DECISION-MAKING STYLES AND LEARNING

STRATEGIES OF POLICE OFFICERS:

IMPLICATIONS FOR COMMUNITY

POLICING

By

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INTRODUCTION

Introduction

The last several decades have brought new but exciting

challenges for the policing profession. Foremost among the

challenges has been the increased demand by the public for

the police to take a more proactive approach to solving

problems plaguing society, especially with the drug crisis.

Today, the police are now faced with one of the most

significant, far-reaching community problems in the history

of American policing--the fear of future terrorist attacks.

Appropriately, it is the essence of the police role to

develop the most effective means to handle the broad number

of social problems (Goldstein, 1990, p. 1). The catalyst

for change has been the evolution of community policing.

The community policing approach to policing emphasizes a

community partnership to solve problems and prevent criminal

activity (Bratton, 1996).

For community policing to be successful, the police

will need to comprehensively embrace new ideas and new ways

of learning to be dynamic decision makers when approaching

problem-solving situations. This departure from police

tradition will challenge "officers to develop new

sensitivities in dealing with special populations, look

beyond typical reactive responses, determine causes for

problems, and suggest effective and innovative solutions"

(Mulcrone, 1993, p. 17).

An appropriate police response to the diverse and

complex community problems of the new century will require a

substantial shift in both organizational strategies and the

learning processes of police officers. For these reasons,

"it becomes clear that a new vision for police training and

education is needed" (Arnold & Scaramella, 1998, p. 271).

<u>Community Policing</u>

Researchers, reformers, and practitioners alike have

used the terms "community policing" and "community-oriented

policing" interchangeably to describe the current era in

policing. Because of its diverse patterns in the United

States, however, there is not a dominant or universally

accepted definition of community policing (Maguire &

Mastrofski, 2000). Nevertheless, the U.S. Department of

Justice's Office of Community Oriented Policing Services

(COPS) (1999) has provided a well-accepted, blanketed

operational definition of community policing:

> Community policing . . . promotes and supports
> organizational strategies to address the causes
> and reduces the fear of crime and social disorder
> through problem solving tactics and community-
> police partnerships. A fundamental shift from
> traditional, reactive policing, community policing
> stresses the prevention of crime before it occurs.
> Community policing is an integral part of

combating crime and improving the quality of life
in the nation's cities, towns, and rural areas.
Core components of community policing include
partnering with the community; problem solving;
and transforming policing agencies to support and
empower frontline officers, decentralize command,
and encourage innovative problem solving. (p. 6)

The idea of community policing has existed in one form

or another throughout the history of policing. In fact,

"anywhere in the history of policing where law enforcers

communicated and partnered with community residents to

control crime and solve problems can be interpreted as

community policing" (Purpura, 2001, p. 22). Formalized

community policing, however, has its roots in the creation

of the London Metropolitan Police in 1829 (Miller & Hess,

1994; Oliver, 1998; Plummer, 1999). An influx of criminal

activity resulting from increased urbanization,

industrialization, and immigration in British cities

prompted the Home Secretary, Sir Robert Peel, to seek reform

in the London police system. Peel's reform emphasized

preventative measures highlighted by a strong community

presence (Johnson, 1988; Walker, 1999). Beginning with New

York City in 1845, police forces in America began to adapt

the London model of policing as a response to similar social

problems. However, the transition in America from the 18th

century constable system was not as institutionally

compatible as experienced by their English counterparts.

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American police were amenable to political influence (Johnson, 1988, p. 180).

Today, community policing in America has come full circle from Peel's early 19th century reformation. The old idea of community policing is now recognized as the new era in American policing, and

> By lifting some of the constraints under which
> police officers in the field now operate, and by
> giving them the freedom to make decisions,
> innovate, and be problem solvers, community
> policing promises great benefits for the community
> in terms of quality of life and for the officers
> in terms of job satisfaction. (Meese, 1993, p. 10)

Decision-Making Styles

Decision-making style is one characteristic of the decision maker that influences the decision-making process (Harren, 1979). Decision-making style is "the learned, habitual response pattern exhibited by an individual when confronted with a decision situation" (Scott & Bruce, 1995, p. 820). Harren (1979) developed a career decision-making model characterizing decision makers as having three distinct decision-making styles: Rational, Intuitive, and Dependent. Scott and Bruce (1995) further advanced the field of study with their identification of the Avoidant and Spontaneous decision-making styles. As a result, the scope of decision-making styles was broadened to include all important decisions across situational contexts.

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Scott and Bruce (1995) characterized each decision-making style in behavioral terms (p. 820). The Rational decision-making style is characterized by "a thorough search for and logical evaluation of alternatives" (p. 820). The Intuitive decision-making style is characterized by "a reliance on hunches and feelings" (p. 820). The Dependent decision-making style is characterized by "a search for advice and direction from others" (p. 820). The Avoidant decision-making style is characterized by "attempts to avoid decision making" (p. 820). The Spontaneous decision-making style is characterized by "a sense of immediacy and a desire to get through the decision-making process as soon as possible" (p. 823).

