

Insight on research design related to effects of response rate and the issues of research methodology

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Abstract:

The paper presents a review of two articles on research design and methodology issues and the ethical issues in conducting a research. The aim of the review is to provide insight on research design related to effects of response rate and the issues of research methodology.

Keywords: Research design, Research issues, Ethical issues, Method, Methodology, Response rates.

Section 1

1. Introduction:

1.0 A review of the article “*Getting Over the Methodology Wars by Eric Bredo*”

Eric Bredo reviewed in methodology issue based on the article by Howe’s (2009). Eric Bredo argue about the work of Howe (2009) based on three ‘dogmas’ of education research. The author identified hasty or dogmatic reductionism and contrast with hasty and dogmatic holistic views. The author present contrast view with the Howe’s article is on the holistic side because of lack of criticism on hasty or dogmatic holism which attempted to include both the science and humanities. The author compared with Philip’s work that bias towards reductionists.

The three dogmas of reductionism and three dogmas of holism was presented which draw a view that reductionists belief on parts as what is real and definite. However, holists belief that wholes as real and definite. The author suggested for temporal approaches based on philosophical pragmatism.

The author suggested to adopt the contrasting view without contradiction by considering inquiry as a process taking place over time based on John Dewey’s work. The author states that those favouring fixed orientation may blocked potential possibilities to be discovered especially in the practical situation or problem. Therefore, the fixed orientation approach can contribute in such a way that qualitative generalization within a case can lead to quantitative generalization across cases, and vice-versa.

1.1 Reductionism and Holism

In approaching the methodology wars, Howe and Phillips approaches are comparable, which seem to have somewhat different strategies, despite considerable agreement in philosophical attitude, in fact they are opposing each other. Therefore, the three positivistic dogmas that Howe criticized with equally hasty or dogmatic holistic views has been contrasted with the help of dogmatic reductionism which has been identified by the author as the main issues.

1.2 Three Dogmas of Reductionism

The section summarizes Howe's critique of the three "dogmas" of education, research of hasty or dogmatic reductionism. Howe argued to be consistent with beliefs associated with logical positivism. The three 'dogmas' for reductionist namely (1) the quantitative-qualitative hierarchy, (2) the fact-value hierarchy (3) the science-humanities hierarchy.

The *quantitative – qualitative hierarchy*. The notion of the first 'dogma' is that quantitative research is considered as truly scientific form of education research and should be separated from qualitative research.

Howe argued on the notion is derived from a positivistic thinking by referring to the early positivist philosophers and scientists that believe on conception of science where content (immediate observation) and method (symbolic logic) can be separated. The approach eliminates religious, general metaphysical and ethical statements and therefore purify science (Carnap, 1935/1966)

Howe further argued that this approach can only be valid with positivist thinking by referring to the work by Quine. Therefore, he disagrees with the claim by positivists that believe in logical form and empirical content are cleanly separated. Howe believe that method and meaning are interdependent. Apart from that, the statements in a theory can be relate to relevant facts. Thus, inquiries should involve the process of discovering new theoretical interpretation and checking them against accepted facts.

From the arguments, it can be concluded that the rationale is lost if a researcher believes on the fact that the quantitative research is higher scientific status than qualitative research.

The *fact – value hierarchy*. The notion of the second 'dogma' is that science is about matter of fact alone, and the science should be purified by separate the fact from wider, non-epistemic values.

Howe offered two arguments against the notion. Firstly, the concepts of concern in education research – he used the example of achievement – are already evaluative. Secondly, the choice to take narrower or broader aspects of the social context as given also has value implications.

These arguments also applicable against reductionism that mention on the possibilities of researcher to reduce big concepts to lots of little concepts without obvious value implications. Big values could be reduced to little technical issues. For example, the study of institutional

functioning whereby, little causal relationship could be evaluated separately and added up for one overall judgment about the institution. Howe argued that the reduction approach was impossible because the study may be lost in technicalities and losing the important issues.

The *science – humanities hierarchy*. The notion of the third ‘dogma’ is the sciences are the true contributors to knowledge, whereas the humanities serve a merely expressive function.

