

B.Ed. NONFORMAL PROGRAMME
DE-508 RESEARCH TECHNIQUES (RT)

Assignment 2

Q1:- What is Literature Review? Explain its procedure of Organization and Sources?

Ans:-

A literature review is a discussion of the published information in a particular subject area. While it can be a summary of sources on a certain subject, more often it takes a critical, evaluative approach, showing the relationships between the various writings and how they relate to your own work. Do not consider a literature review a simple summary of an unrelated group of articles. A good literature review will look at the research that has been done and synthesize or pull together those elements that are similar or most pertinent to the theme you have chosen.

Reading a literature review can often give you a solid overview of the research on a topic. Lit reviews are often critical sections of scholarly research papers, and are sometimes papers on their own. Literature reviews are most often written by researchers in the sciences and social sciences who report on lab or empirical research.

Procedure of Organization in Literature Review

Similar to other papers you have written, your literature review should also contain three basic parts:

- An introduction, giving the reader a quick idea of your topic and the central theme or organizational pattern you will follow.
- The body, which contains your discussion of sources.
- A conclusion and recommendations, in which you posit what you have learned from your lit review, what questions it raised for you, how you plan to proceed, or what seems to be missing from the research.

Chronological: if the research in your sources appears to follow a chronological progression, whether in thought or practice, this could be a logical framework for organizing your lit review.

Trends: you may be able to identify trends within the research or treatment of your topic. This may be similarly chronological, but certain trends may encompass greater historical eras and be geographical, cultural, etc.

Thematic: thematic reviews focus on central issues or topics. While time may still be a consideration, the main focus is not the passage of time but the topic itself. As you write the review, you will use your sources to reinforce the theme that you have chosen as central to your paper.

Methodological: instead of the content, this framework is organized around the methodologies used in the research. You may be presenting an analysis of research techniques according to criteria as to whether they are valid and reliable, are applicable across cultural and economic ranges, address substantive issues within the field, and the techniques used, such as qualitative, quantitative, in-depth case studies, longitudinal, and

so on. This approach to lit review is often used by researchers who wish to justify their choice of one methodology over others.³

Current state: your intention is to present only the present status of the topic.

Other criteria or standards: you may wish to place your own limitations, for example, only journals published outside the U.S, or only peer-reviewed journals.

Source of Literature Review

In a literature review one can use many different sources. Before one begins finding sources they may want to really define their topic and pick out key words to search. Once one has that done, they can look in many places to find good sources like: books, journals, reference material, look at printed abstracts, dissertations, conference papers, and even the internet.

Q2:- **Explain the term “Population and Sampling”. Discuss the types of sampling with examples.**

In defining a population for study, such a population must be specific enough to provide readers a clear understanding of the applicability of your study to their particular situation and their understanding of that same population. It therefore becomes important to select the proper method of sampling, the process by which representative individuals are randomly selected to provide insights into the entire population under study.

Kinds of sampling

A) Probability

- 1) Random sampling
- 2) Stratified sampling
- 3) Cluster sampling
- 4) Systematic sampling.

1) Random sampling entails defining the population to be studied, determining the percentage of this population to be interviewed or studied, assigning each individual within the population a number and then using arbitrarily selected numbers from a table of numbers, giving each individual an equal chance to be selected for inclusion in the study. In this manner, a sufficiently random sample of the general population becomes representative of the larger whole.

For example, N college students want to get a ticket for a basketball game, but there are not enough tickets (X) for them, so they decide to have a fair way to see who gets to go. Then, everybody is given a number (0 to $N-1$), and random numbers are generated, either electronically or from a table of random numbers. Non-existent numbers are ignored, as are any numbers previously selected. The first X numbers would be the lucky ticket winners.

2) Stratified sampling involves identifying subgroups of the population representative of the percentages of those same subgroups in the general population being studied, or to equal numbers of individuals within different subgroups for the purpose of comparing their responses to those of other subgroups. Again, as with the simple random sampling, once the population is defined and a sample size is determined, all members of the

general population are classified within one of the identified subgroups of the population. Again, a random number is selected and each ninth individual, for example, is interviewed or studied.

Example

Suppose a farmer wishes to work out the average milk yield of each cow type in his herd which consists of Ayrshire, Friesian, Galloway and Jersey cows. He could divide up his herd into the four sub-groups and take samples from these.

