



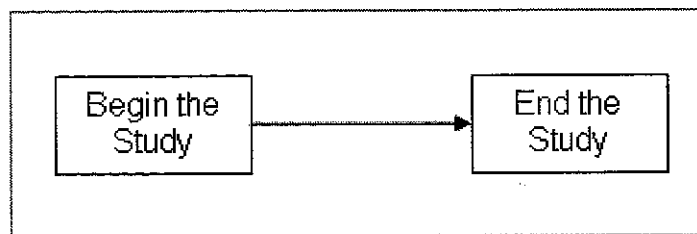
Unlock Research Research for Physical Educators

Research Reading Guide of the Month JANUARY 2005

Locke, L.F. (2005).

Most Travelers Need a Map.

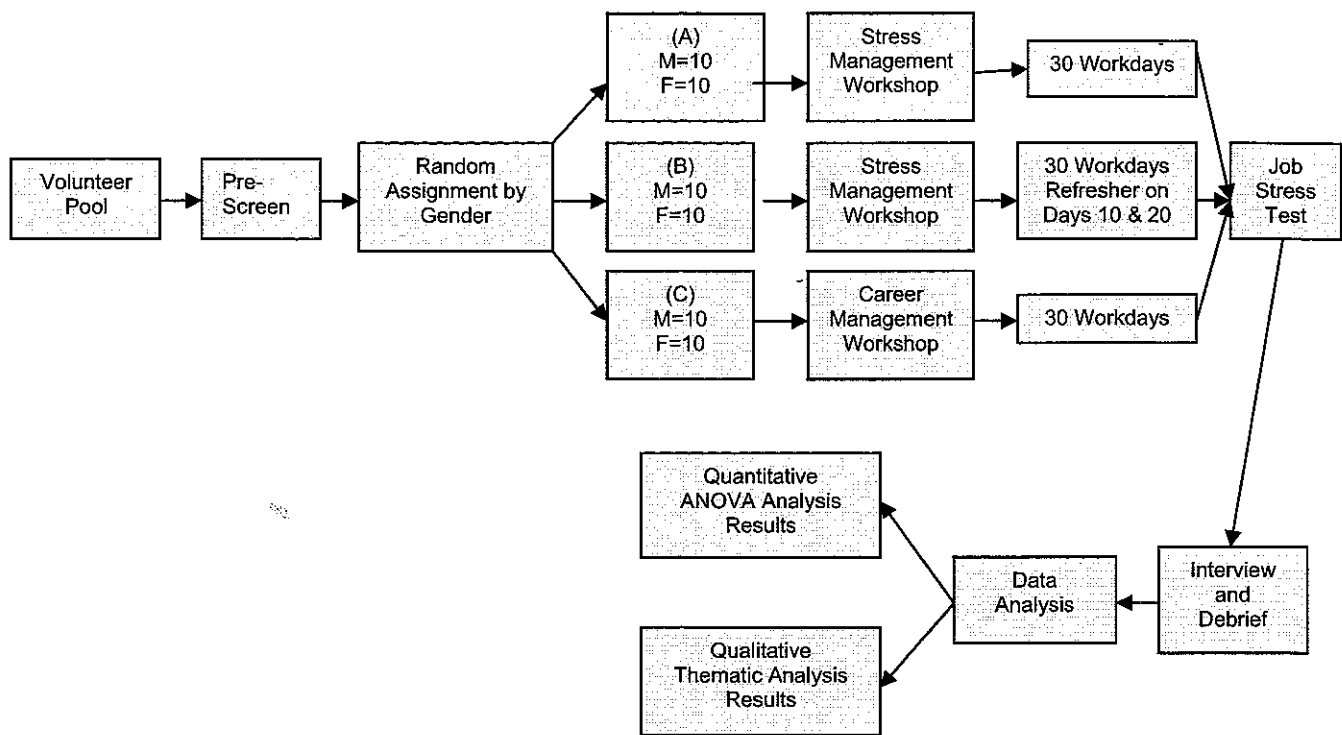
People differ considerably in the ways with which they represent ideas in their minds. Some people make frequent use of graphic images, while others code all information exclusively in verbal terms. Nevertheless, when students are beginning the process of learning how to read research, the majority of them can profit from the process of creating a graphic diagram that portrays a study's main steps. Such concrete maps may take many forms but the easiest for most people is a simple box and arrow chart.



