

A Critique of Quantitative Methodology Research in Social Science and the Challenges of Operationalisation of Subjective Phenomena

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ABSTRACT

This is a philosophy of Social Science manuscript that focuses on quantitative methodology. The study identified the strengths and weaknesses of the methodology and the challenges of operationalisation of subjective phenomena. The methodology is qualitative research. The method comprised a literature review with a critical format focused on quantitative methods. The theory was based on the interpretive phenomena comprising the postulations of Webber and Shultz. The results showed major weaknesses and limitations of the quantitative methodology. In addition, there were serious limitations that were based on epistemological issues relating to operationalisation of subjective rubrics. It was argued that quantitative methodology researchers were not supposed to operationalize subjective phenomena of respondents in the course of the data collection phase. This is because researchers ignored the ontological reality that interpretations are innate, unique, complex, and unpredictable. Epistemologically, the numerical responses to the questions were inappropriate for the different measurement scales because of their spurious numerical values. To reduce discord and avoid a seeming binary, the manuscript concluded that quantitative researchers should operationalize objective research rubrics that are scientific and are evidence-based. Recommendations: Through seminar presentations, academics should be retrained on the details and types of qualitative methodology so that students can benefit from their training. Project students should pick topics that match the appropriate methodology of operationalisation. This will prevent quantitative researchers from researching subjective topics. Heads of Departments should be encouraged to adopt qualitative research methodology at all levels of degrees as an alternative to quantitative methodology and mixed methods.

Keywords: *Quantitative Methodology, Subjective-Experience, Operationalize, Measurement*

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INTRODUCTION

The intention of this manuscript is not to create a binary between the dominant quantitative and qualitative methodologies or to promote mixed methods. It is to stimulate reflective discussion about the most popular quantitative research methodology. Although quantitative methodology, comprising advanced Mathematics and Statistics, is relevant in Business Administration, Built Sciences, Physical and Biomedical Sciences, the dominance of quantitative methodology in Social Science departments seems concerning. This includes the Department of Economics, which has advanced Mathematical and statistical models in its curriculum and course content, and the research procedures. Although Advanced Mathematical modules are not emphasised,

other Social Science departments adopt quantitative methodology with statistics as the dominant *modus operandi* in the research process. The Social Science faculty analyses different socioeconomic, political/public policy, and administrative problems and then recommends solutions to the state and federal governments for a wide range of social problems. That is why there are departments of Sociology, Social Work, Economics, Political Science, Public Policy/Administration, Human Geography, Anthropology, and Archaeology to train students. According to Meriam Webster (n.d.), Social Science “is a branch of science that deals with the institutions and functioning of human society and with the interpersonal relationships of individuals as members of society.” Put differently, “It is any branch of academic study that deals with human behaviour in its social and cultural aspects” (Nisbet, 1998).

It can be asserted that Social Science encompasses the social aspects of human behaviour and responses to social, economic, health, security, and social policy-related problems arising from the actions of political officeholders at the helm of policy-making across all tiers of government. The fallout from anti-people policies or bad governance includes social problems that affect millions of people. This has become a focus of social scientists as they investigate pressing social problems that are the cause of disaffection among the populace.

There is emphasis on the quantitative methodology with statistics as its linchpin. The dominance of statistics has never been in doubt, as statisticians often devised different methods to gather data. They then collate numerical responses to correlate vital variables related to the research rubrics. In some instances, researchers manipulate figures to respond to the research questions to validate or invalidate their research hypothesis then correlate with the sub-themes of the research thrust, such as the research problem aims/objectives and the theoretical perspective (Rahman, 2017; Bhattacharjee, 2012). One vital fact that seems undisputed is that as society evolves, different problems intensify across the respective sectors of a social system. These problems have unpredictable consequences, which require respective responses or reactions by researchers aimed at informing policymakers for swift interventions. Social problems like mass rural to urban migration, overpopulation, unemployment, poverty, homelessness, unregulated street trading, violent crimes, prostitution, teenage pregnancies, domestic battery, divorce, abandonment of children, domestic violence, environmental degradation, rubbish overflow and pollution impacts public health and the well-being of individuals who are concerned about chaos and social disorder in megacities and large cosmopolitan cities and urban towns (Ikwayatun, 2016; Oyeleye, 2013).

In technology-related faculties such as Physical Sciences, Engineering/Aerospace, Computer, and biomedical sciences, there are hypotheses. And so empirical research is conducted under strict laboratory conditions determined by the control of different chemical reactions comprising numerical computations that are generalizable and procedurally replicated ubiquitously in any similar laboratory condition in the world. However, in the context of social sciences, which also uses quantitative methodology, the setting differs as human society and behaviour cannot be subjected to laboratory conditions. This is because human behaviour is complex, unpredictable, and changes with time and circumstances, which is predicated on the contexts (Pullar & Carter, 2018). Seemingly, many quantitative researchers may not be familiar with the respective types of qualitative methodology, which are Narrative Inquiry, Content Analysis, Grounded theory, Phenomenology, Focus Group, and Action Research. These are the most viable paths to social inquiry and to source data that are emotionally and subjectively deep in narratives (Orango & Matero, 2023; Rahman, 2017; Clandenin & Connelly, 2000).