3) Cluster sampling randomly selects groups rather than individuals to be included in a study. The procedures for selecting a sample are the same as a simple random sampling, except that we are now selecting random classes of French 101 students out of the overall population of French 101 classes across the Eastern seaboard.

For example, a sample of telephone calls may be collected at by first taking a collection of telephone lines and collecting all the calls on the sampled lines. The analysis of cluster samples must take into account the intra-cluster correlation which reflects the fact that units in the same cluster are likely to be more similar than two units picked at random.

4) Systematic sampling is largely the same process, except that it involves selecting an individual or cluster at random and then, in accordance with the desired sample size, including every eighth or tenth or 25th person or cluster in the study.

Example: Suppose a supermarket wants to study buying habits of their customers, then using systematic sampling they can choose every 10th or 15th customer entering the supermarket and conduct the study on this sample.

B) Non-Probability

1) Snowball

2) Convenient

3) Purposive

1) Snowball sampling is a non-probability sampling technique that is used by researchers to identify potential subjects in studies where subjects are hard to locate.

Researchers use this sampling method if the sample for the study is very rare or is limited to a very small subgroup of the population. This type of sampling technique works like chain referral. After observing the initial subject, the researcher asks for assistance from the subject to help identify people with a similar trait of interest.

The process of snowball sampling is much like asking your subjects to nominate another person with the same trait as your next subject. The researcher then observes the nominated subjects and continues in the same way until the obtaining sufficient number of subjects.

For example, if obtaining subjects for a study that wants to observe a rare disease, the researcher may opt to use snowball sampling since it will be difficult to obtain subjects. It is also possible that the patients with the same disease have a support group; being able to observe one of the members as your initial subject will then lead you to more subjects for

the study.

2) Convenience

A convenience sample is a sample where **the patients are selected, in part or in whole, at the convenience of the researcher.** The researcher makes no attempt, or only a limited attempt, to insure that this sample is an accurate representation of some larger group or population.

The classic **example** of a convenience sample is standing at a shopping mall and selecting shoppers as they walk by to fill out a survey.

3) Purposive

A purposive sample is a sample selected in a deliberative and non-random fashion to achieve a certain goal. In a focus group, for example, you may want to consciously seek out respondents at both ends of a spectrum (as well as some in the middle) to insure that all viewpoints are adequately represented. You might also preferentially recruit subjects who have the best knowledge and experience in an area.

In addition to focus group studies, purposive samples are often used in pilot studies. Purposive samples share the same weaknesses as a convenience sample and you will have difficulty making strong quantitative inferences from such a sample.

Example

A study of rehabilitation after stroke collected a small sample for a focus group of patients, care givers, and health care providers with unique expertise.

Q3:- Discuss the process of Instrument Development, Pilot Testing of Instrument and Administration of Research Instrument.

Ans:-

Process of Instrument Development

The development and validation process for activity limitation assessment or HRQoL instruments has been well established,[45] but for most health care providers the terminology and statistical approaches are unfamiliar. The development of a new instrument is labor intensive, requires sequential studies, entails input from a wide range of individuals, and needs frequent revisions of the original tool before completion. More than 20 iterations were required in the development of HAQ.[7] The developmental process for two of the functional assessment tools validated for children with JIA each required 3 to 5 years of work.[46-49] Given the broader scope of content, HRQoL instruments for JIA have taken at least as long.[50-52] The process used to develop and validate health measurement questionnaires has been described in textbooks[53] and published articles,[54]and several articles have described thoroughly the steps used for instruments specifically focused on children ...

Pilot Testing of Instrument

At the pilot testing stage the instruments (tests, questionnaires, observation schedules, etc.) are administered to a sample of the kinds of individuals that will be required to respond in the final data collection. For example, school principals and/or teachers and/or students in a small number of schools in the target population. If the target population has been specified as, for example, Grade 5 in primary school, knowledge should exist in the Ministry, or in the inspectorate, about which schools are good, average, and poor

schools in terms of educational achievement levels or in the general conditions of school buildings and facilities. A 'judgement sample' of five to eight schools can then be drawn in order to represent a range of achievement levels and school conditions. It is in these schools that the pilot testing should be undertaken.

The two main purposes of most pilot studies are:

a. To assess whether a questionnaire has been designed in a manner that will elicit the required information from the respondents. This process allows weaknesses in the questionnaire to be detected so that they can be removed before the final form is prepared.

