INTRODUCTION TO RESEARCH

As you progress through your curriculum, you will be required to complete SCHOLARLY research projects. SCHOLARLY means that you will write your papers as a research individual in the third person, without opinions or bias, and report on your findings of your research. The use of SCHOLARLY SOURCES means accessing database journals, articles and such that are PEER REVIEWED. PEER REVIEWED means that other scholars had input and review of the article prior to publishing.

Internet sources are NOT considered scholarly, unless you have researched the individual who has posted the website and they have a scholar background (i.e., published and known in their area of discipline). Therefore, stay away from using internet sources and websites as your primary resource.

Wiki, google, encyclopedias, and the like are NOT considered scholarly. They will NOT be accepted as a resource.

If you access an article through a website, try to get the actual article, dissertation or thesis from the actual database such as ProQuest, ERIC or the like.

This booklet contains the guidance for formatting all research papers within Webster University, Ft. Bliss. In order to have consistency across the curriculum, we are providing you with the essentials on how to do a basic research project proposal. If you are required to complete the research project with the results of your study AND your conclusions, the format for those chapters will be provided to you by the respective faculty member that you have the course.

CAPSTONE COURSE: If you are in a program that requires a CAPSTONE COURSE (6000) completion at the end of your curriculum, this booklet will give you the necessary tools to prepare you for this challenging course. The staff and professors are always available to answer any questions you may have on research methods and research projects. Please utilize them.

We hope that this information will make it easy for you to complete your projects throughout the following course of study with us in the master level program you are pursuing. Please keep this booklet and refer to it.

A copy of this booklet will also be posted in the Ft. Bliss website under Student Resources.

Good luck with your studies.
TABLE OF CONTENTS

RESEARCH TOPIC PROCESS

BASIC PRE-PROPOSAL OUTLINE

RESEARCH DESIGNS

SECTIONS OF THE RESEARCH PAPER

 COVER SHEET/TABLE OF CONTENTS

 CHAPTER 1 – INTRODUCTION

 CHAPTER 2 – LITERATURE REVIEW

 CHAPTER 3 – RESEARCH METHODOLOGY

 REFERENCES

 APPENDICES

APA RESOURCES
RESEARCH TOPIC PROCESS

RESEARCH PROBLEM:
IDENTIFY THE GENERIC PROBLEM BY STATING THE NEGATIVES WITHIN THE AREA. You must first ask yourself – WHO CARES?

FOR EXAMPLE:

RESEARCH TOPIC: STUDENTS AT THE END OF THEIR PROGRAMS ARE NOT PREPARED TO GRADUATE

WHY? NOT VERSED IN RESEARCH
NOT VERSED IN CRITICAL THINKING SKILLS
HAVE NOT REACHED THE SYNTHESIS STAGE
NOT VERSED IN ANALYTICAL SKILLS

WHICH NOW LEADS YOU TO THE RESEARCH QUESTION:
ARE STUDENTS ACQUIRING THE MASTER LEVEL KNOWLEDGE BASE TO PREPARE THEM FOR GRADUATION?

TO ANSWER THIS QUESTION, WHAT NEEDS TO BE ANSWERED AND HOW?
(Research Methodology)

THEN WHAT IS THE PURPOSE OF THIS STUDY?
TO IDENTIFY THE POSSIBLE VOIDS IN THE CURRICULUM THAT LENDS ITSELF TO NOT PREPARING STUDENTS IN THE MASTER LEVEL SKILLS REQUIRED TO GRADUATE.

THEN YOU PUT ALL THE INFORMATION IN SEQUENCE:
Research Problem
Purpose of the Study
Research Question

**Last portion of this process is to ask yourself – What do I do with this information?**
BASIC PRE-PROPOSAL OUTLINE

The pre-proposal outline is only 5 pages long, double spaced with cover sheet and reference page. It is supposed to be a condensed version of what your final proposal will be (missing lots of data of course).

The outline will look like (via APA v.6):

Cover sheet

Chapter 1 – Introduction

Background

Statement of the Problem

Purpose of the Study

Research Question(s)

Chapter 2 – Literature Review

This will only address HOW you will approach this area, i.e., dissertation and thesis that already address this topic, journals, secondary sources, etc. It is not expected that you will already have a lit review done.

Chapter 3 – Research Methodology

This area will address how you will approach the research, what design you plan to use, why this design is most applicable for this type of study, participants to be surveyed or interviewed, survey instrument, etc.

References

This is where you will start putting some of your bibliography and will not be all inclusive at this point. This is ALWAYS a separate page.
RESEARCH DESIGNS

The design is the structure of any scientific work. It gives direction and systematizes the research.

The method you choose will affect your results and how you conclude the findings. Most scientists are interested in getting reliable observations that can help the understanding of a phenomenon.