There is a direction to this study. The introduction, the research problem, objectives, the significance of the study, research questions, hypothesis, the limitations of the study, the theoretical perspective, methodology, the philosophical thrust, literature review, the strengths and weaknesses of quantitative methodology, the challenges of operationalization, the

limitations of statistical instruments of measurements, discussion, conclusion, and recommendation.

RESEARCH PROBLEM

Although there are international publications on quantitative methodology and measurement instruments, this researcher has yet to sight a manuscript authored by Nigerian academics about the problem of quantitative researchers' use of scientific measurement instruments in Social Science research. To add to the international discussion, this researcher intends to discuss and also critique the operationalization of subjective phenomena by quantitative researchers.

OBJECTIVES

Given the dominance of quantitative methodology among undergraduate and most graduate and post-graduate students, the two objectives of this research are to discuss the strengths and critique the weaknesses of quantitative methodology and identify its limitations. The second is to identify the challenges of operationalisation of variables in the methodology.

THE SIGNIFICANCE OF STUDY

This research may motivate students and graduate researchers to adopt the different types of qualitative methodology as an alternative to quantitative methodology during the research phase.

LIMITATIONS OF STUDY

This manuscript is limited to quantitative methodology, its critique, and challenges of operationalization.

RESEARCH QUESTIONS

1. What are the challenges of operationalisation of quantitative methodology?
 2. What are the limitations of quantitative methodology approaches in the research process?
 3. Is quantitative methodology the only truth in the research process?
- These questions were answered under the different sub-sections of the research topic.

THEORETICAL PERSPECTIVE

Quantitative research deals primarily with objective numerical data to test a theory. It also seeks to answer questions of "how, where, when, who, and why" to build a theory by collecting non-numerical information and human subjectivity of a phenomenon. In quantitative research, human emotions and perspectives are seen as undesirable biases, but in qualitative research, these elements are seen as essential to the research process (Lawrence, 2015, cited in Pullar & Carter, 1998:13).

Given the overwhelming dominance of the quantitative perspective, Max Weber (1864-1920) and Alfred Schutz (1899-1959) proposed "a form of verifiable knowledge of the meanings that make up and illustrate the social world. They focused on the more basic or inherent features of character and qualities of meaningful social action and how a meaning can be attributed" (Pullar and Carter 1998: 10). They found the meanings of verifiable knowledge of the subjective world behind narratives of respective individuals' experiences. In other words, their paradigm was an alternative to quantitative research, which focused on objectivity and an experiential evidence-based data collection format. As a consequence, the theoretical perspective adopted here is interpretive theory within the framework of Social Work practice. Unlike quantitative

methodology, qualitative methodology is best suited to investigate the narratives embedded in the experiences of research participants and their research subjects to get an insight into different social problems. Seemingly interpretive research fills the vacuum left by the inability of quantitative researchers to fulfil major interpretations of social phenomena. This is because

.....interpretive research does not focus on isolating and objectively measuring variables or on developing generalizations. Instead, it focuses on gaining an empathic understanding of an individual's feelings and the meaning that they give to everyday life with the goal to gaining greater understanding of the individual's behaviour (Rubin & Babbie, 2013, cited in Pulla and Carter, 1998: 13)

The objective of Social Work is to help the vulnerable attain wellbeing and further help them recover from physical, emotional, and psychological wellness. That explains why deep narratives about their respective trauma must be known not by the numerical computations, but by their respective life experiences that are disclosed.

METHODOLOGY

Methodology is “the strategy, plan of action, process or design lying behind the choice and use of particular methods and linking the choice and use of methods to the desired outcome” (Crotty, 1998: 3). The methodology adopted is qualitative research. “Qualitative research involves the studied use of and collection of a variety of empirical materials that describe routine and problematic moments and meanings in individuals' lives” (Denzin & Lincoln, 1994, p. 2). Such researchers study things in their natural settings, attempting to make sense of, or to interpret phenomena in terms of the meanings people bring to them (Denzin & Lincoln, 1994).

The method of investigation is a literature review. This method entails choosing from a variety of techniques and methods for finding, logging, comprehending, interpreting, and disseminating relevant material about a particular topic of interest (Vom Brocke et al., 2022, in Adeniran & Tayo-Ladega 2024). The type of literature review adopted is a critical review method for any manuscript. A critical review method reflects on contemporary publications in a specific aspect of study that report on the following parameters: anomalies, contradictions, failures, successes, conflicts, and other vital rubrics relating to concepts, procedures, models, hypotheses, and findings (Pare et al, 2017 in Adeniran & Tayo-Ladega, 2024). Seemingly, a critical review involves an evaluation procedure that assesses the veracity of research in a specific subject of interest to attain a credible threshold that is potentially ready for further evaluation, contemplation, and analysis. By focusing on vital subtopics that guide different research, it effectively improves the discussion to the extent that it contributes to eclectic contributions, which are vital for further research. Apart from reviewing knowledge generation, critical reviews enlighten researchers to learn and reflect on the limitations of past research publications, to improve on those limitations in future publications, and contribute to knowledge (Templier & Pare, 2017, in Adeniran & Tayo-Ladega, 2024). In light of this, there are a few caveats about the research process.

