

## Annotation On Contemporary Research Approaches

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### **Abstract**

*In the study, we reviewed current articles as they relate and connect with the analysis of methods of research. We carried out annotation of articles on current research in this area, synthesizing studies contributing to the body of knowledge in research methods. We analyzed and evaluated 15 peer-reviewed articles of current scholarly research on various research approaches which align with diverse methodologies such as experimental, quasi-experimental design, multiple approaches as opposed to mixed methods, synthesizing research findings, strategies for ensuring validity of designs, single-case design, qualitative method and approaches and evaluated themes emanating from the articles. From this work, we gainfully came to the conclusion that no research approach is superior to another but researchers are driven by the underpinning research problems and the undergirding philosophical word-views and ontologies of the researcher. The methodology is a case study framed in narrative essay, therefore a qualitative design. Nvivo 9 software was deployed yielding the major themes and categories and visible patterns for the essay. Sampling strategy was purposeful sampling which enable us to select information-rich data adding to the credibility of a qualitative design. It is hoped that the knowledge gained from the annotation will enable scholars to design the applicable strategies which best address their ontological concerns and aligns with methodological approaches of choice.*

**Keywords:** *Research approaches; Systematic Review; Strategies; Synthesizing;*

Date of Submission: 11-05-2026

Date of Acceptance: 21-05-2026

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### **I. Introduction**

The intrinsic value of an article is measured by the utility derived from it by readers. To this extent an article is worthless if it does not extend or add to knowledge or contributes to building the body of knowledge. I have in this study reviewed different contemporary peer reviewed articles which adopted varying methods of research such as qualitative, quantitative, and mixed methods, single-case design, survey research, and strategies for enhancing research validity. I carried out a detailed analysis of studies resting on experimental and quasi-experimental designs, noting the strengths and weaknesses of each approach. I have noted the limitations and appropriateness of each of the design in carrying out social science investigation. I have also analyzed the philosophical assumption underlining each method and approaches selected by the authors in their articles.

The choice of research design is done to align the method with the research question in other to address the research problem. I have carried out a critical review of 15 peer-reviewed journal articles and written annotated bibliography highlighting the emerging themes on research design and methods. The review identified a gradual shift in structured quantitative research bothering on studying the relationship between variables to more open-ended understanding of phenomena using the qualitative approach.

Scholars posited that neither the qualitative nor the quantitative methods suffice to avail deeper understanding of pragmatic problems and therefore, are recommending the blending of methods. The analysis of the current articles on different research methods and designs highlights diverging views of scholars on research methodologies. The views reflect concerns bothering on promoting the standards of conducting scientific research and effectively communicating the findings to the research communities. Evolving approaches such as blended design, multiple and mixed methods were elaborated and clearly distinguished from ambiguous usage.

The understanding gained from this analysis and the review of various scholarly articles on research designs and their undergirding philosophies will be of immense benefits to up-coming researchers. Scholars made it clear that to study certain social phenomenon a quasi-experimental design is more appropriate due to the limitation of using full experimentation on human participants. The sampling strategies and strategies to ensure validity are largely informed by the views of scholars who appraised various research designs, approaches and strategies. The annotated bibliography produced themes addressed by the selected articles. The studies bothered

on single-case designs, mixed methods, qualitative methods, basis for selection of research designs, quantitative methods and strategies for ensuring credibility and validity of designs.

## **II. Quantitative Research**

### **Single-Case Experiments: Quantitative Method by Smith (2012)**

This article is the systematic review of single-case experimental designs as a growing trend in research designs and methods. Smith (2012) explained single-case as the study of participants or cluster of participants as against group experimental design in which one group is compared with another. Single-case therefore, is a stand-alone design which offers the researcher insight into the peculiar characteristics of selected participants. Smith (2012) reviewed 409 studies of single-case experimental designs, claiming that (SCED) adheres to standard criteria of research methodologies. According to Smith (2012) the review is necessitated by the perceived superiority group designs enjoy over SCED. Such perceived views according to Smith (2012) hold that group designs do more to minimize internal threats to validity. Smith (2012) argued that SCED “provide a rigorous methodologically sound alternative method of evaluation” (p.1). According to Smith (2012) the relevance of SCED is noted by recent and rapid methodological advancement over time. Smith (2012) contended that SCED serves as a viable alternative to group design with large sample size and advocated the introduction of randomization component to SCED so as to improve the methodological rigor and enhance the internal validity of the design. Smith (2012) appraised SCED as very flexible and provides many variants. Smith (2012) appraised the measurement and data analysis criteria for conducting SCED and argued that SCED exhibits adequate measuring criteria such as repeated measures, time series and ecological momentary assessment methods. Visual analysis and statistical analysis are main analysis methods in the use of SCED (Smith, 2012).

The study provided justification by identifying limitations of the SCED as its relatively limited scope, and the dearth in the proficient use of most of the state-of-the-art statistical analysis methods by single-case researchers. The review is limited to peer-reviewed journals articles. According to Smith (2012) this was to inform changes emanating from reporting and reviewing practices, but he admitted that broadening the review to include book chapters, unpublished studies and dissertation would have yielded a different result. The choice of the studies to review was not random; therefore, selection bias was introduced to the studies. Smith (2012) did not exhibit sufficient reasons for advocating SCED as alternative to group design.

The parameter he used to appraise SCED is repeated measure over time which does not enable generalization of result to group outside the studies. Smith (2012) anchored his interest on the growing trends in the use of SCED but did not show any superiority in its use over group design. Smith (2012) however, provided a platform for refining and the development of SCED. He advocated the introduction of randomization and statistical analysis techniques to improve the conduct of SCED.

Smith (2012) discussed in details the research design, the measuring and analysis techniques peculiar to SCED, the result within the available framework of contemporary standards and guidelines and revealed the current benchmarks for major characteristics of SCED. The study provides researchers with a resource for conducting and evaluating SCED as a research design. Smith (2012) stated the purpose of study, which is the evaluation of SCED as a growing area of research design. A critical point noted by Smith (2012) is the absence of consensus regarding the superiority of any method over the other but the choice drivers should be the research problem, hypothesis and the questions to be addressed.

The study adds to knowledge in the choice of research design. It provides steps in synthesizing SCED reporting guidelines.