There are two main approaches to a research problem:

- **Quantitative Research**
  - These experiments are sometimes referred to as true science, and use traditional mathematical and statistical means to measure results conclusively.
  - They are most commonly used by physical scientists, although social sciences, education and economics have been known to use this type of research. It is the opposite of qualitative research.
  - Quantitative experiments all use a standard format, with a few minor inter-disciplinary differences, of generating a hypothesis to be proved or disproved. This hypothesis must be provable by mathematical and statistical means, and is the basis around which the whole experiment is designed.
  - Randomization of any study groups is essential, and a control group should be included, wherever possible. A sound quantitative design should only manipulate one variable at a time, or statistical analysis becomes cumbersome and open to question.
  - Ideally, the research should be constructed in a manner that allows others to repeat the experiment and obtain similar results.
  - **When to perform the quantitative research design.**

- **ADVANTAGES**
  - Quantitative research design is an excellent way of finalizing results and proving or disproving a hypothesis. The structure has not changed for centuries, so is standard across many scientific fields and disciplines.
  - After statistical analysis of the results, a comprehensive answer is reached, and the results can be legitimately discussed and published. Quantitative experiments also filter out external factors, if properly designed, and so the results gained can be seen as real and unbiased.
  - Quantitative experiments are useful for testing the results gained by a series of qualitative experiments, leading to a final answer, and a narrowing down of possible directions for follow up research to take.
DISADVANTAGES

- Quantitative experiments can be difficult and expensive and require a lot of time to perform. They must be carefully planned to ensure that there is complete randomization and correct designation of control groups.
- Quantitative studies usually require extensive statistical analysis, which can be difficult, due to most scientists not being statisticians. The field of statistical study is a whole scientific discipline and can be difficult for non-mathematicians.
- In addition, the requirements for the successful statistical confirmation of results are very stringent, with very few experiments comprehensively proving a hypothesis; there is usually some ambiguity, which requires retesting and refinement to the design. This means another investment of time and resources must be committed to fine-tune the results.
- Quantitative research design also tends to generate only proved or unproven results, with there being very little room for grey areas and uncertainty. For the social sciences, education, anthropology and psychology, human nature is a lot more complex than just a simple yes or no response.

Read more: [http://www.experiment-resources.com/quantitative-research-design.html#ixzz1fJuyrIfo](http://www.experiment-resources.com/quantitative-research-design.html#ixzz1fJuyrIfo)

- Qualitative Research

- It is also very useful for product designers who want to make a product that will sell.
- For example, a designer generating some ideas for a new product might want to study people’s habits and preferences, to make sure that the product is commercially viable. Qualitative research is then used to assess whether the completed design is popular or not.
- Qualitative research is often regarded as a precursor to quantitative research, in that it is often used to generate possible leads and ideas which can be used to formulate a realistic and testable hypothesis. This hypothesis can then be comprehensively tested and mathematically analyzed, with standard quantitative research methods.
- For these reasons, these qualitative methods are often closely allied with interviews, survey design techniques and individual case studies, as a way to reinforce and evaluate findings over a broader scale.
- A study completed before the experiment was performed would reveal which of the multitude of brands were the most popular. The quantitative experiment could then be constructed around only these brands, saving a lot of time, money and resources.
- Qualitative methods are probably the oldest of all scientific techniques, with Ancient Greek philosophers qualitatively observing the world around them and trying to come up with answers which explained what they saw.
• **DESIGN**
  • The design of qualitative research is probably the most flexible of the various experimental techniques, encompassing a variety of accepted methods and structures.
  • From an individual case study to an extensive interview, this type of study still needs to be carefully constructed and designed, but there is no standardized structure.
  • Case studies, interviews and survey designs are the most commonly used methods.
  • When to use the Qualitative Research Design

• **ADVANTAGES**
  • Qualitative techniques are extremely useful when a subject is too complex be answered by a simple yes or no hypothesis. These types of designs are much easier to plan and carry out. They are also useful when budgetary decisions have to be taken into account.
  • The broader scope covered by these designs ensures that some useful data is always generated, whereas an unproved hypothesis in a quantitative experiment can mean that a lot of time has been wasted. Qualitative research methods are not as dependent upon sample sizes as quantitative methods; a case study, for example, can generate meaningful results with a small sample group.

• **DISADVANTAGES**
  • Whilst not as time or resource consuming as quantitative experiments, qualitative methods still require a lot of careful thought and planning, to ensure that the results obtained are as accurate as possible.
  • Qualitative data cannot be mathematically analyzed in the same comprehensive way as quantitative results, so can only give a guide to general trends. It is a lot more open to personal opinion and judgment, and so can only ever give observations rather than results.
  • Any qualitative research design is usually unique and cannot be exactly recreated, meaning that they do lack the ability to be replicated.

  Read more: [http://www.experiment-resources.com/qualitative-research-design.html#ixzz1fJvbkazZ](http://www.experiment-resources.com/qualitative-research-design.html#ixzz1fJvbkazZ)
What are the differences between Qualitative and Quantitative Research?