This is a secondary research paper that relied on the review of academic journals and other sources, notably textbooks, newspapers, and even historical documents, to elucidate quantitative methodology (Barnes, n.d.; Feigel, 2025). This researcher pursued the topic broadly to gain vital insights into the methodology. There were no selection criteria or a timeline for the literature search. There were no exclusion or inclusion criteria, terms, or strings attached. Preference was not reserved for any minor or major journal. Due to the methodological limitations, the findings in this manuscript cannot be generalized. The literature was drawn from different academic disciplines in the social sciences.

THE PHILOSOPHICAL THRUST

It is relevant to give brief definitions of two vital concepts, epistemology and ontology. These philosophical concepts strongly relate to this section. It led to identifying the research process of this manuscript.

Epistemology

According to the Oxford English Dictionary, epistemology is “the theory of knowledge and understanding especially its methods, validity, and scope, and the distinction between justified belief and opinion.” It is the philosophical underpinnings of researchers’ beliefs regarding the nature of knowledge and how it is derived or created (Yin, 2016, 335). It can also mean the branch of philosophy concerned with the nature of knowledge, its possibility, scope, and general basis (Potter, 2017).

Ontology

According to Merriam-Webster dictionary, it is a branch of metaphysics concerned with the nature and relations of being. Moon and Blackman (2017) elaborately assert that “this is the ‘study of being,’ which is concerned with what actually exists in the world about which humans can acquire knowledge. Ontology helps researchers recognize how certain they can be about the nature and existence of objects they are researching. For instance, what ‘truth claims’ can a researcher make about reality? Who decides the legitimacy of what is ‘real’? How do researchers deal with different and conflicting ideas of reality? It is relevant to review the history of this vital methodology.

The era of enlightenment marked a significant revolutionary progress in the 18th Century epoch of observation, empiricism, scientific postulation, and the visible development of science, mathematics, and advanced technological innovation, which manifested in the industrial revolution. At the apex of his adumbration, the phase of positivism and the scientific study was the third and significant phase of development during the Enlightenment epoch. Comte’s thesis on positivism asserts that science can be used to understand society or studied by observation. Seemingly, positivism is defined as a philosophical perspective that emanates from sensory experience derived through scientific research methods, which advocates that human knowledge of reality is rooted in empiricism, notably in observation and operationalization of phenomena rather than abstract metaphysical speculation, which was unscientific and lacked substantial evidence (Feigl, 2026).

In his three stages, Comte combined what he considered to be an account of the historical order of development with a logical analysis of the levelled structure of the sciences. By arranging the six basic and pure sciences one upon the other in a pyramid, Comte prepared the way for logical positivism to “reduce” each level to the one below it. He placed at the fundamental level the science that does not presuppose any other sciences—viz., mathematics—and then ordered the levels above it in such a way that each science depends upon, and makes use of, the sciences below it on the scale: thus, arithmetic and the theory of numbers are declared to be presuppositions for geometry and mechanics, astronomy, physics, chemistry, biology (including physiology), and sociology. Each higher-level science, in turn, adds to the knowledge content of the science or sciences on the levels below, thus enriching this content by successive specialization (Barnes, n.d.).

The introduction of Mathematics and later Statistics was rooted in the above citations and preceding definitions. With the introduction of Sociology, Statistics took shape in conformity

with the form and manner which Comte had envisaged. Quantitative methodology dominated the entire Social Sciences to the chagrin of a few qualitative researchers. There were many criticisms of positivism, which led to the introduction of an alternative hermeneutic paradigm, which is the interpretivist method. It was discussed under the rubric of the theoretical perspective.

LITERATURE REVIEW: QUANTITATIVE METHODOLOGY

Quantitative methodology describes a process of data collection that is based on statistical or numerical collation of respective respondents' responses to achieve a credible outcome that can be generalised. It can also be described as a systematic approach to data that is based on numerical figures. The method often utilizes formal techniques such as observational studies, surveys, and experiments, and gathers data that can be statistically assessed (Fischer et al., 2023, in Sapkota 2024, 153). The aim was to reduce bias by researchers maintaining objectivity generalizability, and even replicability of the research process by using standard operational instruments to measure variables and vital indicators on different formats of the research process (Pojwan, 2018). Preceding the sampling of the respective respondents, there must be a phase of identifying and seeking ethical clearance and legal permission to proceed to seek data through respective methodologies (National Association of Social Workers, 1998). Critical to this process is the number that can be selected from a population sample. There are different types of samples; notably, probability or simple random sampling, systematic sampling, stratified sampling, and cluster sampling. There is also a non-probability sample, which is non-random, notably convenient, quota, purposive, and snowball sampling (Cresswell, 2014; Carr, 1994). The aim is to select a percentage of the population to interview or to administer questionnaires, and to collect them on time. The overarching aim of a quantitative research project is to respond to the hypothesis and research questions, which point to the identification of variables and how it correlates to each other to prove or disprove the research hypothesis (Cresswell, 2014). The above is what researchers rely on to attain data.

Statistics is the linchpin of quantitative methodology. Statistics is a science of collecting, analysing, presenting, and interpreting data *relating to population census, macroeconomics indices, health, or poverty levels* (Sweeney et al 2026, italics added). It can also mean the scientific methods of collecting organising, summarising, presenting, and analysing data, as well as drawing valid conclusions and making relevant decisions based on such analysis. Both state and national governments across the world hold statisticians in high esteem. Similarly, the academic community has historically valued quantitative methodology manuscripts due to their emphasis on scientific research and advanced statistics. Although over five hundred scientific papers were identified as fraudulent and later retracted (Github, n.d), Okonta & Rossouw (2012) identified misconduct in some publications, yet their manuscripts are often receptive to editors of high-quality index journals. This is at the expense of qualitative manuscripts, which are often rejected for lacking evidence-based research, better known as statistics (Havey & Chang, 2022).

