



Basic Guide to Conducting Research

How to Use This Guide

This guide was created for people who really want to do research but don't know where to start. It is a general outline created so that those who know nothing about research can get a basic understanding. Boxes on the sidebars explain terms, warnings, ideas, and information at a glance.

Why Conduct Research?

- ❖ Many **funding agencies** require proof that their funding dollars are producing results.
- ❖ Research proving the results of your program can help **marketing** efforts.
- ❖ **Insurance** companies often ask for quantitative evidence.
- ❖ With only qualitative evidence, many **professional associations** do not accept new treatment modalities as valid.
- ❖ Research can **test new theories** or treatments, which can then be used by other EAP professionals worldwide.
- ❖ Valid research can be published in peer-reviewed journals to create a **positive image** of Eagala among professionals outside the EAP community. This could lead to **increased referrals**.

Term: Quantitative
Reflecting observations with numbers. i.e. 94% of clients improved.

Term: Qualitative
Descriptive reports of behavior. i.e. The client improved dramatically.

Research Design - Now What?

Choose a question. You want to know if your program works. A good rule of thumb is Who, When, What.

- ❖ Who is the population you are measuring? Those in the program? Their families? Depressed Housewives?
- ❖ When do you want to measure the effect? During the treatment? One week after the treatment? Six months?
- ❖ What are you measuring? Do you want to investigate Emotional IQ? Cortisol levels? Body Mass Index?

Choose a research model. There are two basic options when choosing a model: Pre-Post Test (within subjects) and Control-Treatment (between subjects).

One important factor in research is determining if the outcome (DV) is caused by the treatment (IV). This is usually addressed by controlling for extraneous factors. Each of these methods deals with control differently.

Within Subjects Testing (Pre-Post Test)

An experimental design that exposes one subject to the treatment and measures the Dependent Variable before and after the treatment.

Since it is the same people during the study, then it is assumed that the only change is the treatment. Each person provides two scores (before and after) so you need half the people to do the statistics.

Pros: Near-perfect control group - it's the same people. So you need fewer subjects to reach statistical significance.

Example: "Does the EAP program reduce the rate of juvenile redividism six months after treatment?"

Warning: Avoid Bias
Ask questions that are neutral. Not, "Why does my program work so darn well all the time?"

Now would be a good time to contact Eagala Research for consultation.

Term: IV
The Independent Variable
The 'cause' in the cause and effect relationship. It is the variable that is believed to change the DV.

Term: DV
The Dependent Variable
The 'effect' in the cause and effect relationship. The variable believed to be changed by the IV.

Example: If you pour grain into a bucket (IV), then the horse will come running (DV)

Term: Significant
A statistical test to see if the change in the DV is due to random chance. Less than 1-5% chance = statistical significance.

Term: Random Assignment
Each person has an equal chance

Cons: If more than one treatment is happening to your group (EAP is only part of the therapy program, going through the legal system) then you cannot prove that the change is due to your IV. Can't tell if the change would have happened without your treatment.

Between Subjects Testing (Treatment and Control Test)

An experimental design where the participants are split into groups. One group receives the treatment while the other does not. Both groups are tested at the end of the treatment to see if there is a difference in the DV.

The groups need to be randomly assigned because each person in the control group serves as an untreated matching score for those in the treatment group. The person in the control is the 'before' and the person in the treatment is the 'after'. The only difference between the groups should be the treatment.

Pros: Because you can choose your control group, you can tease out factors that interfere with your study. If EAP is part of a wilderness program, then the control only receives the wilderness program while the treatment group receives both.

Cons: It's a lot more work!

of being in each group. i.e. Put colors of chips in a hat, have people pull a chip for their group.

Why? If you assign the control group non-randomly (i.e. the kids didn't want to do EAP), then the difference may be due to the kid's attitude, not your IV.

And now... a note about ethics

"How can you create a control group that does not receive the EAP? Doesn't that violate ethics?"