In Quantitative Research only measurable data are being gathered and analyzed in this type of research.

Qualitative Research on the other hand generates non-numerical data. It focuses on gathering of mainly verbal data rather than measurements. Gathered information is then analyzed in an interpretative manner, subjective, impressionistic or even diagnostic.

Here’s a more detailed point-by-point comparison between the two types of research:

1. Goal or Aim of the Research

The primary aim of a Qualitative Research is to provide a complete, detailed description of the research topic. Quantitative Research on the other hand focuses more in counting and classifying features and constructing statistical models and figures to explain what is observed.

2. Usage

Qualitative Research is ideal for earlier phases of research projects while for the latter part of the research project, Quantitative Research is highly recommended. Quantitative Research provides the researcher a clearer picture of what to expect in his research compared to Qualitative Research.

3. Data Gathering Instrument

The researcher serves as the primary data gathering instrument in Qualitative Research. Here, the researcher employs various data-gathering strategies, depending upon the thrust or approach of his research. Examples of data-gathering strategies used in Qualitative Research are individual in-depth interviews, structures and non-structured interviews, focus groups, narratives, content or documentary analysis, participant observation and archival research.

On the other hand, Quantitative Research makes use of tools such as questionnaires, surveys and other equipment to collect numerical or measurable data.

4. Type of Data

The presentation of data in a Qualitative Research is in the form of words (from interviews) and images (videos) or objects (such as artifacts). If you are conducting a Qualitative Research what will most likely appear in your discussion are figures in the form of graphs. However, if you are conducting a Quantitative Research, what will most likely appear in your discussion are tables containing data in the form of numbers and statistics.
5. Approach

Qualitative Research is primarily subjective in approach as it seeks to understand human behavior and reasons that govern such behavior. Researchers have the tendency to become subjectively immersed in the subject matter in this type of research method.

In Quantitative Research, researchers tend to remain objectively separated from the subject matter. This is because Quantitative Research is objective in approach in the sense that it only seeks precise measurements and analysis of target concepts to answer his inquiry.

**DETERMINING WHICH METHOD SHOULD BE USED**

Debates have been ongoing, tackling which method is better than the other. The reason why this remains unresolved until now is that, each has its own strengths and weaknesses which actually vary depending upon the topic the researcher wants to discuss. This then leads us to the question “Which method should be used?”

The goals of each of the two methods have already been discussed above. Therefore, if your study aims to find out the answer to an inquiry through numerical evidence, then you should make use of the Quantitative Research. However, if in your study you wish to explain further why this particular event happened, or why this particular phenomenon is the case, then you should make use of Qualitative Research.

Some studies make use of both Quantitative and Qualitative Research, letting the two complement each other. If your study aims to find out, for example, what the dominant human behavior is towards a particular object or event and at the same time aims to examine why this is the case, it is then ideal to make use of both methods.

Read more: [http://www.experiment-resources.com/quantitative-and-qualitative-research.html#ixzz1fJw3YGyeE](http://www.experiment-resources.com/quantitative-and-qualitative-research.html#ixzz1fJw3YGyeE)
DIFFERENT RESEARCH METHODS

There are various designs which are used in research, all with specific advantages and disadvantages. Which one the scientist uses, depends on the aims of the study and the nature of the phenomenon:

Descriptive Designs
Aim: Observe and Describe
- Descriptive Research
- Case Study
- Naturalistic Observation
- Survey (The Questionnaire is also a technique used in many types of research designs)

Correlational Studies
Aim: Predict
- Case Control Study
- Observational Study
- Cohort Study
- Longitudinal Study
- Cross Sectional Study
- Correlational Studies in general

Semi-Experimental Designs
Aim: Determine Causes
- Field Experiment
- Quasi-Experimental Design
- Twin Studies

Experimental Designs
Aim: Determine Causes
- True Experimental Design
- Double-Blind Experiment

Reviewing Other Research
Aim: Explain
- Literature Review
- Meta-analysis
- Systematic Reviews

Test Study Before Conducting a Full-Scale Study
Aim: Does the Design Work?
TYPICAL EXPERIMENTAL DESIGNS

SIMPLE EXPERIMENTAL TECHNIQUES

- Pretest-Posttest Design
- Control Group
- Randomization
- Randomized Controlled Trials
- Between Subjects Design
- Within Subject Design

COMPLEX EXPERIMENTAL DESIGNS

- Factorial Design
- Solomon Four-Group Design
- Repeated Measures Design
- Counterbalanced Measures Design
- Matched Subjects Design
- Bayesian Probability

WHICH METHOD TO CHOOSE?

What design you choose depends on different factors.