Although the National University Commissions (NUC) allows the adoption of qualitative methodology courses in undergraduate degree curriculums in the faculty of Social Science across Nigerian universities, the general preference by supervisors is to direct students to adopt mixed methods or quantitative methodology with detailed statistical compositions emanating from field research. They are also mandated to administer questionnaires or conduct field interviews, then present the quantitative results, and statistically analyse and correlate with the respective variables to prove or disprove the hypothesis. They then discuss the research findings and link their relevance to the aims and objectives of the study. And then draw a conclusion and recommendations to be adjudged to have fulfilled the project component (Igun, 2010). Seemingly, students are expected to correlate any research problem to operationalised variables derived from field research to prove or disprove the hypothesis that they presuppose

(Oluwatoyin, 2022). What appears inappropriate is that most academics responsible for the supervision of research projects knowingly approved topics traditionally meant for qualitative methodology research. It was substituted for quantitative or mixed methods research (Akpan, 2020). In light of that disclosure, it triggered this research.

The strength of quantitative methodology

First, within quantitative methodology, statistics is the most viable means of identifying evidence-based research that informs government policies to address specific social policy needs of the public. For example, a shortage of low-cost housing can lead to the building of low-cost houses around the country. Government can achieve the following projects: urban development, the provision of public power supply, equipping public schools, securing public parks, building modern libraries and modern markets fitted with public toilets and pipe-borne water. Second, through statistical surveys, public opinion results help government officials reverse unpopular policies. Third, statistics are relevant to budget planning and fiscal policies of the government and revenue generation by capturing the percentage of workers who fall under the taxable income. Fourth, through statistical compilation, the general population census results of a country are released and published with detailed demographic information. Statistics is vital for indicating the sub-sectors of an economy, such as the formal and informal sectors, the employed/unemployed workers, and information on Gross Domestic Product GDP and Gross National Product GNP of a country. The National Bureau of Statistics NBS is responsible for collecting, collating, and analysing high-quality data derived from evidence-based research regarding vital sectors of the Nigerian economy (National Bureau of Statistics, 2025). In terms of research methodology, statistics are pertinent in the interpretation of results from quantitative findings. These results can be generalised to the population due to a large sample of respondents. Fifth, data analysis of a large sample can be easily analysed through advanced computer software. There are also the creation and utilisation of standardised instruments to operationalize data, thereby connecting the independent and dependent variables in order to create a causal relationship to make findings valid and standardised (Creswell, 2014; Rahman, 2017).

The relevance of standard instruments is to enhance objectivity through observations meant to create reliability of research findings (Pojuwan, 2018). According to Mefoh (2024), instruments can measure different psychological tests capable of predicting different attributes of humans, such as behaviour, intelligence, personality, adjustment, and motivate individuals. These have enabled some interventions on conflicts and child abuse cases. The next is the weaknesses of this popular methodology

The weaknesses of quantitative methodology

There is a reason why quantitative methodology was initiated by Comte in 1830. It was to rebut the scientific research of metaphysical attributes that are subjective. These scientific researchers explicated the working of the human mind and knowledge as absolute, with numerical attributes as evidence of their inquiry. There were pushbacks as it was perceived to be erroneous because subjective attributes lie within a different realm of experience. According to Abdullahi et al (2012), social life and human actions are highly complex, multidimensional, and embedded in meaning. Therefore, it is a great challenge to reduce social realities to numbers coded with correlations of variables.

Exclusion of deeper phenomena

Quantitative research leaves out the common meanings of social phenomena; the meaning of events is left out. Since their mode of eliciting data is coded and closed-ended questionnaires,

or the Likert or Guttman Scales, it omits deeper information that is innate and unique to the respondent's feelings and perspectives about the phenomenon derived through experience (Pullar & Carter, 2018).

Scientific investigation is too rigid

Scientific investigation requires a rigid criterion-controlled environment, such as the simulation of laboratory conditions or an environment where human behaviours can be studied. It vastly differs from the natural behaviour of humans, where unpredictability is the core trait. That is why qualitative methodology is more in-depth and describes subjective experiences that cannot be captured by statistical scales (Pojwan, 2018).

Bias in participant selection

A general criticism that is always levelled against qualitative researchers is the lack of statistical analysis, the selection of a few respondents, and bias in the selection of samples. However, quantitative researchers are equally guilty of bias due to a targeted selection of participants and deliberately framing sensitive questions to gain a certain statistical outcome (Noble & Smith, 2025). For example, this researcher can frame questions that seem factual, relating to theological faith and perception of Islam, and target Nigerian Christian respondents to express their negative responses about Islamic terrorism and the persecution of Christians in Benue Plateau and Southern Kaduna states in Nigeria. Another aspect of bias is a purposeful sample that targets the poorest neighbourhoods to respond to questions relating to high unemployment and violent crimes in their neighbourhoods. In both examples, their responses can potentially influence the outcome of the result even without any manipulation.