Most people tend to use one decision-making style more often and in more situations than any other style (Driver, Brousseau, & Hunsaker, 1993, p. 44). This style is often referred to as an individual's primary style (p. 44). When people are not using their primary style, they will most likely turn to their backup style (p. 44). Moreover, each style or a combination of styles may be used in decision situations as well (Driver, 1979; Driver et al., 1993; Rowe & Mason, 1987; Scott & Bruce, 1995).

An individual's primary decision-making style is most often associated with role style than with operating style

(Driver et al., 1993, p. 55). Role style or public style is the style that an individual uses in situations where there is a need to create a good impression (p. 55).

> Our role styles reflect our views about how a person ought to behave. Not surprisingly, these views in turn reflect the norms, rules, and standards of the social environments in which we live and work. We learn our role styles from other people who are influential in our lives. (p. 55)

Unlike role style, operating style "is adopted naturally when the individual is least self-conscious or self-aware and if focused on a decision that must be made or on a task immediately at hand" (p. 55). People are most likely to use their operating style when working alone or with people they are comfortable or familiar with (p. 57).

Unlike many other professions, police work is conducted in an environment that is often non-mundane, sometimes unusually surreal, and occasionally hostile and tense. Regardless of the situation, however, police officers are entrusted with the responsibility to make important decisions that affect the lives of many people including other officers and their own. Thus, in any given police encounter, each or a combination of the five decision-making styles may be appropriate because "there is no best style. Whether a particular style is better or worse than any other style depends on the characteristics of the specific

situation in which it is used" (Driver et al., 1993, p. 6).

Continuing Professional Education

Historically, adult education has served as a necessary function in an ever-changing society (Beder, 1989). Its foundation in America can be traced back to the early colonial settlements. Immigrants were characterized by a strong determination "to create a readiness for learning" (Knowles, 1962, p. 3). However, it was the tremendous efforts of the Carnegie Corporation in 1926 that solidified adult education as a "new agency in American life" (Stubblefield & Keane, 1989, p. 32). Its purpose is to facilitate change in a dynamic society, support and maintain the good social order, promote productivity, and enhance personal growth (Beder, 1989, p. 39). As such,

> Adult education is a process whereby persons whose major social roles are characteristic of adult status undertake systematic and sustained learning activities for the purpose of bringing about changes in knowledge, attitudes, values or skills. (Darkenwald & Merriam, 1982, p. 9)

Other popular terms like continuing education and lifelong learning have been used extensively and interchangeably to describe adult education. However, continuing education has been the most widely used synonym (p. 12).

One subspecialty of continuing education is the concept of continuing professional education (CPE), which simply refers to continuing education for the professions. More

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specific, CPE:

> Focuses on programming for persons who have earned
> their professional qualifications in some field
> and who have subsequently sought additional
> educational experiences to remind them of what
> they once knew and have forgotten, to acquaint
> them with knowledge that has developed since they
> earned their qualification, and to help them solve
> personal and professional problems of various
> kinds. (Griffith, 1985, p. 102)

Moreover, it is a means for "helping professionals improve performance by . . . adapting skills and attitudes based on what is new and better" (Bennet & Fox, 1993, p. 266).

Traditionally, the police have not been looked upon as a profession. "More often than not, most historical accounts involving the police as a whole depict it as an occupation consistently exhibiting unprofessional characteristics, such as corruption, brutality, and incompetence" (Arnold & Scaramella, 1998, p. 265). For this perception to change, it will be necessary for police officers to participate in meaningful and effective CPE conducive to the challenges of the new century (p. 273). However, the current training environment for practicing officers is not conducive for participation in the learning environment and does not develop real-life decision-making abilities (Birzer & Tannehill, 2001, p. 234). Consequently, there is concern whether effective CPE that promotes community problem solving is taking place in the workplace.

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Adult Learning

Learning is "the process by which people gain knowledge, sensitiveness, or mastery of skills through experience or study" (Houle, 1980, p. xi). Police officers are in a unique position allowing them many learning opportunities in both formal and informal settings. They are given the ability to effect personal and professional growth and foster positive change in the community. For these reasons, the adult learning concepts of real-life learning, reflective practice, self-directed learning, and andragogy become increasingly essential to the changing landscape of the policing profession.

Real-Life Learning

With the focus of the adult education field shifting away from teaching and more toward adult learning, there has been a growing emphasis on "real-life" learning (Fellenz & Conti, 1989, p. 23). "Such learning usually involves problem solving, reflection on experience, or planning for one of the numerous tasks or challenges of adult life" (Fellenz & Conti, 1993, p. 4). It contrasts learning that takes place in formal education (Fellenz & Conti, 1989, p. 3).