- What information do you want? The aims of the study.
- The nature of the phenomenon - Is it feasible to collect the data, and if so, would it be valid/reliable?
- How reliable should the information be?
- Is it ethical to conduct the study?
- The cost of the design
- Is there little or much current scientific theory and literature on the topic?

Further Reading

- "Research Design: Qualitative, Quantitative, and Mixed Methods Approaches" by John W. Creswell
- "Essentials of Research Design and Methodology" by Geoffrey R Marczyk
- Read more: http://www.experiment-resources.com/research-designs.html#ixzz1fJrbv4K

Reference

The research question, ethics, budget and time are all major considerations in any design.

This is before looking at the statistics required, and studying the preferred methods for the individual scientific discipline.

Every experimental design must make compromises and generalizations, so the researcher must try to minimize these, whilst remaining realistic.

For ‘pure’ sciences, such as chemistry or astrophysics, experiments are quite easy to define and will, usually, be strictly quantitative.

For biology, psychology and social sciences, there can be a huge variety of methods to choose from, and a researcher will have to justify their choice. Whilst slightly arbitrary, the best way to look at the various methods is in terms of ‘strength’.

**EXPERIMENTAL RESEARCH METHODS**

The first method is the straightforward experiment, involving the standard practice of manipulating quantitative, independent variables to generate statistically analyzable data.

Generally, the system of scientific measurements is interval or ratio based. When we talk about ‘scientific research methods’, this is what most people immediately think of, because it passes all of the definitions of ‘true science’. The researcher is accepting or refuting the null hypothesis.

The results generated are analyzable and are used to test hypotheses, with statistics giving a clear and unambiguous picture.

This research method is one of the most difficult, requiring rigorous design and a great deal of expense, especially for larger experiments. The other problem, where real life organisms are used, is that taking something out of its natural environment can seriously affect its behavior.

It is often argued that, in some fields of research, experimental research is ‘too’ accurate. It is also the biggest drain on time and resources, and is often impossible to perform for some fields, because of ethical considerations.

The Tuskegee Syphilis Study was a prime example of experimental research that was fixated on results, and failed to take into account moral considerations.

In other fields of study, which do not always have the luxury of definable and quantifiable variables - you need to use different research methods. These should attempt to fit all of the definitions of repeatability or falsifiability, although this is not always feasible.
OPINION BASED RESEARCH METHODS

Opinion based research methods generally involve designing an experiment and collecting quantitative data. For this type of research, the measurements are usually arbitrary, following the ordinal or interval type.

**Questionnaires** are an effective way of quantifying data from a sample group, and testing emotions or preferences. This method is very cheap and easy, where budget is a problem, and gives an element of scale to opinion and emotion. These figures are arbitrary, but at least give a directional method of measuring intensity.

Quantifying behavior is another way of performing this research, with researchers often applying a ‘numerical scale’ to the type, or intensity, of behavior. The Bandura Bobo Doll experiment and the Asch Experiment were examples of opinion based research.

By definition, this experiment method must be used where emotions or behaviors are measured, as there is no other way of defining the variables. Whilst not as robust as experimental research, the methods can be replicated and the results falsified.

OBSERVATIONAL RESEARCH METHODS

Observational research is a group of different research methods where researchers try to observe a phenomenon without interfering too much.

Observational research methods, such as the case study, are probably the furthest removed from the established scientific method. This type is looked down upon, by many scientists, as ‘quasi-experimental’ research, although this is usually an unfair criticism. Observational research tends to use nominal or ordinal scales of measurement.

Observational research often has no clearly defined research problem, and questions may arise during the course of the study. For example, a researcher may notice unusual behavior and ask, ‘What is happening?’ or ‘Why?’

**Observation** is heavily used in social sciences, behavioral studies and anthropology, as a way of studying a group without affecting their behavior. Whilst the experiment cannot be replicated or falsified, it still offers unique insights, and will advance human knowledge.

**Case studies** are often used as a pre-cursor to more rigorous methods, and avoid the problem of the experiment environment affecting the behavior of an organism. Observational research methods are useful when ethics are a problem.
CONCLUSION

In an ideal world, experimental research methods would be used for every type of research, fulfilling all of the requirements of falsifiability and generalization.

However, ethics, time and budget are major factors, so any experimental design must make compromises. As long as a researcher recognizes and evaluates flaws in the design when choosing from different research methods, any of the scientific research methods are valid contributors to scientific knowledge.