The problem of the reliability of measurement instruments

This relates to the reliability of statistical instruments, such as the Likert scale, that measure different variables to ensure the veracity of measurements. However, some instruments are culturally inappropriate for refugees and the mental health of migrants from Sub-Saharan African and South East Asian countries living in Western countries. Their Western-centric assessments often diagnose certain conditions related to a few variables like sadness, depression, and demoralisation (Kaiser et al, 2019; Briggs & Macleod, 2010). The challenge of attaining veracity is often difficult due to the lack of standardised instruments universally accepted for operationalization of certain variables (Jensen et al, 2022). Once the research process is questionable, then the veracity and reliability of the measurement instruments are called into question. That explains why a psychologist advocated for multi-instrument measurement to create validity (Carpentras, 2024).

Lopsided representation of the target population

Quantitative researchers may find it challenging to conduct purposeful research in a densely populated area that is unplanned, and overcrowded. Although researchers have a procedure to choose their sample sizes, their simple random sample is perceived to be unreliable, given the lopsided numbers that are selected as a representative of a general population (Chetty, 2016). Improper representation of the target population may lead to bias due to the lack of funding to hire a large staff to facilitate the logistics aspect of the research process, such as how and where to conduct interviews or hand out questionnaires, and receiving the filled ones. In a megacity with a population of ten million residents, a cost-effective sampling plan may comprise 10% of the population, which is not a representation of all segments of the city. Due to the heterogeneous composition of ethnic, religious, socioeconomic, and cultural diversity, an appropriate probability sample of selected respondents may not be a true representation of the

population. The findings of the research and recommendations may be biased due to underrepresentation. The result is that it will impact social policies among minority groups.

High cost of quantitative research

A noticeable problem is that no matter the sample size, it is very expensive to conduct quantitative research. Due to the prohibitive cost associated with logistics, transportation, hiring staff, the cost of buying printing materials, and identifying the sample size often takes time to plan and match with funding. If the sample size were small, it would become manageable (Rahman, 2017). A large sample size may fit a densely populated area of one million. For the research to be valid and generalisation affirmed, a large element of the sample has to be carefully selected through random, cluster, or snowball sampling to reflect the high population density (Cresswell, 2018). Without funding, it is very expensive to conduct such research, even for a small sample of 500 to 1000 respondents. It is the lack of funding that discourages some research students from embarking on field visits.

Statistics can be manipulated

Irrespective of the research context, sometimes statistics can be manipulated and presented as data. This situation occurs when researchers do not have access to the field to source data due to internecine conflicts or lack of funding from relevant research organisations. There is a tendency among some researchers across Sub-Saharan Africa to manipulate and, at times, present fraudulent data or research findings that are published as if they were genuine (Andoh, 2025). Once it is manipulated, fabrication can ensue. Fabrication happens in different dimensions, such as faking data points, producing false responses in spurious surveys, or devising wrong experimental outcomes to fit the hypothesis and adhere to the research problem (Shehu-Abdulkareem et al, 2025). Across some tertiary institutions, there are reports of the misuse of statistics and manipulation of it especially as it relates to research projects (Adesanya 2020; Ajogbeje et al, 2023; Edema, 2020; Okonoboh et al, 2024).

High transportation cost

Due to the removal of fuel subsidy in May 2023, the cost of petrol and diesel has exponentially increased the cost of transportation across Nigerian states, local government areas, and rural areas. Everyone is adversely affected, including residents in remote areas where petrol and diesel are sold at higher prices due to the non-availability of petrol stations (Udang & Akor, 2025). The recent 2026 United States and Israel war on Iran has further pushed the price of petrol and diesel higher than anyone anticipated. Consequently, the cost of transportation to Central and Northern Cross River State is very high, which has affected travelling from Calabar to the entire Cross River state to administer many questionnaires, organise a focus group discussion, or conduct face-to-face interviews. Research may be confined to the state capital to save transportation costs.

Insecurity

In conflict zones, the lives of field researchers are often at risk. This is hampered by insecurity at the highest level in many states in the Middle Belt and the entire northern Nigeria. It will be daunting for researchers to conduct any form of research due to kidnappings, banditry, and other violent crimes (Akinyetun, 2016). These concerns threaten the veracity of quantitative methodology as opposed to desk research, where secondary sources can complement field visits.

RESEARCH QUESTION ONE

What are the challenges of operationalization in Social Science research?

THE CHALLENGES OF OPERATIONALISATION

The 1932 Likert scale seems to be the oldest and most popular in Social Science research. However, its efficacy is in serious question. The operationalization of subjective variables is through statistics. This scientific format of numerical value by social scientists is the object of contention in this section.

Although scientists had previously attempted to conduct research on subjective attributes like the quality of life (Abbot & Wallace, 2012), happiness (Haller & Hadler, 2006) pain (Kroenker, 2019) stresses (Dorsey, 2022) needs and wellbeing of elders Pauli et al (2025) emotional wellbeing (Simsek, 2011), subjective wellbeing (Azizan & 2018), subjective wellbeing Hafizan et al (2018) and headache (Niere & Jerak 2004) to mention a few of numerous research measurements. A review of these publications and many others not cited suffer from major criticism which is at the core of this research.

