Relevance of Meta-Analysis Research in Peace Education

David Adebayo Oluwole*

Introduction

Peace education, according to Fasokun (2004) aims to develop skills, attitudes and knowledge with co-operative and participatory learning methods and an environment of tolerance, care and respect. Through dialogue and exploration, people engage in a journey of shared learning. People are nurtured and empowered to take responsibility for their own growth and achievement while leaders care for the wellbeing of their people. The practice of peace education is an opportunity to promote the total welfare of the people, advocate for the just and equitable treatment of adult, and promote individual and social responsibility for both educators and learners. Through Pedagogy and Social action/peace educators demonstrate that there are alternatives to violence.

The experience of peace education as an integral tool for effective negotiation shows that one or two sides to a conflict may now adopt uniform practices. And for peace education to have a reasonable chance of success, people who plan and formulate policies for government, bureaucrats, officers and men of the Nigeria Police Force, youth organisations, village heads and community leaders must mandatorily be made to go through a course of study in peace education as a way of planning, to make serious attempts at finding a common solution to their differences, if a voluntary negotiation at a conflict resolution table would be of any value.

In the 1950s, research in the field of peace emerged in the universities and while it had little direct impact on teachers, labour and management, some of the key concerns identified are extremely relevant to work in schools and some industries. The initial emphasis then was on direct (personal) violence, that is, violence directed by one person to another as in the case of assault, torture, terrorism or war, looking more at conflict than at peace, with the result that peace was defined negatively as merely the absence of war (negative peace). However, in the late 1960s and 1970s researchers’ attention had shifted from direct to indirect (structural) violence, that is, ways in which people may also suffer as a result of social, political and economic systems, like hunger, denial of

* Senior Lecturer, Department of Counselling and Human Development, University of Ibadan, Ibadan
Relevance of Meta-Analysis Research in Peace Education

Jaman rights or gross military overspending. There are various research methodologies; both quantitative and qualitative approach to research in peace education, a quantitative perspective that is not regularly used is meta-analysis.

Concept of Meta-Analysis
Glass and colleagues (e.g. Glass, 1976; 1977; Glass and Smith, 1977; Smith & Glass, 1977; McGraw, 1988) coined the term meta-analysis, and introduced most of the currently used procedures to psychology.

Meta-analysis refers to the analysis of analyses. The statistical analysis of a large collection of results from individual studies for the purpose of integrating the findings. It connotes a rigorous alternative to the casual narrative discussions of research studies which typify our attempts to make sense of the rapidly expanding research literature (Glass, 1976).

Using the traditional method of integrating research studies, a reviewer provides a narrative, chronological discourse on previous findings. Meta-analysis ran help you investigate the relationship between study features and study outcomes. You code the study features according to the objectives of the review. You transform the study outcomes to a common metric so that you can compare the outcomes. Last, you use statistical methods to show the relationships between study features all outcomes.

Apart from Glass who introduced meta-analysis, much of the research on statistical methods for meta-analysis in the last three decades has been influenced by Ingram Olkin, either through his direct contributions or through the work of his students and their academic descendants. The first of Olkin's
concerning meta-analysis methods are included in the reference list as well. The tree shows on the bottom - most branches three former students of Olkin who wrote dissertation on meta-analysis. The next set of leaves shows students of Olkin's students - perhaps we can call these Olkin's meta-analytic "grandchildren". Here are listed even who wrote dissertations on meta-analytic methods. Two other students of (Vevea and Friedman) have contributed to the literature on meta-analytic methods after completing a dissertation using meta-analytic methods or on another topic (e.g. Friedman, 1989, 2000; Hedges and Vevea, 1996, 1998). Six additional students are listed who worked with Becker on meta-analytic methods (Chang, 1992; Chiu, 1999; Cho, 2000; Fahrbach, 2001; Schram, 1996; Wu, 2006) and two who were students of Vevea and who have either written dissertations on meta-analytic methods (Hafdahl, 2001) or contributed to the meta-analytic literature (Vevea and Woods, 2005; Woods et al, 2002) while writing a dissertation on a different topic.

Though there are two general types of Quantitative Review procedures. One method involves the combination of probability values or Z scores, while the second technique combines effect sizes, such as Cohen's d (Cohen, 1988) and the correlation coefficient, r. The procedure for combining Z or probability values was developed in parallel during the 30s by Cochran (1937). These procedures were developed to address the need in agricultural research to combine the results of a number of independent tests/all of which were planned to test a common hypothesis. An
alternative approach was also developed by Fisher in 1932, the \( r \) to \( Z \) transformation.