Read more: http://www.experiment-resources.com/different-research-methods.html#ixzz1fJrx9rlS

Reference:
This is the Title

Name

Webster University
Abstract

President Obama stated: “I’m calling on our state education chiefs to develop standards—that don’t simply measure whether students can fill a bubble on a test, but whether they possess twenty-first century skills like problem-solving, critical thinking, entrepreneurship, and creativity” (Jackson, 2009, p. 1). Law enforcement requires the officer to invoke reason and critical thinking skills in order to solve intricate problems in real time, on the job. This study examined the course development of a large national organization (State Police Academies) to ascertain what strategies are being used in their courses to promote training for higher-order, critical thinking skills. The research questions were: What instructional strategies are included in the course development of State Police Academies to teach higher-order, critical thinking skills to learners? and How are the State Police Academies assessing whether the learners have acquired these higher-order, critical thinking skills? Few empirical studies (Birzer & Tannehill, 2001; Mahoney, 1996; Poradzisz, 2004; Toms, 2007; Vander Kooi, 2006) and even fewer statistical reports (Hickman, 2005; Reaves, 2009) address these questions. **Do not make the abstract more than 250 words.**

**Keywords:** (these are words that you would put into the search and should key in on your report)
Appendix A.

List of Tables

Table 1. *Descriptive Statistics: Education Level.* 69

Table 2. *Descriptive Statistics: Taken Instructional Design Courses?* 69

Table 3. *Descriptive Statistics: Academy Class Size* 70

*(One to Fifty)*
CHAPTER 1. INTRODUCTION

Background

In the March 2009 speech to the U.S. Chamber of Commerce, Washington, D.C., President Obama stated: “I’m calling on our state education chiefs to develop standards-that don’t simply measure whether students can fill a bubble on a test, but whether they possess twenty first century skills like problem-solving, critical thinking, entrepreneurship, and creativity” (Jackson, 2009, p. 1). Over the last two decades, due to economic issues and the evolution of the workforce, the call for emphasis on teaching higher-order/critical thinking skills has intensified (McNamara, 2009). “The 2006 New Commission of the American Workforce declared that mastery of higher-order thinking skills may define success and failure among 21st century workers” (McNamara, 2009, p. 25).

Statement of the Problem

The problem in this study has been a problem for decades, which is how to teach students to think critically and thus develop reasoning abilities to deal with the complexities of life. “Researchers warn existing education models, training and experience are insufficient for delivering information to the new generation of workers” (McNamara, 2009, p. 26). Therefore, the instructional methodology used to design instruction within any discipline, must be inclusive of strategies that will promote higher-order, critical thinking skills. As Clark (2002) states regarding knowledge workers (those who work with their hands and their heads), “workers lacking skills exert an eroding effect on organizational goals and productivity. At worst, they put themselves and those they serve at risk in jobs with high safety consequences” (p. 9).
Purpose of the Study

The purpose of this study was to critically examine the course development of a large national organization to ascertain what strategies have been instituted that promote training for higher-order, critical thinking skills. Although it was set within the context of State Police Academies, the primary focus was on the instructional methodology and the strategies employed for teaching higher-order, critical thinking skills.

Research Questions

1. What instructional strategies are included in the course development of State Police Academies to teach higher-order, critical thinking skills to learners?

Definition of Terms

The following terms and acronyms will be used throughout the study, therefore are provided for a better understanding:

*Andragogy.* This is a set of principles developed by Malcolm Knowles (1984) which states that adult learners acquire information differently than child learners. Their motivations, expectations, and earning potential are guided by significantly different reasons than child learners.

*BJS.* Identifies the Bureau of Justice Statistics.

*Cadets.* These are individuals who are being trained in State Police Academies versus Municipal Police Academies, to become a State Police Officer
Organization of the Study

This study is divided into five chapters. Chapter 1 describes the problem, the significance of the study, the nature of the study, and the assumptions/limitations. Chapter 2 outlines the literature review, guiding the reader through an extensive review of empirical studies and scholarly articles on the importance of teaching higher-order, critical thinking skills and how this relates to law enforcement training. It is followed by reviewing empirical studies relating to assessment tools for measuring the development of critical thinking competence. Lastly, a review of research studies in comparable occupations (e.g., nursing, education) is completed focusing on successful strategies that have been implemented regarding andragogical principles and constructivist learning strategies that have shown successful results in enhancing critical thinking skills. Thus, this information was used to provide a basis during the review of the academy data to ascertain if the same instructional strategies could be successfully implemented within the academy model. Chapter 3 describes the methodological approach that was used to gather and analyze the data gleaned from the survey instruments.
CHAPTER 2. LITERATURE REVIEW

Everyone thinks. It is our nature to do so. But much of our thinking, left to itself, is biased, distorted, partial, uninformed, or downright prejudiced. Yet, the quality of our life and that of what we produce, make, or build depends precisely on the quality of our thought. Shoddy thinking is costly, both in money and in quality of life. Excellence in thought, however, must be systematically cultivated. (Scriven, 2009, p. 1)

Defining the Importance of Critical Thinking

The literature review regarding critical thinking yields a plethora of scholarly articles and web sites dedicated to advocating critical thinking in every aspect of our lives. Since President Obama spoke about educational reform and referred to critical thinking as one of the 21st Century Skills, the spotlight has again been thrust on this topic.