Institutional Review Boards (IRB's) are an important part of research. The role of the IRB is to establish the ethical considerations of a study. It is not their job to assess the scientific validity of a project, only to ensure that the study will be conducted in an ethical manner. IRB's are not required in all circumstances, but if you are not sure, it is often a good idea to search one out.

Informed Consent. Even if the research is part of an ongoing program, the participants need to be informed that they are going to be a part of the study and sign a release form indicating that they understand the nature of the study and agree to be involved.

Release Forms include the basic information about the study (what you are doing and why), any risks or discomfort that the study may pose, the role the participant is to play, the time and setting required to participate, how confidentiality will be addressed, that the participants will not be judged based on their results and the ability of the participant to withdraw from the study at any time without reprisal. Minor must have the form signed by a guardian.

Treatment. Sometimes, due to program constraints it is possible to SIDETRACK some ethical issues. If your program only has the resources to provide EAP for 10 participants at a time, but there are 20 people interested in the program, you could randomly assign 10 of the 20 participants to the 'with EAP' condition, and use the other 10 as the control group. After the study is complete, EAP would be offered to the 10 control participants.

Debriefing. After the study has been completed, it is necessary to debrief the participants. This debriefing includes disclosing the rationale behind the study, description of preliminary results of the study (if available), answer any questions the participants may have about the study, repeat the confidentiality information, and the researcher may ask the participants to not talk to their peers (in the program, or going into the program) about the nature or outcome of the study as it may color the results of future research.

Ethical presentation of results. Also included in this section on ethics is the presentation of results. When the results of the study (or previous studies) are made public, it is important that the results are not misrepresented. Some research study results are not statistically significant, or only provide significant evidence for some of the research hypothesis (i.e. results were only found

for women). All research results are important, even if they are not significant. Future research builds on research before it, so if your results are misrepresented, it may lead to future researchers on a wild goose chase. Also if research is discovered to be inflated/misrepresented, it leads to a loss of face for all researchers and practitioners in the field.

Attention Horse Specialists!

Don't count yourselves out of research just because you aren't focusing on the people! There has been excellent research on the horses and how they are affected by EAP. There is a general misnomer that EAP is stressful to horses. Why not research if that is true? It's simple to test. Just measure the horses heart rate, breathing and blood pressure (stress indicators) before, during and after the EAP sessions. Voila! Valid research.

Choosing a measure and a statistical test ~ The dreaded data analysis!

Don't Panic! This is not as scary as it seems! Basically you need to decide what is it that you want to measure in your research. What are the expected outcomes of your program? Then decide how to measure them. All statistics hinge on Reliability and Validity.

There are two kinds of statistics; Descriptive and Inferential.

Descriptive Statistics - Describe and summarize information about your sample population. They describe number (i.e. how many men and women in the program), range (i.e. highest and lowest scores at intake), frequency (i.e. how many people had previous experience with horses) and average (i.e. what was the average age).

Inferential Statistics - They infer a relationship between the data. (i.e. were the people in the program less likely to re-offend?) These statistics investigate the probability that certain events will occur, given the details of the experiment.

Term: Reliability

If this study (or program/treatment) were conducted again, would it produce the same results as the research study?

Term: Validity

Does your study measure what it is intended to measure? Or does it measure another effect? Do the questions really measure the DV?

Choosing a scale - planning before not after!

After you have determined what you want to measure, go to your local University library and find the Mental Measurements Yearbook. This book lists all the statistical tests that are used in mainstream psychology. Using the index, it is possible to determine what you would like to measure (aggression towards self, others or property) and find the appropriate test to use. It is also possible to create your own measure, but that would jeopardize your research project's validity and reliability.

At this point, contact a researcher to make a plan for gathering and analyzing data. *If you pay for professional assistance on only one issue in research - pay to get advice on choosing a scale and statistical testing.*

Gathering your data

How many people do you need?

A good rule of thumb for sample size (how many people) is to get at least 25 people. You can run most statistics on a sample of 25.

Not everyone in your sample will have the same outcome. Much below 25, individual scores have too much influence on your data.

How long do you need to gather data for?