Typical weaknesses that are found in questionnaires include:

- Ambiguities in the phrasing of questions.
- Excessive complexity in the language that has been used.
- Inappropriate response categories for some questions.
- Some questions are redundant.

b. To assess whether test items can be understood by the students, that the items are pitched at the appropriate level of complexity (assessed by the 'Difficulty Index'), provide a stable measure of student ability (assessed by the 'Reliability Index'), and lead to the construction of total test scores that are meaningful in terms of the student ability being examined (assessed by the 'Validity Index').

Typical weaknesses that are found in tests include:

- Some items have either no correct answer or more than one correct answer.
- Some distracters in multiple choice items are not functioning.
- Some items measure abilities different from the ability measured by other items (assessed by the 'Discrimination Index').
- Some items contain internal 'tricks' that result in high ability students performing worse than low ability students.

At the same time that the instruments are subjected to pilot testing, it is desirable to assess the effectiveness of the data collection procedures being used. These procedures include the steps to be followed for ensuring that the correct number of instruments with appropriate identification numbers on them for district, school, and student arrive at the schools punctually. Furthermore, there are procedures for selecting and then administering the questionnaires to the school principal, the teachers (all selected teachers) and the students (all students, one class of students, or a random sub-sample of students within a selected school). These activities address the following important questions: Are any problems evident in the procedures? How can the procedures be improved?

The same can be said about the procedures for entering data, cleaning data, and merging files. This work is usually undertaken by the planning office data processing unit, but again the results of the pilot testing experience can help to 'de-bug' the procedures. Once the instruments and procedures have been finalized, the main data collection can begin.

Administration of Research Instrument

Sponsors should consider the data collection method and all procedures and protocols associated with the instrument administration mode, including instructions to interviewers, instructions for self-administration, or instructions for supervising self-administration. We will review data quality control procedures specific to the data collection method or instrument administration mode along with case report forms or screen shots of electronic PRO instruments. Administration modes can include self-administration, interview, or a combination of both. Data collection methods can include paper-based, computer-assisted, and telephone-based assessments. We intend to review the comparability of data obtained when using multiple data collection methods or administration modes within a single clinical trial to determine whether the treatment effect varies by method or mode. If a patient diary or some other form of unsupervised data entry is used, we plan to review the clinical trial protocol to determine what steps are taken to ensure that patients make entries according to the clinical trial design and not, for example, just before a clinic visit when their reports will be collected.

Q4:- Differentiate between Qualitative and Quantitative Research approaches and describe their importance in Research.

Ans:-

In Miles and Huberman's 1994 book *Qualitative Data Analysis*, quantitative researcher Fred Kerlinger is quoted as saying, "There's no such thing as qualitative data. Everything is either 1 or 0" (p. 40). To this another researcher, D. T. Campbell, asserts "all research ultimately has a qualitative grounding" (p. 40). This back and forth banter among qualitative and quantitative researchers is "essentially unproductive" according to Miles and Huberman. They and many other researchers agree that these two research methods need each other more often than not. However, because typically qualitative data involves words and quantitative data involves numbers, there are some researchers who feel that one is better (or more scientific) than the other. Another major difference between the two is that qualitative research is inductive and quantitative research is deductive. In qualitative research, a hypothesis is not needed to begin research. However, all quantitative research requires a hypothesis before research can begin.

Another major difference between qualitative and quantitative research is the underlying assumptions about the role of the researcher. In quantitative research, the researcher is ideally an objective observer that neither participates in nor influences what is being studied. In qualitative research, however, it is thought that the researcher can learn the most about a situation by participating and/or being immersed in it. These basic underlying assumptions of both methodologies guide and sequence the types of data collection methods employed.

Although there are clear differences between qualitative and quantitative approaches, some researchers maintain that the choice between using qualitative or quantitative approaches actually has less to do with methodologies than it does with positioning oneself within a particular discipline or research tradition. The difficulty of choosing a method is compounded by the fact that research is often affiliated with universities and other institutions. The findings of research projects often guide important decisions about specific practices and policies. The choice of which approach to use may reflect the interests of those conducting or benefitting from the research and the purposes for which

the findings will be applied. Decisions about which kind of research method to use may also be based on the researcher's own experience and preference, the population being researched, the proposed audience for findings, time, money, and other resources available (Hathaway, 1995).