### **Experimental Designs: Quantitative Method by Nahum-Shani, Qian, Almirall, Pelham, Gnagy, Fabiano, Waxmonsky, Yu and Murphy (2012),**

The study is a review of literatures on adaptive interventions and its potential contribution to research. According to Nahum-Shani, Qian, Almirall, Pelham, Gnagy, Fabiano, Waxmonsky, Yu and Murphy (2012), adaptive intervention is the variation of clinical interventional doses to individuals based on participants' characteristics. According to Nahum-Shani et al (2012) the adoption of SMART, enables the researcher to use the experimental design for the construction of high-quality adaptive interventions. The components of adaptive interventions according to Nahum-Shani et al (2012) are that the intervention is based on individualized characteristics and specific needs, and the intervention is a repeated measure in response to the individuals' changing needs. Nahum-Shani et al (2012) stated that adaptive interventions have multiple names such as treatment policies, multi-stage treatment strategies and offers a multi-stage intervention options to clinicians and experimenters. According to Nahum-Shani et al (2012) adaptive intervention is an evidence-based treatment orientation, with periodic review and appraisal along the line.

Nahum-Shani et al (2012) offered the rules for operationalizing the concept to be based on participants' value on “tailoring variables” (P.3). According to Nahum-Shani et al (2012) tailoring variables moderate the effect of intervention in many instances. It operates as a guide to the doses of intervention to be administered on

participants. Nahum-Shani et al (2012) held that while tailoring variables moderate degree of interventions needed, not all moderators are tailoring variables. The types of adaptive interventions according to Nahum-Shani et al (2012) are SMARTS with no embedded tailoring variables, intermediate-outcome-driven SMART re-randomization and intermediate-outcome and prior-treatment-driven intervention. Nahum-Shani et al (2012) compared SMART relative to other experimental approaches such as factorial design, randomized trial with multiple groups, a standard randomized controlled trial, and a single – stage – at – a time experimental approach. Based on empirical result, Nahum-Shani et al (2012) argued that clinicians should begin intervention with low density behavior type, go on to adding medication to non-respondents, then offer the same dose to responding participants.

The study is an empirical investigation on types of clinical interventions and the comparative advantages of each over the other. Nahum-Shani et al (2012) is methodological sound and free of reliability defects as they provided evidence of reliability of measuring instrument for the primary outcome and baseline measures. The empirical results validate the findings for progressive interventions modifications. The study is situated within decision rules and operationalized adaptive interventions framework. Nahum-Shani et al (2012) gave definition of terms used in the study. The article is engaging and communicates in simple-to-understand English. There is coherence between the problem of the study, research question and the method of inquiry. Nahum-Shani et al (2012) revealed information regarding sample selection and measuring instrument.

The purpose of the study was not clearly stated but could be inferred from the introduction. The study did not identify any gap in prior research to justify the current study. Nahum-Shani et al (2012) held that, “In recent years, research in the area of intervention development has been shifting from traditional fixed intervention approach to adaptive intervention” (P. I). The study by Nahum-Shani et al (2012) therefore, is an attempt at moving along the same trend with the existing body of research by replicating what is already known. The originality of the study is therefore, lacking. Nahum-Shani et al (2012) however, argued that adequate attention was not given to research methods and design needed for scientists to evaluate and decide on intervention options.

The study addressed the question of adaptive intervention and individualization. Nahum-Shani et al (2012) is useful to researchers and scientists seeking to develop adaptive intervention. The study has huge implication for social change as it contributes to informing practitioners and clinicians on more efficient patients’ management strategies.

#### **Experiment Designs: Quantitative Method by McCann and Landess (2010)**

The study is a comparative analysis of traditional and emerging research method for the treatment of depression. McCann and Landess (2010) expressed concerns over growing cases of depression among American population. According to McCann and Landess (2010) the traditional approaches to addressing the growing incidence of depression have not yielded positive results. They chronicled such traditional approaches to be psychotherapeutic and psychopharmacological methods such as cognitive therapy interpersonal psychotherapy. McCann and Landess (2010) evaluated the research method for examining the impact of hypnosis on depression, noting that traditional method such as randomized controlled trials have many short-comings in assessing the potential effect of hypnosis on depression. McCann and Landess (2010) posited that single-case design is a better option in approaching the hypnosis-depression relationship.

The study by McCann and Landess (2010) is situated within the current academic domain on psychological and pharmacological options in the treatment of depression. McCann and Landess (2010) contended that no form of psychotherapy is superior to the other. According to them, the adoption of hypnosis in the treatment of depression resulted in positive outcomes such as directly identifying and dealing with different kinds of depressive symptoms and modifying behavioral pattern which crystallized in depression and mood switch of patients. McCann and Landess (2010) argued that the research methodology suitable for the treatment of depression are the randomized controlled trials, single-case design, and benchmarking. McCann and Landess (2010) recognized the paucity of research methods in evaluating treatment outcomes for depression, contending that available literature gave undue credence to randomized controlled trials. They held that over reliance on any of the approaches could impede the development of the emerging methods in the treatment of depression.

The study by McCann and Landess (2010) secured the participants-views in evaluating and developing the concept of hypnosis in the treatment of depression. The study was justified by the statement of problem as McCann and Landess (2010) argued that management of depression involve huge cost in terms of lost of work productivity, interpersonal problems, and associated substance use (p. 147). McCann and Landess (2010) provided several justifications for the study in forms of the social economic impact of depression, dearth of research on the treatment of depression using hypnosis, and shortcoming in the use of traditional gold standard research method which warranted the study by McCann and Landess (2010). McCann and Landess (2010) stated the purpose of the study as the need to appraise the best research approach to assessing hypnosis as a treatment option for depression.

Conspicuous research gaps were noticed and limitations of prior literature gave justification to the study. McCann and Landess (2010) argued that in the face of adequate treatment for depression what is known and unknown treatment options leave plenty of rooms for improvement. McCann and Landess (2010) exhibited poor in-text citations. For example a direct quotation of source “ever body has won and all must have prizes (Frank 1973)” has no page number. The study is situated on existing theoretical framework such as cognitive behavior therapy interpersonal psychotherapy and psychological treatment.

The ability of the result to be generalized is impeded by the research approach. McCann and Landess (2010) exhibited methodological limitation in the criteria for the sample selection by excluding patients who manifest suicidal tendencies due to depression. McCann and Landess (2010) further admitted that generalizability of hypnosis is limited by the requirement for treatment manuals consideration for evaluating therapeutic options and erroneous assumption that treatment outcome is linear. Attempt by McCann and Landess (2010) at generalizing the research outcome is not consistent with the chosen approach.

The study is a valid contribution to research and is useful in the choice of research approach in the treatment options of depression. The study is an evaluation manual for testing the efficacy of hypnosis in the treatment of depression.