The dilemma of subjective topics

Quantitative methodology relies on different statistical methods for data collection. It may be Interviews, surveys, and Questionnaires, Cross-sectional study, Correlational research, Causal comparison, Meta-analysis, Experimental and quasi-experimental research (Cresswell, 2014). However, some topics relating to beliefs in religion, emotional outbursts, nostalgia for past events, mental health crises, psychological breakdown, guilt for homicide, evil intentions benevolence and cultural rituals are impossible to fit into the dimensions of data collection because they are subjective and too complex to attribute numerical values hence the overwhelming criticism against rating scales (Uher, 2018).

The exclusion of variables considered irrelevant

There is also the exclusion of subjective attributes in their operationalization. A vital fact is that statisticians rarely research phenomena that cannot be conceived, imagined, captured, expressed and operationalized. These include operationalizing innate perspectives and lived experiences of social, cultural and private lives of individual groups of people, including their experiences of injustice, racism and prejudice that pertain to any aspect of life (Dominick, 2018). Seemingly, statistics cannot operationalize emotional phenomena such as heart break, disappointment, distress, despondency, predictions, future behaviours without imputing numerical attributes that are limited and lacking in scope and explanation of the phenomena in question.

The phenomenon can be measured and quantified, projecting the non-numeric abstract world into a numeric and quantified world of simple numbers (Sapkota, 2025, 153).

From the above citation, it is apparent that statisticians are efficient in visible research that has variables that can be numerically verified and correlated with opposing variables. However, when it comes to subjective phenomena and conditions of life as they impact history, cultural norms, idiosyncrasy, intuition, ritual, social interaction, incantations, magic, motivation, faith in religion, philosophy, spirits, their report do not exist (Pullar & Carter; 2018; Dominik, 2018). Furthermore, there are familiar variables like illiteracy, decision- making, good and bad choices, but it does not give a comprehensive scenario of all the components of inner reasons for social vices. This is because numerical attributes are inappropriately linked to subjective

variables. Critiques also argue that numerical data reduces complex, lived human experiences into superficial variables. By forcing subjective realities (e.g., happiness, identity) into rigid, standardized scales, researchers risk ignoring cultural contexts and the unique, interpretive meanings individuals give to their behaviours (Sullivan & Artino, 2013; Uher, 2018).

The reaction of respondents and fear of stigma

Some responders react to questions based on respective idiosyncrasies of untruth to either give impression to researchers or conceal secrets about their symptomatology, which is embedded in poor health. Due to the fear of stigmatisation, some responders often respond to questions to deceive researchers whose interest is to objectively tick their responses. Depending on the nature of the questions, some responders assume the respective scales may be valid, so it heightened their fear of stigmatisation. Some other responders gave responses based on preconceived societal norms and even ethos rather than their true gut feelings about phenomena which may be deadly Sexual Transmitted Diseases STD such as HIV/AIDS, Hepatitis B and C virus, Herpes, Syphilis, Gonorrhoea (Lichtenstein, 2003; Dolezaz, 2022)

Measurement scales are too limited

Given the numerous variables, quantitative researchers are unlikely to sense the internal struggles of respondents. Put differently the different measurement scales are too limited to cover different attributes of an individual struggles. Some of which are dynamic complex and multi layered. It could lead to the discarding of vital variables that are perceived to be too fragmented and irrelevant. Critics have argued that the failure to understand little narratives and complex attributes of individual experiences results in reductionism (Youvan, 2024) There is also accusation of systematic biases related to the order of the scale and halo effects (Podsakoff et al 2003 in Jahedi & Mendez, 2014). In addition, it has proved to be uncorrelated and also negatively correlated with independent objective measures related to the variable of interest (Kaplan & Pathania, 2010 in Jahedi & Mendez, 2014) “Subjective measures are difficult to aggregate and interpret because they are often expressed in ordinal scales” (Rose-Ackerman, 1999 in Jahedi & Mendez, 2014).

The Likert scale format is pigeonhole in a closed ended format

Any methodological approach or methods that rely on using some structured instrument like a survey or an experiment in which the researcher can collect big data sets so they can have quantification of data to analyse the objective world – and provide results that will broadly generalise the research findings or conclusions with deductive reasons *fit a quantitative methodology* (Sapkota, 2024:1 italic added).

Quantitative researchers often pigeonhole questions into their questionnaires with limited options that ought to have open ended responses. This has been critiqued that it limits options of expression and elaboration so its application is inappropriate. It can be relevant for objective values but not for subjective variables like experience hope despondency disappointment etc (Darnton, 2023).

Given the scales are so limited and opposite the true reality of individual experiences, some may frame closed ended questionnaires and easily replicate responses to fit into a set pattern then create imaginary codes to correlate the column of respondents. Without a context and a baseline of experience, it will be difficult to apply any question to subjective variables. These are failure, success, belief, spiritual growth, cultural ritual, impact of barbaric acts, trauma, mental ailments and other symptomatology and pathologies impacting respondent's health and wellbeing. The outcome of questionable research is the publication of spurious findings that are

replicated across the scales to fulfil the scientific cravings of rigour (Bishop & Heron, 2015; Liu, 2018).

RESEARCH QUESTION TWO

What are the limitations of quantitative methodology approaches in the research process?

