Unveiling the Validity and Reliability Rambles of Research Outcomes

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Abstract
The objective of this paper is to cerebrally contribute to reinforce knowledge creation on how meeting validity and reliability demand of research affects its outcome and acceptability. In pursuit of this aim the paper reviewed scholarly conceptualization on validity and reliability and its relevance to research enquiries, it further stressed application divergence of validity and reliability in a qualitative and quantitative research, also, threatening or risk factors that may affect validity and reliability of research outcomes were appraised. However, the research reinforce knowledge creation by underpinning that the trustworthiness, universality, acceptability of any research findings lies in the researcher's capacity to meet the validity and reliability need of the research exercise as any data collected with invalid or unreliable instrument eventually renders the research outcome unacceptable.

Keywords: *Research, Validity, Reliability, Knowledge Creation*

Introduction

Research is a scientific knowledge creation process. Knowledge creation is the hub of every research efforts. This position was well articulated in Akuezuilo (1993) who posits that research is "a systematic and objective search for new knowledge of the subject of study and for application of knowledge to the solution of a novel problem". "Research is the process of arriving at dependable solutions to problems through the planned and systematic collection, analysis and interpretation of data" (Osuala 1993). Human society and organizations are confronted with diverse phenomenal problems which require systematically organized process of establishing a universal knowledge as to what causes those problems and how they could be deciphered. Though, the processes involve in arriving at germane and objective solution to societal problem requires rigorous mental and physical effort; empirical and theoretical frameworks needed to be established, undertaken a pilot survey as well as sampling opinion, analyzing data collected with a valid and reliable instruments with an eventual findings or conclusion. Hence, coming to terms with the assertion that the acceptability of any research outcome is primarily dependent on the researcher's ability to fulfill the validity and reliability demand in the research enquiry.

Validity & Reliability Conceptualization

According to Roberta and Alison (2015), validity refers to the extent to which a concept is accurately measured in a quantitative study. For instance, a survey designed and instrument to explore organizational survival but which actually measures organizational growth would not be considered valid. Le Comple and Goetz (1982) were more explicit, they state that validity in research is concerned with the accuracy and truthfulness of scientific findings. A valid study

should demonstrate what actually exists and a valid instrument or measure should actually measure what it is supposed to measure.

Roberta and Allison identified three categories on which every good research work must validate its instrument or tools for data gathering: Content validity- the extent to which a research instrument accurately measures all aspects of a construct. In other words, this category looks at whether the instrument adequately covers all the content that it should with respect to the variable. Second category is Construct validity– The extent to which a research instrument (or tool) measures the intended construct. Third category is the Criterion validity- The extent to which a research instrument is related to other instruments that measure the same variables. In view of these categories research validation should consider Face-validation; it's recommended for effective content and constructs validity. Face validity is a situation where an expert's opinion is sought to examine whether an instrument can actually measure the concept intended.

In recent years, more emphasis has been placed on the social utility and bias of interpretation in test scores. Hence, Messick (1995) in his conceptualization grouped validity into four (4) adding consequential validity to the already established three. Messick has been at the forefront of this push for the consideration of consequential validity within the context of a measure's construct validity. Consequential validity refers to the notion that the social consequences of test scores and their subsequent interpretation should be considered not only with the original intention of the test, but also cultural norms (Messick, 1995 cited in Ganesh). This idea points to both the intended and unintended consequences of a measure, which may be either positive or negative. Cronbach, (1990), espoused 0.60 above as good validity coefficient, though he said, that is far from perfect prediction.
"On the other hand Reliability is concerned with the consistency, stability and repeatability of the informant's accounts as well as the investigators' ability to collect and record information accurately" (Brink 1993). Reliability refers to the ability of a research method to yield consistently the same results over repeated testing periods. Gay (1987) opined that reliability is the degree to which a test consistently measure whatever it measures.

Roberta and Allison further outlined three attributes of reliability; Homogeneity (or internal consistency) the extent to which all the items on a scale measure one construct. This attribute can be assessed through Kudar-Richardson coefficient, Cronbach's alpha or split-half method Stability -the consistency of results using an instrument with repeated testing. Thirdly, Equivalence -Consistency among responses of multiple users of an instrument, or among alternate forms of an instrument. Research instrument requires dependable measurement. Nunnally (1978), Measurements are reliable to the extent that they are repeatable and that any random influence which tends to make measurements different from occasion to occasion or circumstance to circumstance is a source of measurement error. Errors of measurement that affect reliability are random errors and errors of measurement that affect validity are systematic or constant errors (Gay 1987). Drost (2011) further revealed that because reliability is consistency of measurement over time or stability of measurement over a variety of conditions, the most commonly used technique to estimate reliability is with a measure of association, the correlation coefficient, often termed reliability coefficient. The reliability coefficient is the correlation between two or more variables (here tests, items, or raters) which measure the same thing. Additively, he said typical methods to estimate test reliability in behavioural research are: test-retest reliability, alternative forms, split-halves, inter-rater reliability, and internal consistency.