Unlike problems that are presented by teachers in formal educational settings, adults have to learn to

recognize and define problems in real-life situations (Sternberg, 1990, p. 35). They tend to get into trouble when they try to "solve problems in real life the way they probably were taught to solve problems in school" (p. 35). Thus, the challenge for adult educators will be to assist adult learners to solve real-world problems that occur in real-life (p. 40).

Reflective Practice

Learning that results from reflecting on our knowledge about practice, which almost always includes past and current experiences, is the process of reflective practice (Merriam & Caffarella, 1999, p. 232). In other words, experience can be the catalyst for learning (p. 241). The concepts of "reflection-in-action" and "reflection-on-action" are central to the reflective practice process (p. 235).

Often our knowledge can get us through decision-making situations without any thought or deliberation. Sometimes, however, routine situations can produce unexpected results or an element of surprise. By reflecting in action without interruption, "our thinking serves to reshape what we are doing while we are doing it" (Schön, 1987, p. 26). Thinking through a situation after it has happened is often referred to as "reflection-on-action" (Merriam & Caffarella, 1999, p.

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233). It can occur anytime during a situation or much later such as in a formal learning environment.

Self-Directed Learning

Adults participate in a median of eight learning projects a year, and 70% of these are self-planned (Tough, 1971, p. 1). Because self-planned learning implies learning in isolation (Knowles, 1975, p. 18), the term "self-directed learning" has been used often in the literature to describe learning on one's own. According to Knowles (1975), self-directed learning is:

> A process in which individuals take the
> initiative, with or without the help of others, in
> diagnosing their learning needs, formulating
> learning goals, identifying human and material
> resources for learning, choosing and implementing
> appropriate learning strategies, and evaluating
> learning outcomes. (p. 18)

In an ever-changing society, self-directed learning is a integral aspect of the learning process. Less reliance on what is known and more emphasis on inquiry is necessary to competently acquire new knowledge during a lifetime. Learning must include life experiences, and it must be much more than just learning that is taught in schools. Furthermore, most of what needs to be known for life is not learned in the early years; learning must be a lifelong process (Brookfield, 1986, pp. 15-16).

Andragogy

Andragogy is "the art and science of helping adults learn" (Knowles, 1970, p. 38). The major aspect of andragogy is that it establishes a learner-centered approach to learning. Moreover, it places an emphasis on the experiences and self-directiveness of adult learners. As a result, six assumptions about the characteristics of adult learners have evolved:

1. Adults need to know why they need to learn something before undertaking to learn it.
2. Adults have a self-concept of being responsible for their own decisions, for their own lives.
3. Adults come into an educational activity with both a greater volume and a different quality of experience from youths.
4. Adults become ready to learn those things they need to know and be able to do in order to cope effectively with their real-life situations.
5. Adults are motivated to devote energy to learn something to the extent that they perceive that it will help them perform tasks or deal with problems that they confront in their life situations.
6. While adults are responsive to some external motivators, the most potent motivators are internal pressures. (Knowles, 1990, pp. 57-63)

Recognizing these six andragogical assumptions as the goal, teachers or facilitators in any given learning environment will strive to give learners more responsibility for their own learning (Knowles, 1990, p. 64). Furthermore, the learning environment should be one where the teaching-learning process is conducive for individual growth and

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development (Knowles, 1980, p. 57).

Learning Strategies

From Robert Smith's (1982) concept of "learning-how-to-learn", which emphasizes learning effectively in any learning situation, stemmed interest in the learning strategies of adults. "Learning strategies are the techniques or skills that an individual elects to use in order to accomplish a specific learning task" (Conti & Fellenz, 1991b, p. 1). Individuals have varying degrees of learning strategies (Fellenz & Conti, 1989, p. 8), and in any given situation, they use various strategies to accomplish learning tasks (Conti & Kolody, 1999a, p. 2).

Learning strategies are often mistaken for learning styles. While learning styles are stable traits of individuals, learning strategies are techniques that can be selected by individuals for a specific task (Fellenz & Conti, 1989, p. 8). Accordingly, "it may be easier to improve learning by focusing on learning strategies rather than on learning styles" (Conti & Fellenz, 1991a, p. 20).

Although learning strategies have evolved from the interest in study skills and learning styles that are often used in formal learning situations, a recent trend has been to assess the use of learning strategies by individuals in real-life learning situations (Fellenz & Conti, 1989, p. 8).

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Learning strategies used by individuals in real-life learning situations have been conceptualized in the areas of Metacognition, Memory, Critical thinking, Metamotivation, and Resource Management (Fellenz & Conti, 1989; Conti & Fellenz, 1991b).