Howe presented three arguments against this notion. Firstly, Howe stated that the problems with ‘scientific approached’ was the essential features of science were predetermined ahead of time and not through investigation. Howe rather suggested for a broader conception of science based on the various field and this may include forms of inquiries which may be unscientific in view of positivists. Secondly, he argued that the reasons to develop an essentialist concept of science was more political to protect the power, status and funding of interest group. He suggested that researcher should focus on the purpose of drawing a distinction rather than accepting certain influential self-serving conception.

Thirdly, Howe argued that the notion of science involves issues of reductionism whereby a study may be conducted by adopting certain methods and assume that the given method is the only secured way to infer causation. However, other author such as Philips D. C. and David Kaplan criticized on the reductionist approached and suggest that the scientists should also focus on the purpose of the experiment rather than adopting fixed formulas in their studies.

1.3 Three Dogmas of Holism

Based on Howe’s critical reviews on positivist tendencies, there are three dogmas in holistic approaches namely (1) the quantitative-qualitative hierarchy, (2) the fact-value hierarchy (3) the science-humanities hierarchy.

The first dogmas are *Qualitative–Quantitative Hierarchy*. When it needs to know what count as a legitimate, for example, speeding which depends on the standards and methods of interpretation being used in the relevant community.

Qualitative research is more basic or foundational than quantitative research, at least in social and educational applications, because understanding the social norms and practices in play is necessary for knowing which repeated events count. From this point of view, positivistic research is often criticized as liable to distortion or invalidity because it can lead to counting

events as the same from the scientific observer's point of view that do not actually have the same meaning or function for those whose conduct is being studied.

Moreover, qualitative researchers who limit generalization to identifying patterns within a case mirror quantitative researchers who limit generalization to identifying patterns between cases. Both take one form of generalization as the only possible one.

The second dogma is *The Value–Fact Hierarchy*. The notion give privileges on the values and experience of one group and consider facts as conclusion of inquiries.

It is only a short step from the notion that fact and value cannot be isolated in practice to the belief that all social and education research is an expression of power or dominance relations. If all knowledge is value laden, then it must apparently represent one party's values as opposed to another's.

The third dogma is *The Humanities–Science Hierarchy*. The sciences commonly seek universalistic statements, generalizations that are true for all times and places that all people can accept because they are so well substantiated. This attempt to find knowledge that is both universally applicable and universally acceptable seems to give the sciences priority over the humanities insofar as knowledge is concerned.

However, because generalizations change with time and space, generalizations about human behavior (for example psychology) should aspire only to summarizing the tendencies of its time, rather than seeking timeless, whereas *scientists* are limited by the paradigms or conventions of their time.

1.4 Pragmatic Complementarity

Pragmatic complementary approach considers inquiry as a process taking place over time and therefore, it is easier to see how contracting viewpoints can be adopted without contradiction. It is important to do the analysis and synthesis as process of recurring cycles of inquiry rather than using static process of inquiry with a specific orientation.

The discussion on pragmatism is presented by the author based on Dewey's work that view inquiry as the main process and suggest for temporal process involving repeated cycle of inquiry and testing. However, the authors suggested for real resolution must be achieved in practice, not merely formulating understanding and possibility in carry out the inquiry

process. This approach may not be achieved if the researcher favouring rigid orientations such as dogmatic reductionist and holists.

Each dominant orientation brings in benefits on its own and can be adopted by researchers with modified paradigm. Qualitative generalization within a case can assist quantitative generalization across cases, and vice-versa. Scientific exploration of means and humanistic exploration of ends can and should inform one another in a society seeking to be both technically progressive and humane. Therefore, each complement each other to achieve a better purpose in the process of inquiry.

1.5 Conclusion of the quantitative research design

The article draw conclusion on this review that there is little benefit to argue on the methodology orientation but the focus should be in understanding the aims of the research and learn from each approach to achieve the research aims. Therefore, the author does not favour standardization of methodology but suggest for a temporal approach which offer a more dynamic concept and consider various perspective by taking one another into account rather than opt for midpoint between both extreme approach. In the end, the test of both reductionist and holistic paradigms is their ability to explain and make useful predictions about the real world.