No artistic skill required. Nothing technical and certainly nothing artistic is required. Just do it freehand on a piece of scrap paper. You can start with the words and sketch in the boxes around them, or do it in reverse – containers first and then write in the descriptive words. Connecting lines and directional arrows can be added later. The whole idea is to capture the main sequence of research operations as they occur in sequence through time, first to last. Such maps are commonly called “flow charts.” They are a convenient way to capture in the form of a “still picture” what originally was a dynamic process.

Keep it simple. The three rules that make flow charts a practical device are: 1) use only keywords to represent the major steps, 2) leave out everything that is not a major component of the study, and 3) remember that there is no correct way to draw the chart. In other words, keep it simple and lay it out in whatever way works for you. If you feel that boxes and arrows are too mechanical for your taste, simply leave them out and just write little clusters of words in vertical or horizontal order so that you keep the temporal sequence of study activity but omit the graphics.

An example. Here is a typical flowchart that was drawn up for a mixed method study of the efficacy of a stress management intervention. See if you can follow the sequence of major steps in the study. Imagine that the context is a large urban high school and that the participants are 60 teachers who volunteered for the study.



Reading the flow chart should allow you to reproduce an overview of the study. It might sound something like the following account (I have used my imagination to add a few embellishments and highlighted words that appear in the flow chart):

- From the pool of teachers who volunteered, a quick **pre-screening** eliminated those who had previous experience with stress management training or who might not be present at the school for the entire period of the study.
- Then, 30 female teachers were **randomly selected** from the remaining pool of volunteers and they were then **randomly divided** among the three treatment groups (10 in each).
- The same was done for male teachers.
- **Groups A and B** received a day-long **workshop** on techniques for managing work related stress.
- As a placebo (sugar pill), **group C** received a day-long career management **workshop** that involved no attention to stress management.
- Next, 30 workdays passed, during which only **group B** received two evenly spaced hour-long stress management **refreshers**.
- Then all participants took a **battery of tests** designed to measure their recent experience with various components of **job-related stress**.
- All participants were then **interviewed** in three-person focus groups to obtain personal accounts of what was stressful about teaching in that high school. Participants from groups A and B also responded to probing questions about how the training in stress reduction strategies had, or had not, been helpful in managing the stress of teaching.
- Finally, as part of the focus group procedures all participants were also fully **debriefed** by receiving a full explanation of all the study.
- **Quantitative** data from the stress test battery were **analyzed** by use of statistical procedures that indicated the direction and magnitude of the differences among and between groups by treatment and gender.
- Focus group tapes were transcribed and the resulting text was then **analyzed** to identify experiences and understandings that were commonly shared by participants, or by members of treatment or gender sub-groups. The **qualitative themes** identified by that process were then used to describe how the participants had experienced and responded to work stress over the period of the study.

- The **results** of quantitative and qualitative analysis were considered by the investigators and appropriate conclusions were drawn. The entire story of the study was consolidated into an oral presentation for participants and school administrators, as well as a written research report. The report was then submitted for publication in a physical education research journal.

Don't clutter up your map. My account adds a few details and flourishes, but it follows the exact path laid out in the flow chart. If you find it helpful when mapping a study, a few such ancillary details can be included in flow charts through use of cartoonist's balloons that can be attached to the main boxes. The key to making such maps useful, however, is to not overload them with detail. Exactly as with roadmaps, when you are headed out on a fast drive across the country the inclusion of local secondary roads on your map would obscure what you really need — which is just the main highways and interstate routes.

The power of a visual aid. Research report flow charts have one additional utility that you may not have considered. They provide an efficient (and elegant) visual aid for explaining research to other people. If you want to share something that you have found in a study, just talking about it can be cumbersome, time consuming, and unreliable. When you can locate the valuable fact, idea, or procedure in the context of a simple diagram, however, most people will grasp the point much more quickly. And beyond efficient communication, flow charts make visible the skeleton of logic that underlies the process of research. That lends a persuasive power to findings that few verbal explanations can match.

The results. Oh yes, and of course you would like to know how it all came out. Well (and, unlike Dave Barry, I am making this up), the participants found the refresher sessions intrusive and repetitive, there were no significant differences between stress measures for groups A and B, but participants in both of those groups had stress scores that were significantly lower than those for teachers in group C. There were no gender differences.

Comments on this guide will be welcomed at lflocke@hotmail.com.

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