

Credibility in Qualitative and Quantitative Research in Education: A Humean Approach

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Research always conveys a commitment to philosophical beliefs even if this is unintended and even though it remains implicit and unacknowledged...[Researchers]cannot evade the responsibility for critically examining and justifying the philosophical ideas that their enquiries incorporate. It follows that philosophical reflection and argumentation are central features of the methods and procedures of educational research. —W. Carr, 1995 (as quoted in Bridges, 1997, p. 179,)

ABSTRACT:This paper proposes a Humean approach in increasing the credibility of research results in Education. The processes are through observation of data from the natural setting, systematic codification of the data, hypothesizing, experimenting, and then generalizing the result. Empirical evidence can be intuitively justified, by sense reasoning, argumentation, and by induction.

KEYWORDS: *empirical evidence; Humean approach; qualitative research; quantitative research*

I. INTRODUCTION

The essence of philosophy is its nature of “always seeking for reality and truth.” This very nature of philosophy is the driving force of every discipline, be it education [1], Medicine and others to evolve into a vast body of knowledge, emergent from the act of human inquiry with the hope and aim to provide answers to questions and to look for possible means to approximate what constitutes reality. As has been said by many experts, a discipline that has no new theory or development, which is a product of research course will eventually die. The most significant human endeavor that sprouts from philosophy and perhaps a perfect surrogate of it is “research.”

There are two traditional methodologies in research. One is the quantitative method, and the other one is qualitative. The field of quantitative research rejects the idea of subjectivism while focusing on countable and measurable evidence that is scientifically and objectively driven. The propagation of such area of inquiry has drastically changed the world alongside the dynamic time continuum. The advancement of science and technology, which humanity has experienced is a product of research that has impacted the living standard at present. However, the practice of scientific principles like objectivity, reductionism, and deterministic modeling has shown some issues on understanding and mastering the intricate real-world phenomena [2]. The different paradigms created a great divide between the two lenses of inquiry. While the debate continues to date, however, other scholars and researchers have been neutral and agreed that these two are a complement to each other.

The very issue between the two opposing research methods lies in the kind of data, how it is gathered and analyzed, and the validity of each result. A quantitative researcher may challenge a qualitative researcher on the validity of its results and will question the kind of data used and how it is analyzed. The other corner will challenge the quality and vagueness of the result.

The researcher intends to propose a model that will provide a guide in increasing the credibility of results for both research paradigms based on Humean approach.

Statement of the objective

The main objective of this philosophical paper is to harmonize the two competing research paradigms through a Humean Approach to the evidence-based inquiry.

Significant of the study

This paper develops a model that will harmonize these two research paradigm as complementary to each other. Specifically, this will help limelight how the two approaches investigate the validity of results. This philosophical paper will be of valuable use to the following:

Professional Researchers/Researching professionals-This will provide guidelines on establishing the truthfulness of the gathered data to cultivate a close approximate of the result.

Educators-This will aid in conducting action research. Accurate and hard data must be available to provide an appropriate solution to a problem.

Scope and Delimitation

This paper only dealt with the issue on the truthfulness and the credibility of data under the two research methodologies.

II. THEORETICAL BACKGROUND

The two research traditions still pose arguments to date between scholars and in different fields. Some favors for the quantitative method over qualitative method for the reason that the first is considered to be more scientific than the latter. For instance, in doing social researchers like in criminology and criminal justice, the quantitative method is considered superior compared to its counterpart. Qualitative research is considered to provide only anecdotal, non-scientific examples of marginally exciting and valuable insights and is branded by many criminological and criminal justice researchers that it is in the realm of pseudo-science, and offers little or no value for addressing how crime and societal responses to crime transpire [3]. However, Tewksbury chooses to stand with the qualitative method. He argues that the numerous advantages of qualitative methods provide a depth of understanding of crime, criminals, and justice system operations that far exceeds that offered by detached, statistical analyses. He added that the differences in the data, how data is collected and analyzed, and what the data and analyses can tell about the subjects of study, the knowledge gained through qualitative investigations is more informative, more vibrant and offers enhanced understandings compared to that which obtained via quantitative research.

