By Renee L. Casady, PT, MS, HPCS

AHA RESEARCH GUIDES

Research Problems, Questions and Hypotheses

There are five basic steps to carry out a causal-comparative* research study. The objective of this article is to expand your understanding of what to do at the beginning of such a research project.

Represented by the shape of an hourglass, a research study is wide at the top, narrow in the middle, then progressively wider at the bottom or end of the project.

Identify a problem by beginning with a broad question

Review the literature, focus and plan

Observe and collect data

Analyze the data

Reach conclusions and generalize back to questions

A Research Question or Problem

- Typically arise from the desire to discover how to do something better or more efficiently; or in our case, to learn more about what happens during hippotherapy.
- Is clearly and concretely stated and describes what you want to explore.
- Is carefully phrased in as few words as possible.
- Asks about the relationship between two or more variables.
- Does not represent a moral or ethical position; is value-free.
- A good question advances knowledge about significant issues that are timely.

Research question example:
Does Hippotherapy have an effect on the gross motor development of young children with cerebral palsy?

Locating a Problem for Research

- Begin with a general problem or area of concern.
- Or begin with a very narrow, specific issue and aim to put it into proper perspective.
- You may question concepts and statements in articles that you read.
- Ask yourself if there is evidence to substantiate positions or proposals.
- Check the section on "additional research needed" in theses and dissertations.
- Talk with faculty and peers about needed research.
- Develop a personal list of possible research problems emerging from curiosity or theory.
- Listen to potential research suggestions from courses or seminars.
- In the literature review, look for resources that disclose what others have discovered regarding your research question.
- Will you replicate another researcher's findings with a different sample of the population, lending to external validity?
- Select a problem area in which you have a high degree of professional and personal interest.
- Do not have a problem forced on you.
- The problem area should be of some significance to the profession.
- Ensure that the accomplishment of the study is within your capabilities and resources.

*Causal-comparative research studies determine the causal relationship between two or more variables that are not only in correspondence with each other, but one causes the other.

Continued on back.

RESEARCH PROBLEMS, QUESTIONS AND HYPOTHESES —PAGE 2.

Ask yourself these questions before committing to a research project:

- Will this add new knowledge that is worth knowing?
- Do you already have the knowledge and skill to do this?
- Are you willing to acquire the knowledge and/or skill to do this?
- Do you have the support of colleagues who have expertise in areas that you lack?
- Do you have the financial resources available to complete this?
- Is the time frame reasonable from conception to completion?

Characteristics of a Properly Stated Research Problem

- Is stated very simply.
- Identifies the variables being investigated.
- Identifies a target population or sample.
- Is testable.
- Has a reasonable scope.
- Is consistent with known facts.

Research problem example:
It is the purpose of this study to determine if hippotherapy has an effect on the gross motor development of young children with cerebral palsy.

Hypotheses

- A "hypothesis" is a suggested answer to the research question or problem statement.
- If the type of research study is ex post facto or experimental or quasi-experimental, then hypotheses are used.
- If the type of research is survey, qualitative or correlational, then research questions or objectives are typically used.
- Specifically suggest the direction or nature of the relationship between two or more variables.
- The variables should be identified as independent and dependent.
- Should be stated as a declaration and should be testable.
- As a tentative solution to a problem, hypotheses are a basis for prediction. They are stated as a succinct prediction of the expected outcome and findings. The basis for predictable outcomes is the theoretical underpinning for the study.
- Hypotheses can be developed based on the findings of related research. What have other researchers done or discovered? Research can be cumulative from one study to the next.
- Hypotheses can also be derived from logical argument by expert opinion and or personal experience.
- A null hypothesis is a hypothesis of no difference. It is the condition that the researcher holds to be true until evidence shows something otherwise to be true. A null hypothesis is statistical. It is not stated in a research proposal. It is stated in the research report when data are presented and statistical analysis is made.

Research hypothesis example:
Hippotherapy will have a positive effect on the gross motor development of young children with cerebral palsy.

References

Trochim WMK; Structure of Research;
http://trochim.human.cornell.edu/kb/strucres.htm; Retrieved December 2003.

Cowan G; Problems & Hypotheses;
http://imet.csus.edu/imet_250/module4/reliability1.htm; Retrieved December 2003.

Renee Casady, PT, MS, HPCS

Renee is owner and operator of Gateway Therapy in Ohio. She has just had her research paper accepted for publication in the Pediatric Physical Therapy Journal. Renee is paving the way for the acceptance of hippotherapy in the medical world.

American Hippotherapy Association Inc.
5001 Woodside Rd. (650) 851-4592
Woodside, CA 94062 1-888-851-4592
www. americanhippotherapyassociation.org