### **Single Case Design Experimental Approach: Quantitative Method by Horner, Swaminathan, Sugai & Smolkowski (2012)**

Horner, Swaminathan, Sugai & Smolkowski (2012) made a case for the single-case research design, positing that it is a rigorous research methodology vested with strong prowess for experimental control. Experimental control enhances the internal validity of design. According to Horner et al (2012) theirs is a compelling study due to the under-utilization of the single-case research in clinical trials, which could make a positive contribution and shape the model for educational research. Horner et al (2012) posited that for a single-case research finding to align with the need of the larger scientific community, there is a need for evaluating the process in respect to the three guiding factors for elucidating the quality of the design. They are the logic of the methods, the decision-rules and the professional practice in using the design to define empirically supported intervention. According to Horner et al (2012) the meta-analysis emphasis on experimental rigor and the growing emphasis on evidence-base practice justify the need to introduce statistical analysis to single-case design. Horner et al (2012) held that meta-analysis enables the integration of experimental research and distillation of major themes. They held that evidence of rigor in research is the platform towards securing confident investment by government and funding agencies. Horner et al (2012) argued that research funders are more concerned about validating social practice through rigorous research than having research outcomes which are lacking in addressing practical problems.

Criteria for empirically supported interventions are receiving the core attentions of stakeholders. According to Horner et al (2012) the rise in the evidence base practice movement necessitated the documentation of standards for assessing research treatment as empirically-supported. Horner et al (2012) argued that despite the long and impressive history of the single-case contributions to special and general education, not much recognition is given to this research design. Horner et al (2012) posited that formal structures for assessing the single-case research's effect size be put in place to drive its wider acceptability. They contended that visual analysis procedure for documenting experimental control is not adequate to produce a valid result from a single-case design.

Horner et al (2012) is a systematic review of single-case research design. Justification was made by Horner et al (2012) as they identified gaps in the existing literature and limitation of prior research in single-case designs. Horner et al (2012) also claimed that there is under-utilization of single-case design by scholars and researchers who prefer group designs. Horner et al (2012) further showed justification for the study by arguing that the problem of the study is substantial enough for investigation. Horner et al (2012) made a valid contribution to knowledge as they provided the framework for designing single case research. They also identified the rubric for assessing the standards of practice by researchers.

Research questions were asked by Horner et al (2012) who collected relevant data needed to provide answers to the research questions. Horner et al (2012) defined specialized terms used in the study and provided deeper explanation of the relationship between constructs. Horner et al (2012) suffered a number of methodological limitations. There is no evidence of sampling and measuring instruments. As a systematic review, the study is amenable to examining samples of previous studies, which was not done. According to Horner et al (2012) a single-case design exhibits strong rigor and is in no way inferior to group design but they failed to display and compare the distinctive characters of each design for analytical purposes. Horner et al (2012) made a strong case for the use of the single-case designs. They displayed advantages accruing from using the design by researchers and opined that what was needed was a more clearly definition of the single-case logic for wider application.

The study is communicated using simple-flowing English. The citation, paragraphs and structure conforms to APA manual. The study made useful contribution to the existing body of knowledge on the single-case designs, and opened space for further studies on the assessment of its effect size.

Horner et al (2012) provoked a fertile dialogue on the identification of options for effect size measurement which meets the criteria for empirically-supported single-case design. The study exhibits a number of positive social change implications by offering researchers the set of standards for empirically-supported treatment using single-case design, which will impact positively on clinical interventional outcome.

### **III. Qualitative Research**

#### **A Narrative Essay: Qualitative Method by Bell, Distefano and Morgan (2010)**

The study by Bell, Distefano and Morgan (2010) emphasized the essential features of scientific inquiry to be transparency and replication. The study is anchored on the existing gap in procedural information of applied quantitative research. According to Bell et al. (2010) in the course of investigation, researchers must have in view the broader scientific community as the focus of their inquiry. They argued that researchers must keep in view the essential element of transparency and replication in efforts to disseminate their research findings. They provided 10 points recommendation to guide quantitative researchers in the conduct of their inquiry.

The guide provided in the study is a compliment to the APA manual. Bell et al. (2010) stated that the “purpose of the study is not to take the place of the APA manual” (P. 370) but to serve as compliment and a reference material for scholars wishing to adopt the quantitative research. Bell et al (2010) cautioned that researchers should avoid leaving readers grouping for relationship between the research problem and the questions. According to Bell et al (2010) a subsection within the method section should provide the demographic details and other relevant characteristics of the participants. They posited that the sampling procedure should be clearly stated, and the atmosphere surrounding data collection should be disclosed. Bell et al (2010) argued that environmental conditions of inquiry do greatly impact on the sampling sizes. They held that investigators should report if priori power analysis was used or not. Bell et al (2010) posited that the researcher should discuss the history, reliability and validity of measuring instrument used for the inquiry.

The study by Bell et al (2010) provides a working tool for the dissemination of quantitative research findings. It is situated on the existing literature and draws coherently on APA manual of American Psychological Association. The recommendations are in tandem with APA rules and styles. Bell et al (2010) identified gaps in the existing literature, giving justification for the study. Rather than a research article, Bell et al (2010) is a literary guide and tutorials for researchers adopting the quantitative approach for their inquiry. The purpose of the study was clearly stated, but no methodology of inquiry was stated. The study did not exhibit any information in respect of sampling and data collection strategy and analysis as these were not applicable.

There was a demonstration of knowledge and dissemination of statistical proficiency by Bell et al (2010). Bell et al (2010) contribute to enhancing the quality of reporting quantitative research finding and makes such report more meaningful and useful to readers. Bell et al. (2010) provided a table delineating various statistical tests which enable them to make valid inference and generalization with confidence. Along with the stated tests, Bell et al. (2010) disclosed associated statistical assumptions and what to do should violations occur. The study is situated within the framework of transparency and replication. Bell et al. (2010) is a good example at providing consistency in reporting quantitative research findings. It is a complimentary, easy-to-read tool to the APA manual. Bell et al. (2010) extend knowledge in the use of quantitative research checklist and adds to rubrics for assessing the quality of quantitative research.