Research related to real-life learning strategies has consistently revealed three distinct learning strategy groups: Navigators, Problem Solvers, and Engagers (Conti & Kolody, 1999a). In general, "Navigators are focused learners who chart a course for learning and follow it" (p. 9). Problem Solvers "generate alternatives to create additional learning options" (p. 12). "Engagers seek out learning activities that provide the greatest opportunity for engagement: the interaction and collaboration are motivators for entering into the learning task" (pp. 13-14).

Police officers experience many real-life learning tasks on a daily basis. These tasks include many decision-making situations. The learning strategies they use to approach decision-making situations vary from officer to officer and situation to situation. Thus, it is important to have an understanding of the learning strategies of officers, and how specific strategies may limit officers' success in a decision-making situations.

Research in the area of police officer learning

strategies has been non-existent until Birzer's (2000) study

which examined the learning strategies of police officers

with the Wichita Police Department. Fifty percent of the 80

participating police officers were identified as Problem

Solvers. In particular, 20 of the 31 officers assigned to

community policing duties were identified as Problem

Solvers.

<div align="center">Instrumented Learning</div>

While researchers generally prefer to observe behavior

directly, practical and ethical considerations sometimes

necessitate self-reports by individuals (Leary, 1995, p.

53). Self-reports are individuals' "reports of how they

behave" (p. 80). More specific, self-reports may provide

affective, behavioral, or cognitive information about

individuals (p. 52). In other words, individuals are asked

to admit to behavior (Hagan, 1993, p. 142) or describe their

state of mind (Rosnow & Rosenthal, 1996, p. 95). People

"self-reporting" on themselves using instruments is an

essential way of gathering "information no one else knows"

about people (Baldwin, 2000, p. 3); it may be the only

source of information (Baldwin, 2000; Critchfield, Tucker, &

Vuchinich, 1998; Kurtzman, 2000). Therefore, self-reported

information or data is needed to investigate important

issues that would not otherwise be available with other

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measures (Critchfield et al., 1998, p. 436).

Self-reported information or data can often have deeper meaning to individuals than simply an awareness of their behavior. In other words, self-reported data does not "give the whole or the final picture. An individual's interpretation of his or her own activities is not a neutral verdict . . . that can be accepted at face value" (Säljö, 1997, p. 105). A self-description of a behavioral aspect is often the beginning of a dynamic learning process (Blake & Mouton, 1972a, p. 114). In this important sense, self-reports are extremely important and essential to the process of instrumented learning.

People using instruments to learn about themselves as they really are is appropriately referred to as instrumented learning (Blake & Mouton, 1972a, p. 113). In particular, instrumented learning helps "adult learners attain a better understanding of themselves and how they learn" (Munday, D., 2002, p. 111). Usually, instrumented learning is a way of providing a self-description of a habitual approach to a behavior (Blake & Mouton, 1972a, p. 114). After analyzing a behavior and comparing it to others, an individual can better translate theory into practice (p. 114). When ineffective behavior is recognized, individuals are in a position to change what they are doing, "so as to get rid of

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weaknesses and replace them with real strength" (p. 114).

Moreover, instrumented learning can help individuals to

apply their strengths for organizational success (Cole

Associates, n.d.).

A learning instrument is a set of "tactical

instructions that enable the learner to learn without a

teacher" (Mouton & Blake, 1984, p. 60). More specific, it

1. Provides a self-directed scoring and
   interpreting process that actively engages the
   learner in the context of personal experience.
2. Encourages discovering of individual
   preferences and highlights growth
   opportunities.
3. Simplifies complex issues to increase
   understanding.
4. Fosters self-awareness and behavioral insights
   for long-term performance improvement.
5. Creates a common, nonjudgmental language for
   identifying and dealing with issues.
6. Increases appreciation of differences in
   others. (Cole Associates, n.d.)

Simply put, learning instruments provide adult learners with

metacognitive references for reflecting upon their

experiences. Thus, the instrumented learning process is

analogous to the learning process of reflective practice.

"Although reflective practice is most often associated with

professional practice, this process can be applied to other

types of learning situations" (Merriam & Caffarella, 1999,

p. 232). As such, the instrumented learning process can be

beneficial in both formal and informal learning situations.

Problem Statement

The dramatic increase in community policing activities among law enforcement agencies and the recent proliferation of related research has validated community policing as the new era in American policing. More important, this fundamental shift from tradition requires critical changes in several areas of policing.

> If policing is to meet the challenges of the continuing changes in technology, philosophy, communication, and social relationships, they cannot rest on the problems provided in the past but must seek out processes by which new problems are met. (Birzer & Tannehill, 2001, p. 250)

Foremost among these changes is the need for police officers to be creative and innovative decision makers in problem-solving situations. This will require departments to empower officers with more autonomous and discretionary decision-making authority. However, "it is doubtful that the current structure of police education and training will be able to prepare police officers for these new challenges" (Arnold & Scaramella, 1998, p. 273). Thus, it becomes necessary for the police to learn community problem-solving strategies in learning environments that encourage real-life learning, reflective practice, and self-directed learning. Police continuing professional education is the vehicle that provides an opportunity for appropriate learning to transpire.

