in the face of current imbroglio. In other to give this study a sense of direction, two research questions and two hypotheses were postulated

(1)   To what extent does issues in research ethics and data integrity manifest in reality

(2)   To what extent does gender show remarkable difference in issues of research ethics and data integrity?

Hypotheses

Ho1:   There is no significant difference in the issues of research ethics and data integrity among the three higher institutions in the state.

Ho2:   There is no significant difference in the issues of research ethics and data integrity based on gender.

Methodology

The study employed cross sectional survey research design, three tertiary institution in Rivers State constituted the population of the study, purposive sampling method was adopted to sample three and fifty (350). The instrument that was used for data collection was titled "Issues in Research ethics and data integrity Scale (IREDIS). The instrument was self-developed and validated by three (3) expert from measurement and evaluation, emphasis was laid on the face and content validity similarly to ascertain the internal consistency of the instrument Cronbach alpha technique was employed and resulted to .74 this result was seen as an ideal for the instrument to be used for the study.

Results and Discussions

In the process, the two research questions and the two hypotheses are outlined as shown in the table below

Research Question One

To what extent does issues in research ethics and data integrity manifest in reality

Table 1: Outcome of mean analyses of extent of issues in research and data integrity

S/N	Description of Items	N	X	SD	Criterion	Decision
1	I can remain at home and cook up data after all no body monitors me	350	2.00	1.28	2.5	Low Extent
2	Each time I try to maintain integrity if found out that I cant do it	350	1.77	1.06	2.5	Low Extent
3	Dealing with inconsistent figures are very brutal to research	350	2.97	2.17	2.5	High Extent
4	Dealing with data integrity without recourse to the outcome is very vital	350	2.60	2.21	2.5	High Extent
5	In all cases I must maintain the ethics of research and maintain data integrity	350	3.70	2.19	2.5	High Extent

The result of data analysis presented in table 1 indicates the various opinions of respondents. The sampled opinions shows that out of the five level three (3) recorded high extent while two (2) had low extent. In fairness and truth, issues in research ethics and data integrity, it manifested high extent in reality.

Research Question 2

To what extent does gender show remarkable difference in issues of research ethics and data integrity

Table 2: Mean and standard deviation of respondents in issues of research ethics and data integrity.

S/N	Description of Items	N	X	SD	Criterion mean	Decision
6	Getting the right thing done and making sure that all data put forward in research is accurate	350	3.55	1.92	2.5	High Extent
7	Maintenance of good ethics requires steadfastness and maintance of backup and recovery procedures	350	2.78	2.31	2.5	High Extent
8	I will try to discard and wrong information in my research and ensure that my data is accurate	350	2.78	2.31	2.5	High Extent
9	There is nothing wrong in cooking up false information and playing down on data integrity	350	2.12	2.10	2.5	Low Extent
10	I will ensure that no matter the pressures from the financers of the project I will be exact and thorough	350	2.80	1.88	2.5	High Extent
			2.97			

The result of data analysis as presented in table two (2) shows the opinion of lecturers (males and females), does not show a remarkable difference out of the five items only one. The mean of the summated score 2.97 which goes to confirm that the extent of remarkable difference is high extent.

Hypothesis One
There is no significant difference in the issues of research ethics and data integrity among three higher institutions lecturers in Rivers State.

Table 3: Analysis of variance of research ethics and data integrity of three higher institutions in Rivers State

Sources of Variance	Sum of squares	Df	Mean sum of squares	Calculated	critical	Level of significance
Between group	14,855.645	2	28,72.975			Not significant
Within group	16,789,896	347	521.436	156	.164	
Total	**399**					

Table 3 above shows the one-way analysis of variance as conducted in the three higher institutions in Rivers State looking at the result, there was no significant difference at P<.05 level in the three higher institution with a degree of freedom of 2 and 347 and f. calculated of 164 and f. critical of 156.

Hypothesis 2
There is no significant difference in the issues of research ethics and data integrity

Table 4: t-test summary of research ethics and data integrity

Variance	N	X	Df	t-cal	t-critical value	Remark
Male	198	3.97	34.8	1.56	1.96	Accept
Female	152	3.53				
Total	**350**					

Analysis of table 4 shows that the calculated value produced 1.56 while the critical value was 1.96 since the calculated-t was lesser than the critical t, the null hypothesis stands accepted.