#### **Qualitative Methods by Monaghan, Sanders, Kelly, Cogen and Streisand (2011)**

This study is an advocate for the use of qualitative methods for clinical trial in the treatment of type I diabetes. Though Monaghan, Sanders, Kelly, Cogen and Streisand (2011) advocated mixed methods in evaluating the emerging data, the captioned advertised qualitative designs. Monaghan et al. (2011) argued that qualitative data augments quantitative data in evaluating interventions. They further posited that qualitative data can highlight areas necessary for refinements within the study, and shows the way for future research emphasis. The study by Monaghan et al. (2011) employed the mixed method approach in synthesizing parents’ recommendation for interventions in the management of Type 1 diabetes. Monaghan et al. (2011) randomized parents into the supporting groups, intervention and a diabetes education comparison group. A baseline assessment for self-identified primary caregiver was completed for the intervention group. Socio-cognitive theory was applied to factor issues responsible for health behaviors for the supporting parents. Others factors disclosed by Monaghan et al. (2011) are the increasing efficiency for type 1 diabetes (T1D) management, promoting learning through skill training and the use of active coping strategies. According to Monaghan et al. (2011) the intervention was a morale booster for most parents as parents expressed satisfaction with the project. The study revealed the concerns of parents to be the need for more information on the management of T1D; need for more intervention and adequate time for repeated trials, sustained diabetes education, and support for parents and caregivers.

The use of interview and survey methods to collect data provided a strong synergy and effectiveness in data collection. The interview method enabled the collection of information-rich data while the survey ensures the sampling of large population for valid inferential generalization to be made. There was the blending of purposeful sampling in tandem with qualitative method and random sampling which situate with quantitative approach. Because Monaghan et al. (2011) used human samples; they ensured the approval of the hospital institutional review board and rewarded participants for their involvements. Monaghan et al. (2011) however did not show strategies for minimizing possible harm (social stigmatization) to participants; neither did they disclose steps taken to brief participants about the project.

Monaghan et al. (2011) disclosed information regarding measuring instrument but did not tell the history and reliability of their use from prior studies. The problem of the study was stated along with the purpose which is to create awareness and train parent of children living with type 1 diabetes on coping and managing the crisis associated with the disease. Monaghan et al. (2011) cited on the use of qualitative approach but did not clearly show the limitations associated with adopting qualitative approach. Monaghan et al. (2011) did not show justification for the study by identifying and highlighting existing literature gaps and limitations of prior research.

The study is an extension of academics discuss on evaluating research design adaptable to the pragmatic philosophical worldviews.

#### **IV. Mixed Method Designs**

##### **Mixed Method Designs by Kettles, Creswell & Zhang (2011)**

The concern of Kettles, Creswell & Zhang (2011) is the lack of emphasis in the use of mixed method in mental health research. Kettles et al (2011) also expressed concern for the absence of strong theoretical foundation underpinning the use of mixed method design by researchers. The gap created by the dearth of applied research materials on mixed methods for mental health nurses necessitated the study. According to Kettles et al (2011) the study is aimed at addressing the gap. Kettles et al (2011) conveyed a definition of mixed method as the research design, which combines qualitative and quantitative method, guided by philosophical assumptions, which yield a better understanding of the problem than using either approach alone.

According to Kettles et al (2011) mixed method research was first noticed in the 1980s. They argued that researchers adopt mixed methods without adequate knowledge of the theoretical underpinnings as such they could not craft the design that support such methodologies. Kettles et al (2011) claimed that some researchers misapply the term to denote adoption of multiple or blended qualitative approaches.

They held that before adoption of mixed methods researchers need to be grounded in both qualitative and quantitative methods and have assessed that neither of the methods is sufficient to answer the problem of the study. Kettles et al (2011) outlined the designs of mixed method research to be: Sequential, concurrent, iterative and sandwich. They further argued that within the four designs, there are sub-divisions or variants as follows:

- Convergent-parallel-concurrent mixed method
- Embedded-sequential or concurrent mixed method
- Explanatory-sequential mixed method
- Exploratory-sequential mixed method

Kettles et al (2011) argued that mixed method research is preferred when one approach is not adequate to address the research problem. They argued further that mixed method is the ideal choice when an experimental design is not adequate, or the qualitative approach needs some statistics to provide a better understanding. According to Kettles et al (2011) when qualitative exploration is not sufficient to understand the problem, then a mixed method provides a complete picture and evidence for generalization and in-depth views of participants' perspectives. Other advantage of mixed methods advertised by Kettles et al (2011) is that it enables initial exploration and identification of variables, taxonomies and theories, and construct for further testing of theories. In the choice of mixed method design, Kettles et al (2011) cautioned researchers to align the design with the problem or question of the study.

Kettles et al (2011) justified the need for the study. They identified paucity of adequate knowledge, lack of sufficient knowledge bases, absence of sufficient literature and misuse of terminologies /designs as compelling reasons for the study. The problem of the study was clearly stated. The study is communicated clearly, and the result answers the research question. There is however, no clearly stated method of inquiry. The paper is well-structured, giving the outlines of types of mixed method design.

Methodologically, the study did not give information regarding the sampling techniques, data collection and analysis. This is probably because Kettles et al (2011) is a narrative essay. The study is concise and easy to understand. It makes valid contribution to the body of knowledge on mixed method designs. Kettles et al (2011) clearly prescribed steps to implementing a mixed method design. Key definition of terms and phrases was carried out, and Kettles et al (2011) discussed the philosophical basis for mixed method research and the various pragmatic scenarios justifying the use of mixed method design.

The study makes a valid contribution to the growing literature in the virgin area of mixed method design. It contributes to promoting better understanding of mixed method application.

#### **Mixed Method by Wisdom, Cavaleri, Onwuegbuzie and Green (2012)**

The study is an evaluation of methodological approaches in carrying out health services research. Wisdom, Cavaleri, Onwuegbuzie and Green (2012) argued that mixed method research aids the understanding of health services by offering a more illustrative picture of health than either the qualitative or quantitative approach alone. Wisdom et al. (2012) evaluated 47 mixed method articles, and randomly selected qualitative and quantitative articles for the assessment of qualities of rigor, such as the use of values in quantitative research, context description in qualitative approach, and qualities of integration in mixed method approach. Wisdom et al. (2012) argued that few published health services research articles adopted mixed method approach. They suggested the increase of transparency of mixed method, so as to make the approach more appealing to scholars. According to Wisdom et al. (2012) increasing the presence of key methodological component will advertise the mixed method to more scholars seeking to increase the rigors of investigation. Wisdom et al. (2012) posited that mixed method draws on the strength of both qualitative and quantitative methods in a single approach thereby enjoying the synergy of triangulation. They argued further that mixed method is the most appropriate approach when a single data source is not adequate to provide understanding of the problem, when there is a need for further understanding of results gotten through the use of either qualitative or quantitative approach alone, or when the research objective is so complex and will best be addressed with multiple data sources and approaches. Wisdom et al. (2012) explained that the adoption of mixed method is not to lower the established standards of the qualitative and quantitative methods, but that the researchers are to ensure that both approaches conform to their established standards before integrating the rigor of mixed method.