The myriad of decision-making situations or tasks that

police officers are associated with on a daily basis are intrinsic to a continuous and complex learning process (Birzer, 2000, p. 36). By identifying and understanding decision-making styles and learning strategies of police officers, police officers themselves, police trainers and educators, and police administrators and supervisors will be in an advantageous position to facilitate the learning processes that are essential to giving police officers the capabilities to effectively solve community problems.

As a response to the need by researchers for a generally available, validated instrument to identify decision-making styles of individuals, Scott and Bruce (1995) developed the General Decision-Making Styles (GDMS) instrument. Because of the development of GDMS, it is now possible to easily identify decision-making styles of individuals across contexts and decision situations (p. 830). The Assessing The Learning Strategies of AdultS (ATLAS) instrument was developed "out of a need for a tool that was easy to administer . . . and that could be used immediately by both facilitators and learners" (Conti & Kolody, 1999a, p. 16). Because of the development of ATLAS, it is now possible to easily and quickly identify the preferred learning strategies of individuals in a number of learning contexts. Both self-report measures can stimulate

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the learning processes needed for success in the community
policing environment and/or any other specific decision-
making or problem-solving situation that the police are
confronted with. When used in training, these two self-
report measures can be invaluable learning instruments.

Purpose

The purpose of this study was to describe the decision-
making styles and learning strategies of full-time police
officers in the context of the current era of community
policing. This was accomplished by (a) identifying the
primary styles of full-time police officers, (b) identifying
the preferred learning strategies of full-time police
officers, (c) comparing ATLAS responses of full-time police
officers to the norms for ATLAS, (d) examining the
relationship between these decision-making styles and
demographic variables, (e) examining the relationship
between these learning strategies and demographic variables,
and (f) examining the relationship between these decision-
making styles and learning strategies.

Hypotheses

After constructing a profile of participating full-time
police officers, this study assessed the relationship
between full-time police officers' decision-making styles,
learning strategies, and demographic variables. The

following hypotheses guided the study.

1. There is no relationship between primary decision-making styles and demographic variables for full-time police officers.
2. There is no relationship between preferred learning strategies and demographic variables for full-time police officers.
3. There is no relationship between primary decision-making styles and preferred learning strategies for full-time police officers.
4. There are no distinct groups of police officers based on their responses to decision-making style items.

Data were collected with GDMS and ATLAS. Frequency distributions were used to construct profiles of the participants and their styles. Chi-square analysis and analysis of variance were used to investigate the relationships between the primary decision-making styles and the demographic variables of the police officers and the relationships between the preferred learning strategies and the demographic variables of the police officers. Chi-square analysis was used to investigate the relationship between the primary decision-making styles and the preferred learning strategies of the police officers. Cluster analysis and discriminant analysis were used to investigate the existence of inherent groups of police officers based on responses to the decision-making style items of GDMS.

Definitions

Andragogy: The art and science of helping adults learn (Knowles, 1970, p. 38).

ATLAS: Is an acronym for The Assessing the Learning Strategies of AdultS instrument which is a self-report measure that can quickly identify adults' learning strategy preferences (Conti & Kolody, 1999a, p. 16).

Avoidant Decision-Making Style: The decision-making style characterized by attempts to avoid decision making (Scott & Bruce, 1995, p. 820).

Community Policing: An approach to policing that emphasizes a community-police partnership to solve problems and prevent criminal activity (Bratton, 1996).

Continuing Professional Education (CPE): Pre-service, in-service, and workplace learning that facilitates professional practice (McDonald, 2001).

Decision-Making Style: An individual's learned, habitual response pattern when confronted with a decision situation (Scott & Bruce, 1995, p. 820).

Dependent Decision-Making Style: The decision-making style characterized by a search for advice and direction from others (Scott & Bruce, 1995, p. 820).

Engager: A passionate learner who loves to learn, learns with feeling, and learns best when actively engaged in a meaningful manner with the learning task (Conti & Kolody, 1999a, p. 13).

GDMS: Is an acronym for the General Decision-Making Styles instrument which is a self-report measure that identifies individuals' decision-making styles (Scott & Bruce, 1995).

Intuitive Decision-Making Style: The decision-making style characterized by a reliance on hunches and feelings (Scott & Bruce, 1995, p. 820).

Instrumented Learning: People using instruments to learn about themselves as they really are (Blake & Mouton, 1972a, p. 113).

Learning Strategy: It is how individuals approach specific learning situations or tasks (Conti & Kolody, 1995).

Navigator: A focused learner who charts a course for learning and follows it (Conti & Kolody, 1999a, p. 9).

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Police Officer: A police officer is a member of any branch of government charged with the preservation of public order and tranquility, the promotion of public health, safety and morals, and the prevention, detection, and punishment of crimes (Miller, 2000, p. 2).