Some researchers believe that qualitative and quantitative methodologies cannot be combined because the assumptions underlying each tradition are so vastly different. Other researchers think they can be used in combination only by alternating between methods: qualitative research is appropriate to answer certain kinds of questions in certain conditions and quantitative is right for others. And some researchers think that both qualitative and quantitative methods can be used simultaneously to answer a research question.

To a certain extent, researchers on all sides of the debate are correct: each approach has its drawbacks. Quantitative research often "forces" responses or people into categories that might not "fit" in order to make meaning. Qualitative research, on the other hand, sometimes focuses too closely on individual results and fails to make connections to larger situations or possible causes of the results. Rather than discounting either approach for its drawbacks, though, researchers should find the most effective ways to incorporate elements of both to ensure that their studies are as accurate and thorough as possible.

It is important for researchers to realize that qualitative and quantitative methods can be used in conjunction with each other. In a study of computer-assisted writing classrooms, Snyder (1995) employed both qualitative and quantitative approaches. The study was constructed according to guidelines for quantitative studies: the computer classroom was the "treatment" group and the traditional pen and paper classroom was the "control" group. Both classes contained subjects with the same characteristics from the population sampled. Both classes followed the same lesson plan and were taught by the same teacher in the same semester. The only variable used was the computers. Although Snyder set this study up as an "experiment," she used many qualitative approaches to supplement her findings. She observed both classrooms on a regular basis as a participant-observer and conducted several interviews with the teacher both during and after the semester. However, there were several problems in using this approach: the strict adherence to the same syllabus and lesson plans for both classes and the restricted access of the control group to the computers may have put some students at a disadvantage. Snyder also notes that in retrospect she should have used case studies of the students to further develop her findings. Although her study had certain flaws, Snyder insists that researchers can simultaneously employ qualitative and quantitative methods if studies are planned carefully and carried out conscientiously.

Q5 Write Short note on the following:

- 1) Use of Statistics in Research
- 1) Action Research

1) Use of Statistics in Research

Statistics is the science of collection, analysis, interpretation or explanation, and shoaib.ahmed86@live.com www.shoaibahmed86.yolasite.com 7

presentation of data. It has wide usage in the field of research. In fact all the data collection and interpretation techniques used in Research are part of statistics.

It makes use of descriptive statistics for collection of data and inferential statistics for drawing inferences from this set of data. The subject called research statistics & statistics is very important in research because that is the backbone of your research.

The Numbers gives an easy idea of how you conducted your research.

Statistics provides a platform for research as to; How to go about your research, either to consider a sample or the whole population, the Techniques to use in data collection and observation, how to go about the data description (using measure of central tendency).

To wrap it up, statistics as a science of data collection, analysis, interpretation, explanation and presentation will guide you in research for proper characterization, summarization, presentation and interpretation of your research result for proper action.

2) Action Research

Action research is a process, in which participants examine their own educational practice systematically and carefully, using the techniques of research. It is based on the following assumptions:

- Teachers and principals work best on problems they have identified for themselves
- Teachers and principals become more effective when encouraged to examine and assess their own work and then consider ways of working differently
- Teachers and principals help each other by working collaboratively
- Working with colleagues helps teachers and principals in their professional development

Although there are many types of research that may be undertaken, action research specifically refers to a disciplined inquiry done by a teacher with the intent that the research will inform and change his or her practices in the future. This research is carried out within the context of the teacher's environment—that is, with the students and at the school in which the teacher works—on questions that deal with educational matters at hand.

While people who call for greater professionalization say that teachers should be constantly researching and educating themselves about their area of expertise, this is different from the study of more educational questions that arise from the practice of teaching.

Implicit in the term action research is the idea that teachers will begin a cycle of posing questions, gathering data, reflection, and deciding on a course of action. When these decisions begin to change the school environment, a different set of circumstances appears with different problems posed, which require a new look. Indeed, many action research projects are started with a particular problem to solve, whose solution leads into other areas of study. While a teacher may work alone on these studies, it is also common for a number of teachers to collaborate on a problem, as well as enlist support and guidance from administrators, university scholars, and others. At times, whole schools

may decide to tackle a school-wide study to address a common issue, or join with others to look at district-wide issues.