Validity & Reliability Need of Research Outcomes

Validity and reliability are very important major aspects of every research exercise. Scrupulous concentration to these two aspects can make the difference between good research and poor research and can help to assure that fellow researchers accept findings as credible and trustworthy. This is particularly vital in qualitative work, where the researcher's subjectivity can so readily cloud the interpretation of the data, and where research findings are often questioned or viewed with cynicism by the scientific community (Brink 1993). This calls for utmost sensitivity on the issues of validity and reliability of any research project especially research that engage qualitative approach. Brink enjoin quantitative researchers to be attuned to the multiple factors that pose risks to the validity of findings; plan and implement various tactics or strategies into each stage of the research project to avoid or weaken these threatening factors. He further throw more light that the tactics or strategies used to address validity and reliability need in qualitative research are not the same as in quantitative research, qualitative research methods does not give to statistical or empirical calculations of validity. The qualitative researcher seeks basically the same ends through different methods which are better suited to a human subject matter.

Validity & Reliability in a Quantitative, Qualitative Research

Brink tried to clarify the dichotomy that exists in validity and reliability application in a quantitative and qualitative research. According to him, the tactics or strategies used to address validity and reliability need in qualitative research methods does not offer statistical or empirical calculations of validity whereas, quantitative does. Guba and Lincoln (1981) stated that while all research must have "truth value", "applicability", "consistency", and "neutrality" in order to be considered worthwhile, the nature of knowledge within the rationalistic (quantitative) paradigm is different from the knowledge in naturalistic (qualitative) paradigm.

A quantitative research approach is determined by the objective ontological research design which draws its hypothesis through theories, which can simply be tested by way of direct observation with the ultimate aim of finding general laws and causal statements about social phenomena. Positivism which is the philosophy behind quantitative research according to Marsh & Furlong (2002) adopts a foundationalist ontology, who believes it is possible to observe everything that happens and understand it as such without any mediation or interference by social actors, thereby denying any appearance/reality dichotomy. Contrarily, the underlying philosophy and design behind qualitative research is the subjective or interpretive ontology. Interpretivism or social constructivism is an important philosophical thought which holds that the researcher and the societal phenomenon under study are mutually interrelated and dependent (Hudson and Ozanne, 1988). This position justifies Brink (1993) proposition that the "researcher" is a risk or threat factor in achieving an unbiased validity and reliability in any qualitative research outcome.

Factors Affecting Validity & Reliability

There are many factors that prevent measurements from being exactly repeatable or replicable. These factors depend on the nature of the test and how the test is used (Nunnally, 1978). These factors cannot ignore errors associated with test instruments. Complementarily, Brink (1993) noted that one of the key factors affecting validity and reliability is error. Error is inherent in all investigations and is inversely related to validity and reliability. The greater the degree of error the less accurate and truthful the results of the exercise. However, Brink categorized factors threatening validity and reliability of research outcome to include; (1) the researcher,

(2) the subjects participating in the project (respondence), (3) the situation or social context, (4) the methods of data collection and analysis. He avers that in a qualitative study the data-gathering instrument is frequently the researcher himself. Thus questions of researcher bias and researcher competency, if unchecked, may influence the trustworthiness of data considerably. The very presence of the researcher may affect the validity of the data provided by subjects. When a new member is introduced into an interaction, reactive effect can be expected. On the other hand Participants may behave abnormally (Argyris 1952). They may seek to reveal themselves in the best possible light or withhold or distort certain information; in other words the researcher has created social behaviours in others that would normally not have occurred which eventually affects their response.

Reinforcing Knowledge Creation

Having reviewed extensive literatures on these concepts, I strongly underpin that "Validity and Reliability" lie at the heart of every competent and effective research exercise. How successful any research is, is a function of the instrument use and how it actually measures what it intended to, more so, how acceptable and trustworthy a research outcome is, is based on the consistency of the research instrument. This stress the indefatigable relevance of validity and reliability to any research outcome. Hence, this paper corroborate the assertive position that meeting the validity and reliability demand of research is prerequisite to the acceptability, generalizability and reference- ability of any research findings, this is imperative because if the instrument for data collection is invalid and unreliable the researcher will end up gathering inappropriate data that will eventually affect the research outcome.

Conclusion

The most cumbersome and challenging task in social and behavioral science research is the quantification of human behavior- that is, using measurement instruments to observe human behavior and giving accurate interpretation. The measurement of human behaviour belongs to the widely accepted positivist view- empirical-analytic approach, or subjective approach to discern reality (Smallbone & Quinton, 2004). In a bid to reinforcing knowledge creation by stressing the researcher's ability to meeting validity and reliability demand as panacea to an acceptable research outcome, literature reviews validity and reliability scholarly conceptualization, stressed validity and reliability application divergence both in a qualitative and quantitative research and finally reinforce knowledge creation that the trustworthiness, universality, acceptability of any research findings lies in the researcher's capacity to meet the validity and reliability need of the research exercise.

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