The widespread debate is dependent on the worldview of the individual researcher. The two modes of inquiry are considered incommensurable by many. However, Bryman [4] suggested to combine the two approaches for the best of both opposing corners. However, this solution might underestimate the politics of legitimacy that are associated with the choice of methods since, in particular, quantitative approaches are seen to be more objective and specifically scientific [5]. Thus, the separation of the two established modes of inquiry is clashing. Where precisely this debate springs from?

The opposing views have primarily rooted in what it called epistemology. Epistemology is the branch of philosophy concerned with the nature and scope of knowledge and is referred to as "theory of knowledge" [6]. It questions what knowledge is and how it can be acquired [7], and the extent to which knowledge pertinent to any given subject or entity can be acquired. There are two major variants of the epistemological views here that fuel the divide between the two research methods. These are the objectivism and the subjectivist. The objectivism worldview is strongly linked to quantitative research while subjectivism is for qualitative research. The quantitative paradigm is founded by the theoretical perspective of positivism [8] that evolved into post-positivism. The quantitative lens is proprietary being on the realistic side. It imposed that reality is already there waiting to be discovered through scientific research methods. It appears to be naturalistic. This worldview believes in a casual relationship, and laws of cause and effect relationship govern the world. Positivist believes that there is a true reality that can be measured thoroughly.

According to the other viewpoint, qualitative researchers are subjectivists. In contrast to the realist view that the truth is out there and can be objectively measured and found through research, they point to the role of human subjectivity in the process of research. This worldview denies that reality is out there ready for objective observation. According to this worldview, the reality is constructed by observation. There is no pre-existing objective reality that can be observed before the investigation [8]. The process of observing reality changes and transforms it, and therefore, subjectivists are relativistic. All truth can only be relative, and is never definitive, as the positivist claims.

Definition of terms

Empiricism- is a theory of knowledge which asserts that knowledge arises only from experience.

Intuitive evidence- self-evident evidence

Sensible evidence- evidence that can be proven through the senses

Demonstrative evidence- evidence that can be proven through logical argument

Moral evidence- evidence through inductive reasoning or reasoning from experience

III. DISCUSSION OF THE PHILOSOPHY**Empirical Principle of Humes**

David Hume (1711-76) is a Scottish empiricist philosopher is commonly considered as the great infidel by his fellow philosopher. Hume has been classified as an empiricist [9], a skeptic, and secularizer, but he is most fundamentally a naturalist empiricist.

Empiricism is a theory of knowledge which asserts that knowledge arises only from experience. Empiricism is one of the several competing views about knowing things. It emphasizes the role of experience and evidence in the formation of ideas based on sensory experience [10]. In the philosophy of science, empiricism emphasizes that scientific knowledge is built on hard evidence. Additionally, a necessary procedure in scientific inquiry requires all hypothesis and theories to be tested against observations on the natural world setting, rather than relying purely on reasoning or mathematical thinking. For science is considered to be methodologically empirical [11].

Humes' philosophy is founded on Newton and Locke. Newton believed that the aim of science is not necessarily the ultimate understanding of things rather systematization. Unlike Locke, the aim of science is not to get certainty; it is not achievable. It should be probabilistic. Humes' draw lesson of science that intelligibility is not something that can aim for in science, what is needed is the systematic laws that codify the way things behave. Humes' believed that there is nothing at all that can remotely be understood. What is essential is to see how things behave, codify that behavior, and do ask science on those bases. However, ultimate understanding is not achievable.

Humes central idea discusses induction. While Locke questions about the certainty in science, Humes' argue that there is no reason to believe that what is experienced in the past applies to the future. Humans in their behavior should be investigated empirically on how they behave. Humes' offer ways to yield a better result to such investigation such as through observation, systematization, experiment, and generalization as part of the natural world instead of assuming that human is perfect and unique rational creatures. Humes' try to educate humanity by pointing out that experience and observation are the foundation of human knowledge. To him, knowledge is more an act of the sensitive part of human nature, rather than the cognitive part. Humes' considers the content of the mind which he calls perceptions, are divided into impressions which he categorized into sensations and feelings and ideas which he considers the copies or images of the impressions [9].