Mixed method is therefore evaluated by the extent to which both qualitative and quantitative components adhere to their standards. The quantitative component of the mixed method must therefore exhibit the highest level of reliability and validity, while the qualitative component should ensure credibility of investigation. Wisdom et al. (2012) further posited that the qualities of mixed method reports have been on the decline despite the recent guidelines for conducting research using the approach, because researchers are not ensuring that each component do adheres to their traditional standards before integration.

The study by Wisdom et al. (2012) is well organized with clearly stated objective. The paper is well arranged into sections for data collection and analysis, methodological design, finding and conclusion. Key words were highlighted and explained. Wisdom et al. (2012) asked three research questions which buttressed the research problem. The research problems indicate a pragmatic concern on the choice of the research design that best fit the world-view. Wisdom et al. (2012) synthesized published articles spanning five years using mixed, qualitative, and quantitative methods.

Blending of quantitative and qualitative approach is not the same as mixed method. According to Patton (2012) blended design may be the borrowing of certain attributes or characteristics of approaches to blend into the other. The article by Wisdom et al. (2012) is the leading authority towards the codification of mixed method approach and a valid contribution to the evolving evaluation rubric. It is useful for scholars, peer-reviewers, faculties, students, and publishers with pragmatic mindset.

#### **Methodological Quality: Mixed Method Approach by Plonsky and Gass (2011)**

The study is an empirical assessment of methodological quality in second language acquisition (SLA). Plonsky and Gass (2011) noted a positive relationship between study quality and outcomes and methodological improvements over time. Specifically, Plonsky and Gass (2011) investigated the interaction of second language and the quality of research outcomes. The purpose of the research according to Plonsky and Gass (2011) is to examine methodological quality in the interaction of second language. The mission statement is to assess the methodological quality and reporting practices from historical perspectives. Plonsky and Gass (2011) posited further that quantitative investigators often ignore the importance of summarizing findings through adequate Meta – analysis. Plonsky and Gass (2011) expressed concerns over scanty information with respect to instruments' reliability, randomization and control, pre-testing and post-testing and strategies for increasing the power. They noted that there is an increase in the use of t test / ANOVA while the use of chi-squares and correlations are decreasing. Plonsky and Gass (2011) held that the shift from frequency to means-based analysis indicates greater statistical shrewdness and dexterity, and increase in the depth of L2 analysis. They contended that the growth in statistical testing portends greater reliance on the null hypothesis significance testing.

Plonsky and Gass (2011) held that there is possible relationship between study quality and outcomes. They noted several weaknesses despite the strengths of methodological rigor of quantitative research in L2 study. They argued that there is low pre-testing in quasi-experimental studies.

The purpose of the study was stated as the investigation of the methodological quality of quantitative studies in the interactionists' traditions' domain. Plonsky and Gass (2011) is a response to several limitations of

empirical research in the SLA. The study is therefore, justified by the existing research gaps in the domain of second language studies. The article is well-structured and organized into components. It communicates in flowing English, easy to comprehend and employs scholarly language devoid of unnecessary wordiness and redundancies.

Plonsky and Gass (2011) made provision for further studies, alluring to inherent limitation of the study when they posited that “future studies of quality in SLA research are needed, both of a broad discipline and wide in scope as well as within other sub-domains of L2 research” (P.357). They suggested that further research will inform better understanding and enlarge the scope of scientific discuss in the domain at L2. Plonsky and Gass (2011) recommended that future research should pay more attention to meta-analysis and methodological synthesis. Plonsky and Gass (2011) asked four questions to address the research problem. They however, did not clearly state the theoretical framework undergirding the study.

There is an indication that interaction-based research in L2 and study quality are the theoretical lenses adopted for the study. Plonsky and Gass (2011) adopted several analytical techniques for the retrieval, coding and analysis of primary quantitative research through the survey of published studies. There is a robust deployment of descriptive statistics for research designs, methodological features, statistics and reporting practices within the domain of SLA. Though not explicitly stated, Plonsky and Gass (2011) adopted the mixed method designs in carrying out the investigation. Sampling strategies, strategies for instrument reliability and validity of the study were all indicated. The study identified several research limitations and gaps in the existing literature.

The study provides a leading light in the academic discuss in SLA which could lead to progress and greater efficiency in the practices and reporting of research finding within the domain. Plonsky and Gass (2011) is a positive contribution towards enhancing understanding and use of research methods in SLA. The study has positive social change implication as it provides the rubric for the evaluation of quantitative research and better application of more reliable research findings.

#### **Network Analysis: A Mixed Method by Fuhse and Mützel (2011)**

The study is an evaluation of the role of quantitative methods and statistical analysis in the network of sociological research. The study is framed within the formal network analysis as theoretical lens. Fuhse and Mützel (2011) argued that formal network enables the description and explanation of network structures and behavior. Fuhse and Mützel (2011) contended that formal network analysis helps to reveal the pattern of individual behaviors and their network connections. They posited that qualitative methods enable the exploration of network structures and yield the understanding of meaning embedded therein. This is in tandem with Creswell (2007) and Patton (2002) that all associated qualitative designs with open-ended and inductive exploration.

Fuhse and Mützel (2011) posited that individual connections and structural patterns and meanings from the components of network structures are brought to frontline understanding through network analysis. According to Fuhse and Mützel (2011) networks are the subjective and interactive definitions emanating from structural patterns. They held that networks are social structures and should not be confused with mere measurement constructs or structural patterns. Fuhse and Mützel (2011) contended that social networks are synonymous with meanings replicated as symbols, narratives, identities, categories and experiences. Fuhse and Mützel (2011) argued that both quantitative and qualitative designs are vital in sociological network research. The role of qualitative research according to Fuhse and Mützel (2011) is primarily in giving meaning to networks through actions, orientations, the symbols, scripts and schemes. According to Fuhse and Mützel (2011) the qualitative method plays a complementary role to a quantitative design by helping the researcher to gain deeper understanding of the subject of the study.

They posited that blending the approaches is more fruitful than depending on one of the methods. Fuhse and Mützel (2011) argued that the exploration (qualitative approach) and explanation (quantitative) are the main task of social network researchers. They contended further that the in-depth understanding gotten from such integration enabled the acquisition of meaning while the explanation established the causal connections.

The study clearly communicates the benefit of combining different research methods in analyzing different aspects of network structures. Fuhse and Mützel (2011) stated the problem of the study. The problem of the study is substantive and justifies investigation. Fuhse and Mützel (2011) argued that over reliance of researchers on quantitative method in analyzing constructs do not yield sufficient understanding of the phenomenon of study. The purpose of the study is clearly connected to the problem. Fuhse and Mützel (2011) purposed to investigate the multiple advantages inherent in blending research approaches as against dependence on one approach of investigation.