THE LIMITATIONS OF QUANTITATIVE METHODOLOGY RESEARCH

Eventually, it renders the complete story absent from models testing a specific variable relationship between independent and dependent variables, wherein adding every conceivable factor is not feasible. Therefore, it is critical to remember that conceptualizations and assumptions found in quantitative research, while deeply theoretically grounded, may need to be taken a critical eye before being forcefully used as the basis for some phenomena or relationships (Sapkota, 2025: 154).

Although many academics in Africa prefer quantitative methodology, the secular world also cherishes it and venerates their research outcomes. But there are serious limitations relating to the subjective experiences of respondents in different circumstances of discomfort. From experience, pain is a discomfort that impacts the anatomy of a human being. Such pain may rise to a traumatic level then interfere with one's wellbeing and happiness. In spite of their biomedical feats and inventions, there are limitations to identifying pain and its traumatic impact on sufferers.

First, the modern world is aware of the trauma of female genital mutilation FGM. Statisticians will never truly measure the harrowing experience of pain by survivors. Researchers can adopt the best operational instrument to identify the level of pain and trauma, but statisticians cannot convey the magnitude of such pain, which is extreme and often fatal due to bleeding, which has the highest preventable mortality (Osam, 2024; Flowe, 2023). Second, statistics are again limited when an analysis is made of women who underwent long hours and even days of labour in a bid to give birth to a child. How do mothers explain the enduring pain associated with labour in a maternal ward or at a traditional birth location? Is any measurement scale able to convey the subjective experience of a lengthy labour that has recorded the most female fatalities in the world? (Dogbanya, 2025). Third, as earlier elaborated in the previous section, statistical instruments are limited in attributing numerical values when it comes to emotional issues as significant as the level of bereavement to an untimely loss of a young couple, and an only child or the bread winners of families. Fourth, a related example of statistical limitation pertains to the emotional impact on survivors of crashes on our roads. Road Safety has a statistical count of fatalities and injuries from road crashes, but it cannot operationalize the consequences and trauma of the loss of loved ones and the vacuum left by grieving relatives. Five, statisticians cannot accurately measure the subjective experience of rape victims whose anger and pain cannot be expressed in numerical terms due to the frightening coital experience. Six, statisticians are limited in the emotional impact of DNA results, which indicates that not all the children of a father are the man's biological children. The shock, betrayal and emotional trauma caused by the adulterous wife cannot be identified through operationalization scales. Seven, domestic battery victims can only explain their experiential plight in depth through narratives about experiences of regular battery and abuse. This is more impactful than stated numbers on the operational scales of emotional and psychological impact of battery. Eight, when there is a sad diagnosis of a terminal cancer on a youth successful human full of potential, there is no measurement instrument that can decipher the traumatic level of fear of untimely death of patients in their penultimate phase of their lives. Nine when an unemployed applicant with decades of declined job applications eventually applies for a job as a mortician. He succeeds

and gains financial benefits and an unbelievable high salary. Due to desperation, he conceals his tremendous fear of cadavers and superstitious belief about witchcraft from his employers. How does a measurement scale capture his subjective phobia and dread of cadavers?

HYPOTHESIS THREE

Is quantitative methodology the only truth in social science research?

It must not be assumed that statistics is the only method to use in research, neither should this method be considered the best attack for the problem (Croxten & Cowden 1940, cited in Dominick, 2018)

The response in this research is that it is not a single truth to social phenomena research. There are several ways of looking at truth and most often this seems to involve our perceptions. Human interpretation is subjective. There is not a single truth to social phenomenon, “rather multiple truths that are woven, grown, offered and paraded as products of human subjectivity (Harrison, 2014 cited in Pulla & Carter, 2018: 10).

DISCUSSION

From the introduction, this researcher gave a background about the social policy problems that necessitated the adoption of quantitative methodology in the Social Sciences. After the sub themes, the theoretical perspective, philosophy and methodology were briefly introduced. The dominance of quantitative methodology research among students and other Social Scientists was acknowledged. The theoretical perspective was critical literature review which was based on interpretation of subjective phenomena. Based on the writings in the theoretical perspective, it was asserted that the measurement instruments used by scientists to measure phenomena were inappropriate. Their experiences in life were unique, subjective innate and beyond the ability of quantitative researchers to operationalize phenomena. Seemingly, undergraduate and graduate students were urged to adopt qualitative methodology to investigate subjective topics. Quantitative researchers in the other academic fields in the physical, biomedical and management sciences have their aim of operationalization of variables. Their focus is on inanimate objects, which is different from Social Science. The literature of scientific operationalization of subjective variables like happiness pain and pleasure showed numerical values that are limited in context because human beings are not machines to reveal innate and secret experiences that may be stigmatized. It was asserted that in qualitative methodology, numerical standards are not relevant for operationalization; instead, it is narratives of experience that is vital. Seemingly, it is unsuitable to attribute numerical values to subjective variables like happiness, pain, joy, cry, laughter emotion and psychological attributes because there are not objective. It is more appropriate for respondents to convey their experiences through narratives to prospective researchers. In-depth narratives through open ended questionnaires and interviews have proven to unravel the extent of impact or trauma for people in distress. According to the source below

Quantitative research is generally based on a realist ontology, a philosophical position that posits the existence of an objective reality independent of human perception, which assumes that social phenomena are objective and external to us and can be measured by others in exact terms. The quantitative research paradigm, which holds the ontology of positivism, holds that generalization and replication of objective realities are expected to be commonalities. Instead, qualitative researchers and constructivists tend to explore differences in the realities of the subjective world. Thus, the quantitative perspective presumes a distinction between the observer and the observed, ignoring that human

experience and social reality are subjective. It has been said that this method oversimplifies the complexity of social phenomena and turns them into zeroes and ones, disregarding cultural context and social science at large. This has led the ontological stance of quantitative research to come under attack for ignoring the interpretive components essential to comprehending social contexts, cultural constructs and perceptions of people (Sapkota, 2025, 154-155).