Inclusion of study and mean subject characteristics in the analysis as covariates to reduce heterogeneity and provide further useful information about the magnitude of the effect in different locations and with different subjects. Published effects are usually larger than their true values, owing to the misuse of statistical significance as a criterion for publication. A funnel plot can detect such publication bias, but there is currently no satisfactory way to adjust for it in the meta-analysis, and the only long-term solution is to ban statistical significance.

According to Maksimovic (2011), today it is obvious that the meta-analytic investigations of Class and Smith opened up entirely new horizons, because, on the one hand, they enriched the fundamentals of pedagogical science, and, on the other hand, developed new methodological models. Their contribution can be summarised in four points:

1. Glass and Smith were the first to use the standardised mean values between experimental and control groups as a dimensionless measure of the volume effect in the synthesis of experimental research. This significantly expanded the area of integration. Like other researchers upgraded this idea and used their measures of the volume effect for

Figure 1: The Olkin meta-analytic family tree.

the statistical design of experiments, but the most important step was the step Glass and Smith took.

(2) Glass and Smith, in practice, showed that the number of studies that can be integrated is much larger than it previously appeared. One of the most famous previous quantitative examinations in the field of psychotherapy (Eysenck, 1952), included only 19 studies, while the Glass and Smith meta-analysis in the same field included 475 studies of psychotherapy. Another mentioned meta-analysis of Glass and Smith on the size of the school sample included 77 studies with 724 individual comparisons.

(3) Their contribution is contained in the development of methods by which we control the impact of various features included in the study. The earlier quantitative reviews either had no control over those influences or could control only one feature or two (or categorisation by one or two characteristics). In the aforementioned meta-analysis of 475 studies, Glass and Smith categorized the studies based on more than twenty variables (characteristics). Then they analysed the impact of all these variables on the results of the study. The variables were related primarily to the methodological characteristics of individual studies, but also on the content differences, ways of publishing the results and so on.

(4) The analytical methods that Glass and Smith used are a major developmental step in relation to the methods that were used in previous quantitative surveys. We will mention only regression equations for the relationship between the therapeutic effects (dependent variable) and type of therapy, type of treated individual, ways of measuring effects and so on. In this way they could predict the effectiveness of different therapies that have been rested in very similar studies.

At the very beginning, Glass, although his first meta-analysis was conducted in the psychotherapy, clearly saw the possibilities and prospects of the use of this methodology in the other social sciences, especially in the field of educational research. Class's predictions and assessments were quickly confirmed. Within a few years he published several reports on a conducted meta-analysis, and at the same time many other authors published their papers. After just five years the first bibliography of meta-analytic research was published, with more than 250 papers (Lamb and White, 1981; Mataimnivic, 2011).

Meta-analysis should be viewed as an observational study of the evidence. The steps involved are similar to any other research undertaking: formulation of the problem to be addressed, collection and analysis of the data, and reporting of the results. Researchers should write in advance a detailed research protocol that clearly states the objectives, the hypotheses or research questions to be tested, the subgroups of interest, and the proposed methods and criteria for identifying and selecting relevant studies and extracting and analysing information.

As with criteria for including and excluding participants in a peace education training programmes, eligibility criteria have to be defined for the data to be included.
Criteria relate to the quality of trials and to trier combinability of treatments, participants, outcomes, and lengths of follow up. Quality indicators include features of a study can influence the results. Ideally, researchers should consider including only controlled trials with proper randomisation of participants that report on outcomes initially included participants according to the intention to treat principle and with an objective, preferably blinded, outcome assessment (Hedges and Olkin, 1995). Assessing the quality of a study can be a subjective process however, especially since the information reported is often inadequate for this purpose. It is therefore, preferable to define only basic inclusion criteria and to perform a thorough sensitivity analysis.

Meta-analysis is therefore, a statistical technique for amalgamating, summarising, and reviewing previous quantitative research. By using meta-analysis, a wide variety of questions can be investigated, as long as a reasonable body of primary research studies exist. Selected parts of the reported results of primary studies are entered into a database, and this "meta-data" is "meta-analysed", in similar ways to working with other data - descriptively and then inferentially to test certain hypotheses. Meta-analysis provides a systematic overview of quantitative research which has examined a particular question.

The appeal of meta-analysis is that it in effect combines all the research on one area into one large study with many participants. The danger is that in amalgamating a different studies the construct definitions can become imprecise and the difficult to interpret meaningfully. Not surprisingly, as with any research technique, meta-analysis has its advantages and disadvantages. An advantage is its objectivity, and yet like any research, ultimately its value depends on making some qualitative-type contextualisations and understandings of the objective data.