Critical Thinking as it relates to Instructional Design

In order to determine how the objective, teaching critical thinking skills, is to be met within a course design, one must understand the process of instructional design. Instructional design (ID) refers to the “systematic and reflective process of translating principles of learning and instruction into plans for instructional materials” (Smith & Ragan, 1999, p. 2).

Critical Thinking as it Relates to Police Academy Training
The police academy learning environment. Since the inception of the police academy, the training environment has mimicked the military model (Chappell & Lanza-Kaduce, 2010). There are several reasons for this philosophy: (a) the high-stress model serves as an indoctrination into the police culture (Violanti, 1993), (b) it creates an environment where trainees must prove themselves to the instructors and fellow recruits that they can perform in various scenarios, and (c) it serves as a weeding out process for those recruits who do not seem to meet the academy standards (McCreedy, 1983).

Community policing philosophy defined.

Community policing focuses on crime and social disorder through the delivery of police services that includes aspects of traditional law enforcement, as well as prevention, problem-solving, community engagement, and partnerships. The community policing model balances reactive responses to calls for service with proactive problem-solving centered on the causes of crime and disorder. Community policing requires police and citizens to join together as partners in the course of both identifying and effectively addressing these issues. [U.S. Department of Justice Community Oriented Policing (COPS), 2008].

The concept of community policing came into existence through the work of Goldstein in 1979 who noted that the professional model of policing was not working.

Learning Theories and their Relationship to Critical Thinking Skills

Although some studies (Killacky, 1991; Mahoney, 1996; McCoy, 2000; Poradzisz, 2004; Vander Kooi, 2006) have stated that the behaviorist learning theory seems to be paramount in police academies, there has been no study in the past few years that has gathered empirical evidence as to the
exact learning theory that is presently being used as the foundation upon which their instructional
design is based.

**Behaviorism.** B. F. Skinner is well known for his theory on behavior modification. The concept of reinforcement, central to Skinner’s behaviorism, can be explained as when a connection is made between a situation and a response, and the outcome is good, the connection is strengthened.

**Cognitivism.** Cognitive theory is concerned with the processes which elicit behavior and is based on the ability of the learner to absorb new information, compare this information with existing knowledge structures, and then reorganize and adapt this new information into the existing knowledge structure.

**Systems approach.** The systems approach to instruction is prescriptive in nature with goals and objectives to move the learner progressively, in a hierarchal manner, through the instruction. Gagné’s conditions of learning theory (1985) and Charles Reigeluth’s elaboration theory (1999) are examples of this learning approach which has proven to be an effective design strategy for learning.

**Strategies for Teaching Critical Thinking**

**Creating the environment for promoting critical thinking.** As previously stated, to teach for critical thinking, Facione et al. (1999) emphasizes that a harmonizing of three elements must occur:

Andragogy is built on the following assumptions (Knowles, 1990):

1. “Adults need to know why they need to learn something before undertaking to learn it” (p. 57).
2. “Adults have a self-concept of being responsible for their own decisions, for their own lives” (p. 58). When adults enter an educational environment, they tend to resort back to their conditioning from past school experiences, and become a passive learner.

3. The learner’s experience becomes crucial to further learning, thus providing the schema to build future, expansive knowledge structures. As Knowles notes, “for many kinds of learning, the richest resources for learning reside in the adult learners themselves” (p. 59). Because our experiences denote who we are, any situation whereby those experiences are not valued or ignored becomes interpreted by the adult learner as a rejection of him/her as a contributor to the learning experience.

As with Gagné’s (1985) conditions of learning, Knowles (1984) also stresses the need to design the right physical environment as well as a conducive psychological environment for learning. This psychological environment is just as important to learning as the physical environment and has seven specific characteristics: “(a) a climate of mutual respect, (b) a climate of collaborativeness, (c) a climate of mutual trust, (d) a climate of supportiveness, (e) a climate of openness and authenticity, (f) a climate of pleasure, and (g) a climate of humanness” (pp. 15-17). With these elements present, the learning process becomes relevant and the life experience of the learner becomes critical in the learning process.
CHAPTER 3. METHODOLOGY

Research Design

Before launching into the research design for this exploratory research study, the problems must be restated for clarity. The research study was designed to discover:

1. What instructional strategies are included in the course development of State Police Academies to teach higher-order, critical thinking skills to learners?
2. How are the State Police Academies assessing whether the learners have acquired these higher-order, critical thinking skills?