Problem Solver: A critical thinker who test assumptions within a learning situation and generates alternatives to create additional learning options (Conti & Kolody, 1999a, p. 12).

Rational Decision-Making Style: The decision-making style characterized by a thorough search for and logical evaluation of alternatives (Scott & Bruce, 1995, p. 820).

Real-Life Learning: Learning that is relevant to the living tasks of individuals (Fellenz & Conti, 1989, p. 3).

Reflective Practice: A process that involves individuals reflecting on their own experiences when applying knowledge to practice (Schön, 1987).

Self-Directed Learning: Learning where individuals take the initiative with or without the help of others (Knowles, 1975, p. 18).

Spontaneous Decision-Making Style: The decision-making style characterized by a sense of immediacy and a desire to get through the decision-making process as soon as possible (Scott & Bruce, 1995, p. 823).

CHAPTER 2

LITERATURE REVIEW

Community Policing

Despite the absence of a consensus for a dominant or universally accepted definition of community policing, key components of the many reported constructs of the concept are essentially analogous to the principles proposed by Sir Robert Peel to Parliament in 1829 for the creation of the London Metropolitan Police. As such, community policing today is simply Peel's principles of modern policing revisited (Miller & Hess, 1994; Ramirez, 1999). In fact, Peel's principle that "the police are the public and the public are the police" has been a hallmark of the community policing movement for the past several decades. Furthermore, Peel's fundamental principle that the police exist primarily to prevent crime and disorder closely parallels the well-established idea that community policing is a shift from a reactive to a proactive approach to policing (Trojanowicz & Bucqueroux, 1990).

While the idea of community policing is not new to the history of American policing, it has been called "the most lucid, far-reaching attempt to modernize American policing . . . in decades" (Gaines & Swanson, 1997, p. 1); this is so much so that even police agencies claiming not to practice

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community policing tend to engage in some of its specific

activities (Maguire & Katz, 1997). It has even been labeled

as the "the new orthodoxy for cops" (Eck & Rosenbaum, 1994,

p. 3). Yet, since its inception in the 1970s as the new era

in contemporary policing, critics and advocates of community

policing have feverishly debated its effectiveness in

dealing with community problems. "Critics say community

policing is expensive and that it seeks to turn police

officers into 'social workers with guns'" (Worsnop, 1993, p.

97). Conversely, "advocates say community policing is not

only cost-efficient but effective in lowering the crime

rate-the measure of law-enforcement performance that the

public understands best" (p. 97). Nevertheless, recognition

of community policing as the proper approach to community

problem solving has been furbished by its maturation through

three distinctive generations: Innovation (1979 through

1986), Diffusion (1987 through 1994), and

Institutionalization (1995 to present) (Oliver, 2000, p.

383).

Innovation

The Innovation generation of community policing

signifies the transition from traditional to community

policing (Oliver, 2000, pp. 374-375). The traditional or

professional model of policing developed as a response to

rampant corruption and political influence in police

agencies between the 1840s and the early 1900s (Kelling &

Moore, 1988, p. 2). Reform emphasized a movement toward a

more professional and efficient police. With this shift,

however, the police began to distance themselves from the

community. It was believed that professionalization with

its centralized control, standardized operations, and

improved selection and training and the advances in

technology (e.g., patrol cars and two-way radio) provided

the police with the capabilities to control crime without

the assistance of citizens (Purpura, 2001, p. 18).

"Change" was the calling-card for much of American

society as a result of social strife and an emerging drug

culture in the 1960s. The police were not exempt from this

demand. "They represented the status quo, the

establishment, and everything standing in the way of peace,

equality, and justice" (Miller & Hess, 1994, p. 10).

Consequently, the traditional methods used by the police "To

Protect and Serve" citizens were aggressively challenged.

The driving force behind change was the need for a better

police-community relationship. In order for the police to

effectively solve community problems, they "must be a part

of the community, not apart from it" (Brown, 1990, p. 8).

As such, a number of experiments in the 1970s tested the

effectiveness of placing the police in closer contact with

the community. These efforts included the resurgence of the

foot patrol that was used extensively during the political

era of American policing.

> This movement, however, failed to achieve any
> dramatic breakthroughs in police and community
> relations primarily due to the fact that the
> function of enhanced relations was regulated to
> special units (e.g., Team Policing, Community
> Relations units, etc) while the rest of the agency
> continued practicing traditional forms of policing
> reflecting the professional model. (Oliver, 2000,
> p. 372).