Meta-analysis has been used to give helpful insight into:

(i) the overall effectiveness of interventions (e.g. psycho-therapy, outdoor education),
(ii) the relative impart of independent variables (e.g., the effect of different types of therapy), and
(iii) the strength of relationship between variables.

A meta-analysis does not use primary empirical material, but the results obtained from the basic data.

Perhaps the following classification is better:

(1) primary analysis, in which known (conventional) methods and techniques of educational research and related phenomena are used (e.g. sociometric methods, experiments, the use of assessment scales, scales of attitudes, etc.) and
(2) secondary analysis, which includes actions that are not directly used for the investigation of a phenomenon alone, but we process the results obtained using primary analysis.

Statistical methods for calculating overall effect include Bayesian meta-analysis, heterogeneity between study results, graphic display, relative and absolute measures of effect and sensitivity analysis. Authors such as have taken pain to explain the procedures involved in using these methods. Criticism of meta-analysis.
In the thinking of Maksimovic (2011), there are four most important points of criticism:

1. It is impossible to get scientifically-based conclusions from the integration of studies, which encompass a variety of measurement procedures, very different variables and very diverse populations.

2. The results of a meta-analysis are unreliable, since they integrate studies of a very different methodological quality: from the most correct to the most problematic.

3. A meta-analysis depends too much from the published results (which can significantly vary from unpublished results).

4. A meta-analysis often uses multiplied results drawn from the same studies. In this way, the sample is artificially increased and therefore, the results are distorted.

In a meta-analysis, research studies are collected, coded, and interpreted using statistical methods similar to those used in primary data analysis. The result is an integrated review of findings that is more objective and exact than a narrative review.

The human mind is not equipped to consider simultaneously a large number of alternatives. (This is true even for bright, energetic researchers.) Confronted with the results of 20 similar studies, the mind copes only with great difficulty. Confronted with 200, the mind reels. Yet that is exactly the scope of the problem faced by a researcher attempting to integrate the results from a large number of studies. As a result, the typical referee concludes that the research is in horrible shape; sometimes one gets results, sometimes one doesn't. Then the call is sounded for better research designs, better measures, better statistical methods, in short, a plaintive wish that things are not complicated as they are (Glass, 1976).

"When performed on a computer, meta-analysis helps the reviewer surmount the complexity problem. The reviewer can code hundreds of studies into a data set. The data set can then be manipulated, measured, and displayed by the computer in a variety of can tolerate ambiguity well. Policymakers, however, particularly elected policymakers, have a limited time in which to act. They look to research to provide information that will help them choose among policy options.

Unfortunately, original research, and narrative reviews of the research, often do not provide clear options to policymakers. Senator Walter Mondale expressed his frustration to the American Psychological Association in 1970:

What I have not learned is what we should do about these [educational] problems . . . for every study, statistical or theoretical, that contains a proposed solution or recommendation, there is always another equally well-documented study, challenging the assumptions or conclusions of the first. No one seems to agree with anyone else approach. Bid more distressing: No one seems to know what works.

A scientific study should be designed and reported in such a way that it can be replicated by other researchers. However, researchers seldom attempt to replicate previous findings. Instead, they pursue funding for the new, the novel, or at the very least - they attempt to extend what is considered to be the current
state of knowledge in their field. The result can be an overwhelming number of studies on a given topic, with no two studies exactly alike. In such circumstances, it is difficult to determine if title differences between the study outcomes are due to chance, to inadequate study methods, into systematic differences in the characteristics of the studies.

Conclusion

Peace education is about exploring ways of creating a more just and sustainable future for the society, in a non-violent way. It contributes to the acquisition, transfer and sharing of knowledge aimed at fostering the values of liberty, dignity, justice and mutual respect among panics to a conflict. Therefore, in order to advance new frontiers in peace education, there is bound to be innovations. One of these recommended innovations is use of meta-analysis.

Meta-analysis should be seen as structuring the processes through which a thorough review of previous research is carried out. The issues of completeness and combination of evidence, which need to be considered in any review, are made explicit. A meta-analysis has essentially changed quantitative research, which led to great progress, especially in the field of teaching. The possibilities of quantitative integration and synthesis expanded the limits of empirical studies of pedagogical issues.

References


Cohen, L. *Statistical power analysis for the behavioural sciences* (2nd ed.). Hillsdale, NJ;


Hedges, L.V and Vevea, J.L. (1998). Fixed-
random-effects models in meta-analysis, *Psychological Methods* 3,486-504.