This study was a mixed-method descriptive survey research design. The strategy of inquiry for this study was to examine and describe the data obtained through the survey research method (Creswell, 2003; Mertens, 2005; Trochim, 2006). The survey design was descriptive and cross-sectional, defining characteristics of the sample at one point in time (Creswell, 2003; Gall et al., 2007; Mertens, 2005). The survey instrument (see Appendix B) was a questionnaire using closed-ended and open-ended questions to gather quantitative and qualitative data simultaneously. The sample consisted of the Academy Directors of the 50 State Police Academies selected from the target population of the police academies throughout the United States (over 700 in number). The sample constituted a purposeful sampling procedure. The Academy Directors, rather than the instructors, were selected because they provide the expertise and oversight for the instructional strategies practiced and assessment instruments used within each academy. The 50 State Police Academies were selected out of the 700 national police academies due to the elite nature of those particular academic environments.
The State Police Academies require higher educational degree levels of their directors than municipal and local academies.

The Directors of the State Police Academies were identified by accessing public internet sites containing specific information. A list was compiled that identified each Academy Director by state, director’s name, address, and phone number. This provided the researcher with the information needed to mail a pre-contact package to possible participants to increase the likelihood of the rate of response. The package included an introduction letter addressing a brief biography of the researcher, references that could be contacted, and the rationale for the study. The introduction letter was lengthier than the norm because this populace “represents a closed society...and it is difficult to gain access as an outsider to their world” (Killacky, 1991, p. 9). This allowed the credibility of the researcher to be evident. The package also included the consent form, the survey (as an example), and a stamped envelope for returning the signed consent form to the researcher. When the director agreed to participate, it was done orally and in written form. The researcher annotated in the research notes the date, and time the oral consent was received. The researcher also requested that the participant sign the consent form (provided in the package) and return it via the stamped, self-addressed envelope provided in the package. The survey questionnaire was then completed by the director and forwarded back to the researcher via email. “The purpose of using a survey research method is to generalize from a sample to a population so that inferences can be made about some characteristic, attitude, or behavior of this population” (Creswell, 2003, p. 154). The survey was administered electronically, via email, even though it has been stated that “web surveys have an 11% lower response rate on average compared to other survey modes” (Manfreda, Bosnjak, Berzelak, Haas, & Vehovar, 2008, p. 93). However, the strengths of using the survey method allowed for missing data within the questionnaire to be reduced, and allowed for the ease of transferring data into other software applications for computational purposes (Gall et al., 2007). The speed of sending and receiving them outweighed the
possibility that a lower response average could occur, and they were very economical. Periodic follow-up notifications to complete the questionnaire were conducted with anticipation that these actions would help to increase the response rate.

As the questionnaire was developed specifically for this research study, it underwent an expert review by three individuals selected to ascertain whether the questions were relevant, that the sequence of questions flowed properly, and each question was easily understood as written. These individuals were selected based on their expertise in devising surveys and curriculum review and design. All individuals are faculty at three separate community colleges; a Department Chair for criminal justice studies, a law professor, and one who instructs in instructional design. All comments and suggestions for modifications of the survey design were noted and the changes incorporated. This process repeated itself until there are no more suggestions and revisions to be made to the instrument. Their comments and suggestions were incorporated into the final design of the survey.

After IRB approval, the survey was pilot tested for validity and reliability (Gall et al., 2007; Mertens, 2005; Suskie, 1988) by three former Academy Directors who were representative of the target population. As subject matter experts, these directors took the test via email and responded back to the researcher addressing each question’s relevance to the information the researcher was seeking. All comments and suggestions for modifications of the survey were noted and changes were made to the survey. This process repeated itself until there are no more suggestions and revisions to be made to the instrument. The survey was then disseminated to the survey sample, i.e., the 50 State Police Academy Directors.

The focus of the questions within the survey instrument was on: (a) what instructional strategies are included in the course development by State Police Academies to teach higher-order, critical thinking skills to learners and (b) how are the State Police Academies assessing whether the learners
have acquired these higher-order, critical thinking skills. However, in order to understand the instructional decisions reached by the agencies under study, a series of subquestions were also identified to assist the researcher in discovering additional information regarding the process and philosophy behind these decisions.

- What exactly is the design process used to devise academy instruction? (i.e., are there steps or a sequence followed?)
- Is this design process mandated from higher authority (i.e., Police Commission or department headquarters) or one devised within the academy?
- Why were these instructional strategies/activities selected?
- Did you use research to guide your selection of these strategies/activities?
- What additional information or resources (if any) guided you in these decisions?
- What were the decisions that led to the use of these assessment instruments?

Demographic data was solicited in order to enable the researcher to locate the participant in relation to other people. The SPSS™ 19.0 (IBM, 2010) was used to analyze the quantitative data. To increase the reliability of the classification system for the narrative responses in the qualitative data, scoring rules for the coding process were devised by the researcher (Creswell, 2003; Gall et al., 2007). The N-Vivo9 software was envisioned to be used for the data management and analysis of the qualitative data to assist in identifying pertinent themes or patterns within the narrative responses (Gall et al., 2007). However, since limited responses were received, the researcher coded, analyzed, and interpreted this data manually with the same accurate results.