The results of these experiments, however, did prove to

be a step in the direction for the development of the new

era of community policing. In fact, with these efforts as

the back-drop, Herman Goldstein's (1979) problem-solving

methods to improving policing catapulted policing into a new

era (Oliver, 2000, pp. 374-375). Goldstein (1979) contended

that the professional movement placed too much emphasis on

improvements in organization and operations as a way of more

effectively handling community problems. As a result, the

police had lost sight of the primary purposes for which they

were created. He argued that the police needed to place a

greater emphasis on the end product of their work efforts if

they were to truly evolve as a profession. His systematic

approach for solving community problems required the police

to define problems with greater precision, thoroughly

research each problem, and explore a broad number of

alternative responses for each problem.

Diffusion

The innovative ideas during the first generation lead

to the Diffusion generation of community policing. In other

words, "police chiefs, politicians, and community leaders

quickly embraced the idea of community policing" (Walker,

1999, p. 38). The number of agencies adopting some form of

community policing increased from over 300 in 1985 to over

8,000 by 1994 (Oliver, 2000, p. 376). Many community

programs that focused on the broad number of neighborhood

issues affecting the quality of life were developed and

extended (pp. 376-377).

The most notable of the community problem-solving

initiatives during this period was the development of the

SARA (Scanning, Analysis, Response, Assessment) model (Eck &

Spelman, 1987). SARA is a practical approach for the police

to effectively deal with numerous community problems. It is

a community problem-solving approach that is still widely

used today and taught in police academies across the

country. There was also a dramatic increase in the number

of more sophisticated research projects focusing on the

effects of community policing initiatives (Oliver, 2000, p.

377). Moreover, leading figures in American policing met

periodically and developed a comprehensive series of reports
that discussed and debated the improvement and future of
policing.

Institutionalization

Because of the extensive implementation and further
development of the community policing approach by police
agencies in the last few years, the third and current period
of community policing has been referred to as the
Institutionalization generation (Oliver, 2000, p. 378).
With the passing of the 1994 Crime Bill, community policing
was thrown into the national spotlight. Billions of dollars
in federal grant money became available for those agencies
with the intention to move toward the community policing
approach. As a result, many law enforcement agencies
applied for and received funding for additional community
policing officers. A recent survey reported that the number
of full-time officers serving as community policing officers
or otherwise engaged in community policing activities rose
from 34% of local police departments in 1997 to 64% in 1999
(Bureau of Justice Statistics, 2001). Consequently, the
tremendous growth of community policing has led to further
growth and advancements in community policing research
(Oliver, 2000, pp. 380-381).

Despite the overwhelming acknowledgment of community

policing as the prevalent approach to policing today, the
traditional methods of policing continue to have a
significant niche in contemporary American policing. "Many
police administrators and line officers cling tenaciously to
the 'professional crime fighter model of policing'" (Arnold
& Scaramella, 1998, p. 272). Evidence of such tenacity is
replete throughout the policing literature. For example,
despite substantial community policing initiatives, the
Chicago, San Francisco, and Pittsburgh police departments
continue to reflect traditional methods of organization
structure, leadership, supervision, and training (Das &
Verma, 2001). Furthermore, 1993 and 1996 survey data from
over 200 chiefs of police serving cities with a population
of over 25,000 indicated that the functional priorities of
American policing remain closely reflective of the
traditional methods of policing (Zhao, Lovrich, & Robinson,
2001; Zhao & Thurman, 1997). Herein, the dilemma lies. The
degree of centralized control and lack of flexibility with
traditional methods of policing limits officer empowerment
(Das & Verma, 2001, p. 11).

The success of the community policing approach to
solving community problems will require a comprehensive
change of police organizations (Gaines & Swanson, 1997).
The focus for successful change should be on the police

officer who has daily contact with citizens in the community. "By focusing on the person in the front lines of police service . . . the community policing strategy will be built on a solid foundation" (Meese, 1993, p. 10). Special attention has been directed to empowering police officers with more discretion and discretionary authority in decision-making situations.

> Instead of reacting to specified situations,
> limited by rigid guidelines and regulations, the
> officer becomes a thinking professional, utilizing
> imagination and creativity to identify and solve
> problems. Instead of being locked in an
> organizational straightjacket, the police officer
> is encouraged to develop cooperative relationships
> in the community, guided by values and purposes,
> rather than constrained by rules and excessive
> supervision. (pp. 1-2)

With this shift, however, there becomes an "omnipresent concern for ethical policing" (Peak, Stitt, & Glensor, 1998, p. 20). Ironically, fear of unethical or corrupt behavior was a factor for limited and discouraged use of discretion during the professional era of policing. "But our society requires that officers employ their discretion in a professional, fair and equitable manner" (p. 26). Because solutions to problem-solving situations are not "black and white", "no law, rule, or regulation can be written with such specificity as to cover every type of situation individual officers encounter" (Jetmore, 1997, p. 10). Officers that are empowered to engage the community in

solving problems also assume greater personal responsibility for their decisions (Gaines & Swanson, 1997). "If the community perceives that its police department lacks integrity, the potential for successful problem solving and crime prevention initiatives could be jeopardized" (Peak et al., 1998, p. 26).