Ideally, you gather data from the moment a client enters the program until they leave the program - and beyond. It is good to gather data at intake, during the process, at discharge and at one or two intervals (ie. six months and one year) after they have left.

Example: You are using a measure that scores between 0 and 50. An excellent score for your program is below 10.

Mean Score (Average)

$$5,5,50 = 20$$

$$5,4,6,5,7,4,5,3,7,6,5,5,4,6,7,4$$

$$50 = 7.8$$

Analyzing your data

Congratulations! You are almost done!

Basic Data Coding

If you chose your measurement wisely, this is the easiest part of the process. You just put the responses into a program like an Excel spreadsheet or SPSS and complete the mathematical process. Oh, that makes it sound hard. Here is an example.

Example: You are finding out how depressed clients are before and after Eagra treatment. The higher the score, the less depressed they are.

Client Number	Intake Score	Discharge Score	Difference
1	25	42	17
2	32	43	9
3	21	50	29

The average improvement is 18.3 points.

See - that wasn't that hard!

Dummy Coding

No, it's not coding for dummies. If you are measuring a nominal variable (which is a category, not a score), you need to find a way to do statistics on a variable that has no number (such as horse breed). You do this by dummy coding.

Term: Dummy Coding
Coding a nominal variable (gender, breed) as a number (usually 0,1 or 2) for data analysis. This makes it possible to do statistics on these variables.

Warning: Before you decide how you are going to code your variables (0,1,2, etc.) check your computer program and how you plan to analyze your data. If a variable is singular, then it is best suited to be 0 and 1 (ie. does a condition exist? 1 if yes, 0 if no). If there are two or more conditions within a variable, then numbers higher than 0 are better (ie. What equine type? 1 is Mini, 2 is Draft, 3 is mule, etc.)

Once you have decided how to code your variables, put the numbers into tables.

Example: You want to know if more men or women are involved with your program. You use the number 1 if there is a man and 2 if it is a woman.

Client	Gender
A	1
B	1
C	2

Tell the computer to SUM all 1's (2) and to SUM all 2's (1). This means there are two men and one woman in this program. Your population is 66% men, and 33% women.

Example: You want to know how many people come from broken homes. 1 indicates a broken home, 0 indicates an intact family.

Client	Family
A	0
B	1
C	1

Tell the computer to SUM all 1's (2). Then you divide the sum by the number of people in your program (3). So 66% of people in your program come from broken homes.

Writing your research report

Again, this probably sounds harder than it is. Eagala Research has a blank template for research reports that you can use, and there is an abbreviated example paper attached to this document. It may also be beneficial to head to the library and check out the latest copy of the APA publications manual. It may put you to sleep, but it does contain everything you need to know about writing a research paper.

Basically - you want to tell everyone about your research! You need a title page, an abstract (a quick description of your project and its outcome), an introduction, methods (how did you do it), results (what did you get) and a discussion.

Once you have this report done, you can submit it to journals. You can also reap the rewards of having completed valid quantitative research. This kind of research is often of

Starting all over again!

Great interest to **funding bodies, insurance companies, governments, professional associations and more**. It is also beneficial for marketing to be able to say, *"84% of our clients were greatly improved by taking part in our program."*

Now that you have some research, it may have raised more questions. It is the nature of science! You may have spotted an interesting trend that you want to research more. You may want to expand your research.

- ❖ Does our pre-marital counseling program affect how long people stay married for?
- ❖ Does our juvenile program keep kids out of jail one year after they leave the program?
- ❖ How does the horses' behavior in the sessions affect the direction of the counseling?
- ❖ At what stages of chemical dependency treatment is EAP effective?
- ❖ What other kinds of interventions enhance EAP treatment? Are there any that are detrimental to EAP treatment?
- ❖ Do client's initial beliefs about the therapy horse they are paired with affect how their treatment works? Do certain types of horses work well with certain types of clients?
- ❖ Does a horses' temperament affect if they find EAP sessions stressful?

The possibilities are endless!

So good luck - and remember Eagala Research is always here to help!