It is viewed that all innate ideas and all knowledge and contents of the mind are formed directly from what is experienced. The human mind is simply the collected perceptions which are divided into impressions and ideas. For Hume, impressions are the immediate data of experience such as sensations. They are the original perceptions that come from sense reasoning. Impressions, for Hume, include sensations of pleasure, pain, awareness of qualities, and relations [9]. Additionally, the immediate, non-inferential, non-interpretative sense datum presented to consciousness, or which appears in consciousness, the direct, irreducible, primitive experiences, are aspects of impressions [9]. According to Hume [9], ideas are those images or copies of sense impressions and faintly remembered images recollected in the memory. For Hume, impressions are originals and are more vivid than ideas. He added that impressions always come first than ideas. To him, without impressions, there can be no ideas [9].

Humes' empirical principle tries to ground that knowledge, thought, and ideas in experience. His fundamental empirical principle known as the "Copy Principle" [12] posited that every idea has some bases in a sensory impression. Ideas are formed on the bases of sensory impression. The principle, therefore, proposed that what is in mind is just a copy of what the senses experience. It implies that all the ideas we have some bases in a sensory impression. The impression comes first, and then ideas form on the bases on that impression. The ideas are then a copy of the impression.

Application of Philosophy to the Problem

How do the empirical principles of Humes resolve the clashing of the two research paradigm? It is answered by establishing a process model on building knowledge based on empirical evidence. The model aims to increase the credibility of the result before accepting it. The evidence should base on any evidence proposed by Philosophers. These are evidence as intuitive, demonstrative, sensible, and moral.

Humes considers intuitive evidence as something self-evident. Example, two is greater than one. To Humes, sensible evidence is evidence that can be justified by the senses. For example, if a claim said that the coffee is hot, then to justify it, senses are used. Demonstrative evidence can be justified by logical argument. From a primitive fact, build a logical connection between explanations. To Hume's moral reasoning does not refer to ethics; instead, he considers this as reasoning through inductive reasoning and senses.

The principle of Humes' offers guidelines that can be used for both paradigms. This is to base the knowledge and evidence on natural setting through observation, systematization, experiment, and generalization. The figure below presents a proposed process model to do this.