Section 2

2.1 A review of the article “A Quantitative Review of Research Design Effects on Response Rates to Questionnaires”

The main aim of this review is to know the methods of maximizing survey response rate. One of the main reasons of the interests in this object is the importance of use of samples to obtain relatively precise information about a population is a very efficient technique (Williams 1978). At much less cost than a complete census, sampling enables a researcher to make inferences about the overall population. Surprisingly, a sample may also prove to be more accurate than a complete census, because the latter has greater potential for nonsampling error (Churchill 1979)

One of the main points relating to the response rate that we should highlight is the deference between the the efficiency of sampling and its accuracy. Of special importance is the inaccuracy in sample estimates caused by nonresponse bias, which occurs when a researcher (1) fails to obtain information from a sizable portion of the sample members and (2) the missing members' responses affect conclusions about the variables of interest. Sample members may become non-respondents because they refuse to respond, lack the ability to respond, or are inaccessible to the researcher (Williams 1978)

Many suggestions to handle nonresponse in samples has been the focus of much research and discussion. Among the suggested remedies are replacing each nonrespondent with a "matched" member of the population, attempting to infer the impact of nonresponse bias, and improving the research design to reduce the number of nonrespondents (Churchill 1979; Kish and Hess 1959). The last alternative is most preferable because it is an attempt to eliminate nonresponse bias entirely and thus avoid the untestable assumptions present in other solutions. Methods of maximizing survey response are the focus of this review.

The author reviewed A total of 93 articles contained 497 response rate and he come up with a seven characteristics that considered to be most pertinent to response rates. He also breakdown the response rate into five for each technique or study characteristic as follow:

1. The experimental response rate: the average response rate for the technique in studies which explicitly manipulated the presence or absence of that technique.
2. The control response rate: the average for the technique-absent conditions in these same studies.
3. The without-control response rate obtained in all studies for which the technique was used but no control condition was included for purposes of comparison.
4. Absent response rate if the researcher specifically stated that a particular method was not used
5. Unknown was used to classify the response rate in studies for which the presence or absence of the technique of interest was not disclosed by the researchers.

The consequences of the review

In this section we will present the characteristics that considered to be the most pertinent to response rates and its effect on response rate.

1. Sampling Method, the review found that stratified sampling account for more 87% of the total number of contacts while randomly sampling appears to be associated with a higher response rate.
2. Method of contact, A heavy reliance found in mail survey, although its effectiveness appears to be about half as effective as personal interview.
3. Questionnaire length found nearly uncorrelated with an average response rate
4. Monetary incentives, studies which manipulated the presence versus absence of monetary incentives found incentives to be superior, at the same time both prepaid and promised monetary incentives increase response rate. Regarding the amount of monetary incentive, the review found to have a strong positive linear relation to response rate.
5. Non-monetary incentives, the review found that offering rewards increased interest rate over not offering any non-monetary incentive.
6. Response facilitators, preliminary notification, foot-in-the-door, personalization and follow up letter found to have a significant positive relationship.
7. Appeals don't significantly affect the response rate.

Finally, we believe that this review is a very important and useful review in determining the methods to maximize the response rate and it may help the researchers in designing their questionnaires to get the highest possible response rate. And we think that there is a real need to another updated review like this because of changes in respondent habits and the new contacting methods.

References:

Howe, Andrew, Gabor L. Lövei, and Gösta Nachman. "Dummy caterpillars as a simple method to assess predation rates on invertebrates in a tropical agroecosystem." *Entomologia Experimentalis et Applicata* 131.3 (2009): 325-329.

Carnap, Rudolf. "The rejection of metaphysics." *20th-century philosophy: The analytic tradition*. New York: Free Press. (Original work published 1935) (1966).

Churchill Jr, Gilbert A. "A paradigm for developing better measures of marketing constructs." *Journal of marketing research*(1979): 64-73.

Sargeant, P. G., J. E. Williams, and J. D. Grene. "The differentiation of invasive and non-invasive *Entamoeba histolytica* by isoenzyme electrophoresis." *Transactions of the Royal Society of Tropical Medicine and Hygiene* 72.5 (1978): 519-521.

Kish, Leslie, and Irene Hess. "On variances of ratios and their differences in multi-stage samples." *Journal of the American Statistical Association* 54.286 (1959): 416-446.