Discussion of Findings
Findings of the study showed that research ethics and data integrity are very sensitive to any study. It is glaring clear that once you neglect any ethics in research refuse to apply data integrity the entire exercise will amount to fatal effort. This study is in line with Davis & Ferdous (2005). Who in their study of data integrity as applied to various industries stated that code of federal regulation, all industries must be adhere to strickly. This implies that research ethics and data integrity are indispensable factors in research ethics and data integrity for you to do a research that is compliance, you must ensure that research ethics are complied with. This same thing goes for data integrity. In research question two the respondent showed a very high extent and this is in line with Nwanchukwu (2011) who carried out a study on research ethics and data integrity and also found out a very high extent of no difference. For the hypothesis one there was no significant difference these were the finding of Bermadin, &

Beatly (2014) who carried out a study on research and integrity of mainstay and similarly did no not find any significance difference. While working on the same Taraiwe Sofuluwe, Akinwalu & Ogbudemkpa (2015) found a significance existed in the finding and could be attributed inequality of gender for instance while males was 198 the females were 152. But in all hypothesis 2 had 198 males with a mean of 3.47 while 152 females with a mean of 3.53 but had degree of freedom 348 the calculated value 156 and a critical value of 1.96 it follow therefore that since calculated value is lesser than the table value the hypothesis stands accepted. This is also in line with the findings of Richards, (2013) whom in his studies found out that there was no significance when gender was compared.

Conclusion

Looking at the foregoing issues in research ethics and data integrity, no researcher should set aside uprightness. All well-known ethical standards should be maintained. Infact research plays the role of opening close doors, something that was not known research outcome makes it opened and all well-meaning researcher cues into it.

Similarly, data integrity is very essential when carrying out empirical research. It will tantamount to educational crime if there is no data integrity. Such a research is expected to be considered a flop. Infact every researcher must maintain a very high level of data integrity. In addition every researcher must ensure that data respects ALCOA principle in addiction to 12(twelve) other forms of minimizing risk of data integrity.

Recommendation

In view of the aforementioned, the following recommendation are made:
1. All researchers should endeavour to get hold of ALCOA principle as a guide to enhance data integrity.
2. Research ethics is very essential, if one's research would be accepted wholestically. Therefore every individual engaged in research must maintain the ethics in research.
3. Lots of scholars do not know the contents of research ethics therefore, institutions of higher learning and other institution engaged in research should make available copies of research ethics.
4. Any researcher that is engaged in empirical researcher should ensure that come ran, come shine, any data that you are put down must be accurate, nothing more nothing less.
5. There should be a wide campaign on the need to register accurate data and applicability of research ethics in any research.
6. There should be this software that can dictate erroneous ethics and data non integrity.

References

Ameachi and Emerde in Amaechi (2017). Evaluation of post graduate students   adherent to instrument validation and practices in educational research writings in universities in Abia-state.

Akin, L.R. (1979). Psychological testing and assessment. London Allyn and bacon Inc.

Assessment reforms group (2013). Testing motivation and learning. Mkpae, S.C. & Obowu-Adutchay, V. (2017). School based assessment, benefit and teachers perception in Nigerian secondary schools.

Bermadin, C. and beatly, R. (2014). Time and effect: A historical note. *Centre for psychological studies* 9(12), 54-70.

Davis and Ferdous, A. (2005) using item difficult and item position to measure test fatigue. America institute of research.

Dickson, J. & Albaum, S. (2015). A method for developing toulor-made semantic differentials for specific market content area. *Journal for marketing research* 14(6) 87-91.

Ferguson, G.A. (2005). Statistical analysis in psychology and educational (6th edition) McGraw hill.

Obimba, F.U.M. (Ed) (1986). *Fundamentals of measuring and evaluation in education and psychology.* Owerri Totan publishers ltd.

Offer and Dicmsom (2013) Situation interest and academic achievement in the active-learning classroom learning and instruction, 20(5), 68-75.

Pophen, W.J. (1975). *Educational evaluation.* New Jersey Prentice Hall Inc

Richards, J. (2012). Teacher stress and coping strategies. A national snapshort. *The educational forum* 76(3), 299-366.

Resnik in Obowu-Adutchay & Ukwuije, R.P. (2018). Ethical re-orientation in educational assessment and research implication for educational evaluation. *Journal of education and society* 8(2), 2018.

Sofuluwe, A.O. Akinsolu, A.O. & Ogbudumkpa, I.C. (2015). The relationship between gender stress and job performance among academic staff in tertiary institution in Anambra state, *Nigerian scientific journal* 11(36) 522-535.