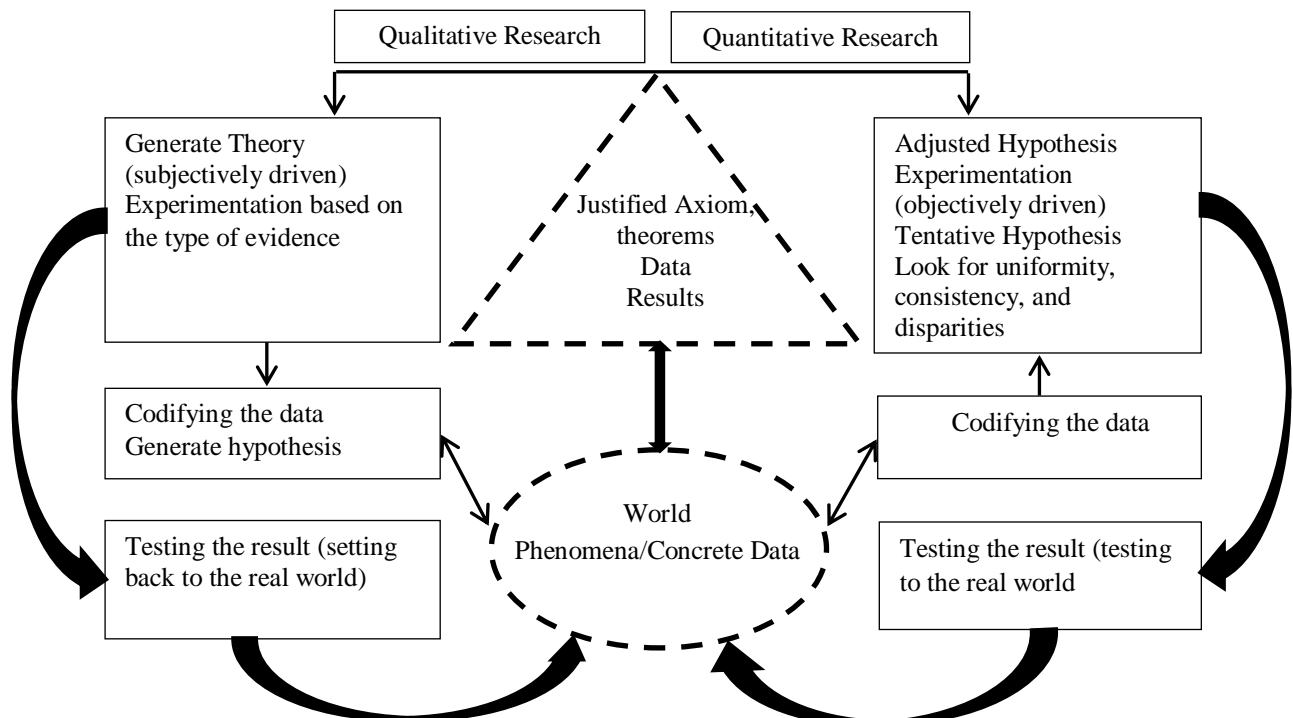


Figure 1. Proposed Process Model of Qualitative and Quantitative Research

The framework explains that in qualitative research, the data is drawn from the natural world through observation. The data should be codified systematically and generate a testable hypothesis. The hypothesis should be verified through experimentation. However, before the experimentation process, the hypothesis must have other data for empirical investigation. For example, the data used can be empirically justified through intuitive reasoning. Then the data should be those that are self-evident by itself. After the experimentation, if the data works with the hypothesis, then a theory or a fact can be extracted from it.

On the other hand, quantitative researchers can start from an observed phenomenon or previously proven research results (accurate data). The data must be codified and should be subjected to experimentation using scientific procedures. Before accepting the result based on the experiment, it should be tested first if it works in the natural setting. Below explains the proposed model process in increasing the credibility of qualitative and quantitative research results.

Credibility for Qualitative Research Result- A Humean Approach

1. **The data must be based on natural world setting.** Before the start of the research project, it is vital to identify the phenomenon in the natural world. In pursuing the investigation, it is crucial to determine the type of evidence the phenomenon requires. For example, if the phenomenon observed goes for the query, "why do people choose Duterte (The current Philippine president) despite insulting the Catholic Church? What are the peoples' guidelines for selecting a president," What data will be gathered in order to have credible evidence? Is it the type that can be justified through intuition? by the senses? by logical arguments? or is it through inductive reasoning?

2. **Codifying the data systematically.** After the data has been gathered, you have to plan on how you codify the data. Do the data needs to be organized, needs to be put in order, or the data suggest to be categorized. For example, the Duterte case, when the data are available, to do it needs to be categorized? Alternatively, needs to be put in order? Since it can be inferred that the query needs data that can be proven inductively, then it needs to be categorized. On the bases of the categories, a theoretical construct or hypothesis can be extracted.

3. **Testing the Hypothesis through experimentation.** Perhaps the word experimentation is misleading to this area since the general understanding of the experiment is the thing that happens in a laboratory. It is not the usual case in this procedure. The experimentation in this stage could mean two things, one is the testing of the theoretical construct directly to the real world setting, and the second one is the investigation happens in a confined four walls. In the Duterte case, for example, a theoretical construct goes like this “People like Duterte to be President for he represents the oppressed people and that his’ ways are believed to change the Philippines for good. The questions now, what are his ways? With these ways can be used as a reference for selecting the president in the future? To verify this theoretical construct, you need to test it in the real world. Again, it needs data from the natural world that can justify this construct of selecting a president. To succeed, another data from another set of the population is needed. Next query can focus now on selecting the president with a different set of qualities and ideals. One of the sets of qualities described the Duterte type quality. If found out that different groups of people most favor the set of qualities that describe Duterte, then the construct is empirically justified.
4. **Accepting Result/ Theories as Justified Generalization.** When the theory is verified by quality evidence, then it is reasonable to accept it for the moment.