This is where quantitative research is more aligned with physical sciences. Their theoretical postulations tend to be scientifically valid, given that the inanimate subjects are not human. It becomes highly inappropriate for social science researchers to wear the symbolic lab coats of physical/technical and Biomedical scientists, when they deliberately underrate qualitative studies with their rich documentation and narratives that involve human beings as undesirable and not worthy to be considered.

The limitations of statistics identified few hypothetical scenarios that are subjectively impossible to measure. As earlier asserted the Likert or Guttman or any scientific measurement scales are too limited to identify hidden challenges that are subjective. There are innate attributes that bother on drivers of determination to overcome challenges that are impeding the progress of individuals. On the contrary some innate attributes create chaos, dismay and despondency in the lives of many unemployed poor and hungry respondents. Due to its complexity, these challenges are hidden from the Likert or Guttman scales. This is because human beings are socially oriented with the ability to navigate their lives rationally in a healthy social ecology. Through socialisation process, humans adopt and internalise the respective phases of biological growth and social development then gain other vital learning experiences of different sorts in that process. After vocational or formal training, gaining employment is the natural expectation of any progressive minded individual. In addition, starting and sustaining a nuclear family and forging social relationships with others facilitate the process of socialisation. Seemingly, success or failure depends on the ability to get employment, sustain it and also survive lay off. There may be other indices to consider. These are marital stability, healthy single life, debt profile, good health and financial stability. These variables certainly determine the status of physical psychological and emotional wellbeing in a difficult world of challenges and competition. These attributes may determine the responses to any subjective questions that are intrinsic, but not represented in the different scales of social research. According to the source below

The use of a quantitative research approach in the social sciences is problematic because it is impossible to successfully and clearly empirically measure and interpret the complexity of human behaviour and an individual's interactions between their social and natural environments. The use of Quantitative research methods in the natural sciences allows the researcher to observe, measure and interpret natural processes. Research in the social sciences involves observing a phenomenon and understanding the interpretations that individuals have already made (Blaikie, 2004 cited in Pullar & Carter, 1998:13).

The preceding citation reinforces the stance about the inappropriate application of quantitative research on non-numerical rubrics that are subjective and difficult to operationalize. As a Social Work researcher, there is interest in how people understand their sociocultural and human context to make sense of their world views in the course of social interactions within a heterogeneous human context where competition is fierce and survival is so challenging. Another reaction to the citation infers that statistics seem to be the panacea for data collection and resolving all socioeconomic and human problems in quantitative research. However, from

the evidence presented in the disadvantages of quantitative methodology, its limitations and a stinging critique of scientific instruments, this researcher's assessment were based on vital citations. Statistics alone does not convey the truth or the veracity of the research focus because the core problems that people encounter are in narratives that relate to their experiences of different phenomena. This agrees with the theoretical perspective of interpretation which falls under qualitative methodology and subjective phenomena of experience. Finally, the two hypotheses regarding the challenges of operationalisation of quantitative methodology, and its limitations proved valid. The last hypothesis question if quantitative methodology research is the only truth in the research process? This was invalid because findings showed alternative to quantitative research which is qualitative research.

CONCLUSION

This researcher has argued that statistical formulations, which are the backbone of quantitative methodology, are incapable of operationalizing subjective human problems and their social phenomena. Although statisticians seek internal validity even as they collate figures, compare and correlate variables, they are limited in data collection due to the limitations of statisticians to allow open-ended questions that respondents can elaborate upon. Consequently, statisticians lack the understanding of researching subjective innate emotional and deep experiences of respondents eager to retell deep narratives and also share their respective philosophical, political, cultural, emotional/intuitional and religious views as it applies at the time of the research phase and collation of data. This makes it difficult to predict human behaviour due to its complexity. Despite this glaring weakness, it may be perceived that the quantitative methodology's numerical advantage has left an impression of the monopoly of methodology without the eclectic opinion of qualitative researchers' contribution to intellectual development. The Deans of the faculty of Social Science ought to acknowledge the relevance of qualitative methodology and other methods of the paradigm as appropriately suited to consider subjective attributes that convey understanding of findings to complex human problems. Moving further, if equal opportunities for the choice of research methodology are not accorded, qualitative methodology will continue to be side lined as irrelevant. Consequently, eclecticism suffers because it is deprived of alternative qualitative voices ready to dig deep into the residue of subjective problems, which are beyond the prism of quantitative researchers. Finally, no scientific equipment can decipher human thoughts.

RECOMMENDATIONS

- Academic departments in the faculty of Social Science should attend seminars and be trained on the different types of qualitative methodology research. This will enable students to be taught the different qualitative methods that are available for future research purposes
- The Deans of Social Science should encourage Head of departments to permit qualitative methodology in undergraduate degree programmes. This may motivate students to adopt qualitative methodology in advanced degrees.

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