The paper is well organized into five sections dealing with a historical overview of network research, trend utilization of quantitative and qualitative methods, comparison of types of methods in sociological network research, examples of research that fuse methodological approaches and conclusion. Fuhse and Mützel (2011) admitted the limitation of the study and made a connection to the need for future research in sociological network

research. Fuhse and Mützel (2011) embarked on an extensive review and definitions of various approaches within the domains of qualitative, quantitative and social network analysis.

According to Fuhse and Mützel (2011) the approaches underpinning social network analysis are relational approach and structured social relationships. They provided the theoretical base of the analysis within the network theory. Fuhse and Mützel (2011) clearly analyzed the foci of formal network analysis, quantitative analysis and qualitative approaches and showed the methodological relationship of the three dimensions. The article is effective in communicating its finding and makes valid contribution to the body of knowledge in mixed methodologies. Fuhse and Mützel (2011) provided a historical overview of network analysis and quantitative survey research and offered clear definition of key terms associated with the construct.

The study however, is deft of clearly stated methodologies. The research approach is not stated. No research questions were asked. Fuhse & Mützel (2011) identified gaps in the existing literature and limitations of prior research giving impetus to the current effort. The problem of the study was stated making it a substantive area of inquiry.

The article is useful for the adoption of mixed method approach in investigating pragmatic problem. It validates the need for integration of quantitative and qualitative approaches for investigating problems which cut across different worldviews. It adds and extends knowledge in research methodologies.

### **Bayesian Approach: Mixed Method by Crandell, Voils, Chang and Sandelowski (2011)**

The study is predicated on the insufficient investigation of the possible use of Bayesian methods for synthesizing qualitative and quantitative research. Crandell, Voils, Chang and Sandelowski (2011) argued that research gaps exist in prior research with regard to the viability of using Bayesian models for the synthesis of qualitative and quantitative research. The objective of the study is to develop and employ the Bayesian method, with the aim of locating factors influencing adherence to the medications.

Crandell et al (2011) investigated the effects of factors on adherence, making comparison of factors treatments on adherence. They use a Bayesian data augmentation method to rank and compare the effects of the ten factors on medication adherence. Crandell et al (2011) argued that synthesizing findings from diverse studies pose a great challenge to scholars. Crandell et al (2011) described the third method of Bayesian approach in an attempt at integrating qualitative and quantitative research. Crandell et al (2011) held that “research synthesis is the actual fusion of qualitative and quantitative evidence” (P. 654).

They posited that synthesis of various research results is different from comparison of qualitative and quantitative research in a systematic analysis. Crandell et al (2011) agreed that methodological distinction exist between qualitative and quantitative research designs. The interpretation of the qualitative result offers a wider scope for understanding the phenomenon. The concerns of Crandell et al. (2011) bother on the limitation of the existing method of incorporating qualitative evidence either before or after a review. Crandell et al (2011) argued that the qualitative evidence is not allowed to shape the systematic review independently. The study described a Bayesian method to be applied for synthesizing result from both methods. The data augmentation model used by Crandell et al (2011) was truncated normal likelihood type which did not require both qualitative and quantitative studies at the same time.

The problem of the study was noted as substantive for investigation. Crandell et al (2011) claimed that a major challenge to conducting a systematic review was how to synthesize findings from diverse methodologies. They noted several gaps in the existing literatures and identified limitations with prior research in addressing the problem sufficiently. According to Crandell et al (2011) the possible use of Bayesian models for the synthesis of qualitative and quantitative research has not been sufficiently investigated by existing studies.

Crandell et al (2011) showed further justification for the study by noting limitation of qualitative evidence in answering the research question even when used as a precursor to quantitative method. Crandell et al (2011) further contended that end-of-review incorporation of qualitative evidence still placed substantial limitation in contributing to the result of research. Research questions were asked to proffer answers that would address the problem. Variables were identified and properly placed in their order of relationships.

Hypotheses emanating from the research problem were stated and statistically tested. Crandell et al (2011) is a systemic review, which drew samples from reports of qualitative and quantitative studies, aimed at developing methods to synthesize research findings from both qualitative and quantitative designs. Crandell et al (2011) adopts a mixed method approach of investigation. Research methodology is good. Sampling strategies were revealed. There is a strong alignment between the research problem and the question.

The method of inquiry is relevant to the problem of the study. The pragmatic standpoint of the problem justified the use of mixed method approach. The finding addressed the problem of the study. The study made valid contribution to the growing body of knowledge of how best to synthesize research finding for optimal application to social problems/issues.

The study made an original contribution to the use of Bayesian synthesis of research result comparing strength of a relationship between the independent variables. The study has social change implication as it

provided the basis for the adoption of more effective ways of securing adherence to treatment of HIV thereby reducing the mortality rate among victims.

### **Quality Evaluation Criteria of Practice-oriented Research: A mixed Method by Bleijenbergh, Korzilius and Verschuren (2011)**

The need to develop independent criteria for evaluating the quality of practice, oriented research is the bottom line for the study. According to Bleijenbergh, Korzilius and Verschuren (2011) researchers and scholars presently utilize criteria developed for theory-oriented research in assessing the quality of practice-oriented research. A practice-oriented research could be conducted in either of the streams. According to Bleijenbergh et al (2011), it may either be a participatory research involving practice-based strategies or expert-based strategies. It may also be a data-based research involving either qualitative research strategies or quantitative strategies. Bleijenbergh et al (2011) held that qualitative research strategies could adopt single-case study or comparative case study, whereas a quantitative research could be experimental, cross-sectional summary or longitudinal survey. According to Bleijenbergh et al (2011), criteria for external validity are not necessary for evaluation of practice-oriented research because rather than seek to generalize the result of the research, practice-oriented research is focused on solving practical problem.

The study identified the criteria of internal validity, verifiability, comprehensibility of the results, acceptance of the results and holism as the basis for assessing the quality of practice-based research. Bleijenbergh et al (2011) could not confirm experts' positive disposition to include internal validity, interdisciplinary and manipulability of variables as further criteria for evaluating practice-based research. According to Bleijenbergh et al (2011) verifiability is the openness of the research strategies and result which could be checked by parties other than the researcher. Comprehensibility of the results is the effectiveness with which the result communicates with members of the population. Acceptance indicates the extent the larger research community support the outcome of the research.