Credibility for Quantitative Research Result- A Humean Approach

1. **The data must be based on natural world setting or based on hard data previously proven.** Similar to qualitative research, the type of data that will be gathered must be studied. Example, the study focuses on how to kill the H1N1 virus in a short period. An excellent source of data is the previous study of some scientists on formulating medicine to kill the H1N1 virus. Gathering the results and carefully examining it.
2. **Codifying the data systematically. After the data gathering, the next step is to codify the data.** Do the data needs to be organized, needs to be put in order, or the data suggest to be categorized, or the data presents a pattern on the effect of the previous medicine. In the H1N1 medicine, the researcher may study the components of the previous medicine in terms of the substances combined with their molecular structure. Another thing is that it is effective against time. With the data, uniformity, consistency, and disparities should be observed. The observation may be used to have an initial hypothesis.
3. **Testing the Hypothesis through experimentation.** The experimentation in this stage is of two folds. One is the testing of the hypothesis using actual cases and acts directly on the real world setting, and the second one is the investigation happens in a confined laboratory. However, the latter is preferable to be done first through experimentation and simulation for safety reason. In the experiment, an adjusted tentative theory can be constructed. Here, the use of statistics and the mathematical formulation is needed to be build model on the effect of the medicine. If the adjusted hypothesis and models are assumed sure and safe, then it can be verified by actual testing in the natural world wherein there are cases of the H1N1 virus.
4. **Accepting Result/Theories as a justified generalization.** When the result is verified by quality evidence, then it is reasonable to accept it for the moment.

IV. CONCLUSION AND RECOMMENDATION

Humes principle of empirical evidence can be used to reconcile the clashing two research paradigm in terms of the credibility of results. The process should be observed phenomenon in the natural setting, codify the phenomenon, and conduct experimentation, testing the result if it works in the natural setting, and generalized and accept a justified result. By this process model, the result from either of the two research method is assumed theoretically to increase credibility with the use of any type of evidence presented.

Since the model is formed in the bases of theoretical perspective by the author, and then a verification of the model must be done to check its veracity.

REFERENCES

- [1] Pring, R., (2012). Importance of philosophy in the conduct of educational research. *Journal of International and Comparative Education (JICE)*, 23-30.
- [2] Hong, W. & Lang, K.R., 1999. *A Philosophical Foundation of Qualitative Modeling Methodologies Based on the Yin-Yang Principle*. QR99 Loch Awe, Scotland. Retrieved May 4, 2014.
- [3] Tewksbury, R., 2009. Qualitative versus Quantitative Methods: Understanding Why Qualitative Methods are Superior for Criminology and Criminal Justice. *Journal of Theoretical and Philosophical Criminology*, Vol 1 (1) 2009. Retrieved on May 4, 2014.
- [4] Bryman, A. (2006). Integrating quantitative and qualitative research: How is it done? *Qualitative Research*, 6, 97–113. doi:10.1177/1468794106058877
- [5] Hughes, C. H. R. I. S. T. I. N. A. (1997). *Mystifying through coalescence: The underlying politics of methodological choices*. *Educational Dilemmas: Debate and Diversity, Quality in Education*, London, Cassell, 413-420.

- [6] Crotty, M., (1998). The foundations of social research. London.: Sage Publications.
- [7] Mack, L., (2010). The philosophical underpinnings of educational research.
- [8] Sale, J. E., Lohfeld, L. H., & Brazil, K. (2002). Revisiting the quantitative-qualitative debate: Implications for mixed-methods research. *Quality and quantity*, 36(1), 43-53.
- [9] Ocholor, C. L., and Vareba, D. D., 2010. Subjectivism in Hume's Empiricism: Implications for Nigeria's socio-political life. *American journal of social and management sciences*.
- [10] Bailey Alan and O'Brien Dan (2006). *Hume's Enquiry Concerning Human Understanding*. London: Continuum International Publishing Group.
- [11] Noonan Harold W. *Hume, 1999. On Knowledge*. London: Routledge Philosophy Guide Book.
- [12] Garrett, D., (1998). Ideas, Reason, and Skepticism: Replies to my critics. *Humes Studies*, 24(1).