**Data collection.** Since human participants were used in this study, an Institutional Review Board (IRB) Application Form was submitted for approval to Capella University. The respondents were asked to complete the survey and transmit the completed questionnaires via electronic mail. The researcher
ensured the anonymity of the returned questionnaires by removing all identifying marks from the data collection instruments and replacing them with a code (Gall et al., 2007). Confidentiality was maintained for all respondents by insuring that all data obtained is now in an electronic file safeguarded by computer security software. At the end of the study, all collected data and analysis results will be archived to a compact disk and the consent forms, as well as the compact disk of results data will be locked in a secure file cabinet at the researcher’s residence for seven years.

**Data Analysis**

Through the use of the SPSS™ 19.0 software (IBM, 2010), the summary statistics level of measurement was categorical, nominal data. The mode for each response, which is a measure of central tendency (Mertens, 2005), was computed to ascertain: (a) if instructional strategies are included in the course development of State Police Academies to teach higher-order, critical thinking skills to learners and (b) are the State Police Academies assessing whether the learners have acquired these higher-order, critical thinking skills. Additionally, questions addressing demographic information were included in the survey to frame the populace under study.

The qualitative, open-ended questions allowed discovery of information that could not be obtained by only answering the quantitative research questions. Therefore, the additional subquestions were devised that clarified and expanded on the instructional philosophy and process that guided the academy directors in their selection and implementation of particular instructional strategies and assessment instruments that are employed. The researcher coded each participant response in order to protect their identity.

The researcher manually coded, analyzed, and interpreted the qualitative data by identifying pertinent themes or patterns within the narrative responses (Gall et al., 2007).
Although the lists within the questionnaire were not all inclusive of instructional strategies and assessment instruments, the ones listed had been identified throughout the literature review as the most widely used strategies and assessment instruments regarding critical thinking skills enhancement. To increase the reliability of the classification system, scoring rules for the coding process were devised by the researcher (Gall et al., 2007). The result of the analysis can be viewed as “a higher-order synthesis in the form of a descriptive picture, pattern or themes, or emerging or substantive theory” (Mertens, 2005, p. 422), which assisted the researcher in discovering the data that related to the research questions. The researcher can now report the findings and share the results.

**Final Results**

The data reported provides information that will help address these research questions:

1. What instructional strategies are included in the course development of State Police Academies to teach higher-order, critical thinking skills to learners?

2. How are the State Police Academies assessing whether the learners have acquired these higher-order, critical thinking skills?

This study becomes important to the ID field because the results of the data can be used to expand on the ID knowledge base regarding the use of effective instructional strategies used to promote critical thinking skills and how these skills are assessed. It should promote future research actions by using the State Police empirical data gleaned from this study and extend the same research methodology to municipal police departments to further identify instructional strategies that promote critical thinking within this populace which includes over 700 police academies nationally.
References


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Tanner, C. A. (Feb 2005). What have we learned about critical thinking in nursing? *Journal of Nursing Education, 44*(2), 47-49.


Trapp, P. (2005, Mar/Apr). Engaging the body and mind with the spirit of learning to promote critical thinking. *Continuing Education in Nursing, 36*(2), 73-77.


Appendix A. Introduction Letter and Consent Form

State Police Academy (Name)

ATTN: Director (Name)

(Address)

Los Angeles CA 90012

Dear (Name):

Date
Appendix B. Survey Questionnaire

Survey on

Strategies Included in the Course Design of Instruction that Teach Critical Thinking Skills to Cadets

and the Assessment Techniques used to Measure that Learning

Directions: This survey includes questions that will focus on:

(a) what instructional strategies are included in the course development of State Police Academies to teach higher-order, critical thinking skills to learners? AND

(b) how are the State Police Academies assessing whether the learners have acquired these higher-order, critical thinking skills?

The SKILLS of critical thinking includes competency in reasoning, logic, judgment, self-reflection, analysis, synthesis of information, and evaluation.

1. The following are instructional strategies that promote critical thinking with learners. This list is not all inclusive but those identified have been noted in prior research to be widely used. Please indicate which one(s), if any, you include in the design of your academy courses by putting an X on the corresponding line. Check as many as applies.

Collaborative Problem Solving

(Small groups of individuals work to solve the problem)

Guided writing assignments

(Require students to apply research to their everyday lives)
Reading text aloud and in groups

Analyzing text content using specific guided questions

Sharing papers or assignments and providing peer feedback

Role-play the author

(Answering questions from peers as if the individual was the author)

Ill-structured problems

(Problems with unstated goals and restraints and require learners to make judgments about the problem and defend their judgments through personal opinions or beliefs)
APA RESOURCES


http://owl.english.purdue.edu/owl/resource/560/01/

YouTube Videos (very good):

http://www.youtube.com/watch?v=9pbUoNa5tyY
>
>http://www.youtube.com/watch?v=X5V9INHwdlA
>
>http://www.youtube.com/watch?v=X5V9INHwdlA