According to Bleijenbergh et al (2011) holism refers to the total knowledge of the phenomenon of study rather than just a part of it. Bleijenbergh et al (2011) held that practice-oriented research data-based strategies are more in use than participatory research strategies just as quantitative research strategies top-over qualitative.

A clear taxonomy of practice-based research was provided by Bleijenbergh et al (2011). Definition of relevant constructs such as data-based research, participatory research strategies, practice-based research, and expert based research was done. The study communicates its finding clearly and in a comprehensible language. Bleijenbergh et al (2011) noted gaps in the existing literature and practices, as the lacking of clear-cut methodological criteria for evaluating practice-based research. The purpose of the study was advanced as the formulation of evaluation criteria of practice-oriented research. Bleijenbergh et al (2011) disclosed the research instrument used. With the use of a Delphi study employing methodological experts, Bleijenbergh et al (2011) formulated the evaluation criteria for practice-based research. The study failed to disclose the history and reliability of the instrument. Cronbach's alpha and other statistical measures were not calculated to assess the reliability of the instrument. The study did not adhere to APA guide on in-text citations, as landmark statements are left hanging without citations. There is no information on minimizing harm and danger to the participants. Bleijenbergh et al (2011) did not reveal evidence of willing participation nor any form of compensation for experts used in the Delphi study.

The study adopts a mixed method approach employing both quantitative and qualitative data. Minimal statistics was used, deploying the SPSS version 15 to calculate Kendall's coefficient of concordance. Hypothesis was stated and tested by the coefficient of concordance. Bleijenbergh et al (2011) calculated mean rank and rank orders of evaluations for the qualitative method, Bleijenbergh et al (2011) carried out content analysis through open coding of comments, organizing them into themes which aided the interpretation of the quantitative results. The study is methodologically good.

Bleijenbergh et al. (2011) however limited discussions on quantitative research strategies to experimental, cross-sectional survey and longitudinal survey leaving out many variants of quasi – experimental designs. They equally limited discussion on qualitative methods to the single-case study and the comparative case study leaving out vital approaches like ethnography, narrative essay, grounded theory and phenomenological approach.

The study provided a rubric for assessing the quality of practice base research. It puts to end the confusion surrounding the reliance on theory-oriented research criteria to evaluate the qualities of practice base research. The study has social change implication as the outcome of practice-based research can easily be evaluated and depended upon by the research community.

### **A Mixed Method Approach by Bernardi (2011)**

The study by Bernardi (2011) is a case study investigation of the behaviors of relatives and peers' interaction in the dynamics of fertility preference. A deductive quota-sampling strategy was adapted to satisfy the

contending demands of variety of family formations experiences or characteristics which allow for comparability. The study advocates for the use of mixed methods research design and analysis, and understanding of the ego-centered social network inherent in transnational families. Transnational families are families which spread across geographical and legal borders. Bernardi (2011) contended that while concerns for work, education and other social factors occasioned the migration of family members across different geographical borders, practices and relationships peculiar to their home of origin are cherished and sustained. Bernardi (2011) however, observed that though families dispersed across different countries seek to replicate their home practices, international migration portend huge consequences for kingship ties, condition of living, and children wellbeing.

A peculiar concern shown by Bernardi (2011) is “feminization of migration flow” (p. 789), involving mothers who live and work in different countries and send their wards home while the actual mothering of their children is left to aunts, grandmothers, other family members or neighbors. The study is situated within the social network perspective and transnational families as theoretical lenses. Bernardi (2011) posited that the study is a case on empirical application of mixed method in the domain of family members. Bernardi (2011) argued that the combination of qualitative and quantitative method is best suited to answer the question of whether social family network affect individual child bearing expectation attitude, preference, and behaviors.

She argued that qualitative method is best suited to explore parenthood and relationship because the approach offers the understanding of how they influence behaviors and family formation. Bernardi (2011) argued further that quantitative method on the other hand enables the comparison of social network and the group characteristics. According to Bernardi (2011) the adoption of mixed method aims at analyzing the relationship between the variables while enabling open understanding of the dynamism of the characteristics of the groups.

The study advertized the peculiar advantages of adopting mixed method approaches in the social network of transnational families. Bernardi (2011) justified the need for the study, citing paucity of research on mixed methods. Gaps were noted in prior studies and Bernardi (2011) identified literature limitations necessitating the need for the study. According to Bernardi (2011), “qualitative information often does not allow for a systematic appreciation of children’s social networks across different families configurations and living arrangements” (p.789). Bernardi (2011) further justified the adoption of mixed method to understand the social network influences on children wellbeing. Hypotheses were stated in tandem with identified variables. This is done to enable quantitative analytical investigation of the relationship subsisting between them. Bernardi (2011) showed comparative advantages of adopting the qualitative and quantitative methods, and noted their peculiar limitations justifying the need for mixed designs. The problem statement was identified and data collection approach revealed.

According to Creswell (2009) a mixed method approach follows a pattern of qualitative exploration to quantitative analysis, or quantitative analysis to qualitative exploration. Bernardi (2011) did not show any of the mixed method approaches used for the study. Bernardi (2011) claimed the use of semi structured interview, a network chard and a network grid for the study. The data collection approach follows more of qualitative design.

The exclusion of survey limited the ability of the study to sample large population necessary for valid generalization. Bernardi (2011) however addressed the limitations associated with interview by using a network chard for comparable and quantifiable data. Bernardi (2011) made a puzzling statement when she stated “We used three types of instruments for data collection” (p.793). The study is claimed by Bernardi (2011) as a Solo - effort, so the use of “We” (p.793) is contradictory to the copy-right claim of the author. No clear theoretical frame work was provided for the study.

The article is a strong voice in the use of mixed method as emerging research design in a pragmatic world. It adds to and extends the growing body of knowledge in advocating for a shift from the traditional quantitative method to more pragmatic blended approaches.

## **V. Multiple Approaches**

### **Integrated Research Designs: Multiple Methods by Chamberlain, Cain, Sheridan & Dupuis (2011)**

Pluralism as a term conveys mixed understanding to researchers. According to Chamberlain, Cain, Sheridan & Dupuis (2011) a conscious and deliberate discuss has been going on, on the subject by researchers. The term is in recognition of the age of pluralism and its impact on researchers’ worldviews. Chamberlain et al. (2011) contended that multiple methods when aligned with the underpinning assumptions lead to a fusion of methods which produces an integrated research design. According to Chamberlain et al. (2011) adoption of multiple methods of investigation by the researchers leads to creativity and innovation which extend the scope and depth of data collection and analysis. Chamberlain et al (2011) posited that multiple method compels reflexivity and builds a deeper relationship between researchers and participants.

A mixed method is the adoption of both qualitative and quantitative methods to proffer answers to research questions, but multiple methods as discussed by Chamberlain et al (2011) is the integration of various qualitative approaches to answer research question.

They held that analysis of divergent and complex data sets instigates pluralism of insights and interpretations. They argued further that hence multiple methods take time, “ideas and comments deepen and full” (P. 165). Over time, it allows close and intimate relationship to build between the researcher and the participants. Chamberlain et al (2011) posited that the length of time involved in multiple methods enable reflexivity on bothering issues, affording a research result which is well informed by various consideration. Chamberlain et al (2011) held that complex social science and psychological problems can better be address by adopting more than one approach of qualitative method. They cautioned that the criteria for the choice of approach should be its contribution to the objectives of research and alignment with the assumption and the theoretical framework.

Chamberlain et al (2011) made valid contribution to the development of multiple method approaches as a research design. The study diffused the confusion surrounding the terms multiple methods and mixed methods. The study communicates in clear, concise English. The findings answered the research problem and questions. The study enlarged the scope of discuss in the use of qualitative research method, approaches and possible integration of different approaches.

Though not explicitly stated, Chamberlain et al (2011) conducted a qualitative research drawing on multiple perspectives. The study used prior studies, commentaries, questionnaires and interviews to generate data for deeper understanding. Two of the researchers -Cain and Sheridan- were participants who brought deeper understanding and information to the study. The methodology is a narrative case study which aligned squarely with a qualitative method.

The purpose of the study was stated. Chamberlain et al (2011) showed justification for the study by noting paucity of research on multiple methods, the rise of complex issues within social science out-bothering the use of mixed approaches, challenges to existing knowledge and the call to develop critical methodology. The problem of the study was stated, and questions asked. Chamberlain et al (2011) concentrated on asking and analyzing data which are information-rich in the area of multiple approaches. The study was co-authored by four scholars, in a smooth-well-defined division of labor. The effort indicates a positive network relationship between scholars who brought a synergy of diverse perspectives to bear in promoting understanding in the area of study.

According to Chamberlain et al (2011), “pluralisms, in all their possibilities, bring substantial benefits to research practice and the generation of knowledge” (P.166). The article opened and enlarged space of discuss in finding appropriate methodologies that best fit the complexities social realities conveys. Chamberlain et al (2011) made a useful contribution which could cause a paradigm shift from fixated and structured prescription of methodologies for researchers.

### **The Application of the VOI Methods to Evaluate Value of Research by Eckermann, Karnon & Willam (2010)**

The study is aimed at ‘evaluating value of information’ (VOI) method as a tool for prioritizing research. Eckermann, Karnon & Willam (2010) advanced four research questions aimed at addressing the need for further research, funding of such project and prioritizing research options in the face of financial constraints. According to Eckermann et al (2010), application of VOI as a tool to prioritize research varies across various disciplines due to funding constraint and allocation. Eckermann et al (2010) cited instances of research prioritizing on tender basis by the United Kingdom Medical Research Council.

They argued that funding bodies dictate areas of interest in the disbursement of limited funds. Eckermann et al (2010) posited that researchers are given more open space in stating their research questions and designs in Australia than in the UK. They held that researchers in the Australia have more scope in defining research questions necessary for the application of the VOI methods to drive the funding decisions. Eckermann et al (2010) argued that prior to commissioning of tendering processes; the UK researchers need more generic application of VOI methods to locate areas of value for funding purposes.

The purpose of the study according to Eckermann et al (2010) is to assess the ability of VOI analysis to inform research funding prioritization. Eckermann et al (2010) employed the Occam’s razor to compare the usefulness of varying VOI methods driving policy decision making. The Occam’s razor advertizes a simpler and more informative model for assessing the value of research is a preferred tool for assessing VOI methods. Aside from the Occam’s razor, Eckermann et al (2010) employ various VOI instruments to measure the utility preference of VOI for informing pretest financing. Such instruments are Expected Value of Perfect Information (EVPI), Expected Value of Simple Information (EVSI), the Central Limit Theorem (CLT) and Bootstrapping Methods. Comparing Bootstrapping methods against the Occam’s razor, Eckermann et al (2010) held that there is a substantial increase in the complexity in the use of the former and suggested adoption of the later as an alternative method of assessment. According to Eckermann et al (2010) any VOI method structured within the Central Limit Theorem (CLT) is a better tool in directing prioritization of research options.

Eckermann et al (2010) adopted highly specialized jargons in the study. Relatively new concepts as Bootstrapping, Occam’s razor, and central limiting theorem deserve better explanation and understanding. The definitions of such terms were not sufficiently carried by Eckermann et al (2010). In evaluating the most optimal

research design and prioritizing for funding, I expected Eckermann et al (2010) to place emphasis of discuss on the usefulness and appropriateness of research result to the needs of funders. This line of thought was not considered in the study. Eckermann et al (2010) stated purpose of the study, highlighted the problem as substantive for investigation and advanced four research questions to address the problem.

The study suffered methodological limitation, as it is not structured within any known method of inquiry other than review of some theoretical instruments. No theoretical framework was discussed, and there is no indication in the opening introduction that the study employed qualitative, quantitative or mixed method approaches. Eckermann et al (2010) employed complex jargons in communicating results which may not be easily comprehended by average minds.

Eckermann et al (2010) sparked a new and interesting topic of discuss in the evaluation of research findings through the value of information it communicates. The study opened space for future methodological discuss on how to improve the integration of VOI methods as tools for funding decision making. It has social change implication as it can aid the decision for optimal allocation of scarce resources to more useful research areas.

## VI. Conclusion

Our annotations of the 15 journal articles above produce emerging themes on research methodologies and approaches. Various scholars highlighted concerns underpinning methodologies of interest. Scholarly discuss emanating from the various articles centered on the following topics:

Single Case Designs, Research validation rubrics, Narrative essays, Network Analysis, Experimental quantitative designs, Methodological quality assurance, Practice-oriented research, Integrated designs, Bayesian Approach and Application of value of information methods to evaluate research. Discussion were skewed heavily towards advocacy for mixed methods by most scholars.

Mixed method design is an emerging design involving blending of the two traditional methods of research. Wisdom, Cavaleri, Onwuegbuzie and Green (2012) argued that sound mixed method research helps in the understanding of Health services by offering a more illustrative picture of health or summaries that either the qualitative or quantitative approach alone. Wisdom et al (2012) explained that the adoption of mixed method do not lower the established standards of the qualitative and quantitative methods. Researchers are to ensure that both approaches conform to their established standards before integration them as a single design.

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