Decision-Making Styles

Everyone is faced with decision situations. Many of these decision situations require important life choices. In this important sense, it has been argued that "the essence of living is free choice--the process of making decisions" (Driver, 1979, p. 59). People tend to approach the decision-making process in different ways. In other words, individuals differ in their decision-making styles. Decision-making style is an individual's "characteristic mode of perceiving and responding to decision-making tasks, or the manner in which the person goes about making decisions" (Harren, 1979, pp. 124-125). It has also been described as an individual's habitual propensity to react in a certain way in decision situations (Scott & Bruce, 1995, p. 820).

While numerous authors have offered taxonomic classifications of decision-making styles (e.g., Dinklage, 1969; Driver et al., 1993; Harren, 1979; Rowe & Mason,

1987), Harren's (1979) taxonomy of career decision-making styles is the most widely recognized (Phillips, Friedlander, Pazienza, & Kost, 1985; Westcot & Tokar, 1991). Drawing from the eight styles (planning, intuitive, compliant, fatalistic, impulsive, delaying, agonizing, and paralytic) proposed by Dinklage (1969), Harren (1979) derived the Rational, Intuitive, and Dependent decision-making styles (Phillips et al., 1985, p. 107). Each style is based upon "the degree to which the individual takes personal responsibility for decision making as opposed to projecting responsibility outward toward fate, peers, and authorities and the degree to which an individual uses logical versus emotional strategies in decision making" (Harren, Kass, Tinsley, & Moreland, 1978, p. 391).

As such, Harren (1979) characterized each style as follows. The Rational style is characteristic of "the self-actualizing decision maker; one who is the architect on one's own future as one lives it" (p. 125). Moreover, the person's decisions are deliberate and logical. Like Rational decision makers, Intuitive decision makers accept responsibility for their decisions. The Intuitive decision maker, however, does not anticipate the future or logically weigh the factors of decision situations. The Intuitive style is "characterized by the use of fantasy, attention to

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present feelings, and an emotional self-awareness as the basis for decision making" (p. 125). Unlike the Rational and Intuitive styles, "the dependent style is characterized by a denial of personal responsibility for decision making and a projection of that responsibility outside self" (p. 125). The Rational decision maker is more likely to be effective and more advanced in the decision-making process than Intuitive and Dependent decision makers.

After Harren's (1979) delineation of these three distinct and independent decision-making styles, a number of researchers sought to validate his conceptual assumptions. The validation process was facilitated through the use of the Decision-Making Style section of the Assessment of Career DecisionMaking (ACDM-DMS) instrument. ACDM-DMS uses a 30-item dichotomous (agree-disagree) response format. The 30 items are further divided into 3 scales, each representing one of the three decision-making styles. ACDM-DMS is a valid and reliable self-report instrument that determines the extent to which one endorses each style (Phillips et al., 1985).

Rubinton (1980) investigated the effectiveness of decision-making styles on certainty of vocational choice and changes in vocational maturity of 120 full-time freshman at a community college. Students were randomly assigned to

four groups: (a) an intuitive intervention, (b) a rational

intervention, (c) attention-placebo, and (d) no-treatment

control. The findings in this study indicated that

decision-making style contributed to vocational maturity and

certainty of vocational choice. More specific, the Rational

decision makers increased the most in vocational maturity

with rational intervention. Similarly, the Intuitive

decision makers increased the most in vocational maturity

with intuitive intervention. Unlike the Intuitive and

Rational decision makers, however, the Dependent decision

makers in all four groups decreased in vocational maturity.

Although there was not a statistically significant

relationship between decision-making style and certainty of

vocational choice, a strong relationship between the two

variables suggested that the Rational decision makers were

more certain about their vocational choice than the

Intuitive decision makers, and the Intuitive decision makers

were more certain about their vocational choice than the

Dependent decision makers.

Phillips, Pazienza, and Walsh (1984) examined the role

of decision-making styles of 71 undergraduate students in

facilitating progress of making occupational decisions.

Because of the broad endorsement of the Rational decision-

making style in the decision-making style literature, the

role of the Rational style in particular was addressed. The findings clearly supported other investigations that the use of the Dependent decision-style was the most damaging in making progress in decision making tasks. Both the Rational and Intuitive decision-making styles were found to be less important to accomplishing career-related tasks than what was current thought and practice. However, because of the relatively small sample, the researchers noted that results of the study must be interpreted with caution. They suggested that further research with similar populations be conducted before drawing any firm conclusions.

Phillips et al. (1985) focused on the factorial validity of the decision-making scales the ACDM-DMS. In this analysis, however, the researchers used a revised form of the ACDM-DMS to reflect important decisions in general. The researchers administered the revised ACDM-DMS to 819 undergraduate students. The study found that the three factors that resulted from the analysis corresponded to the Rational, Intuitive, and Dependent decision-making style constructs that the instrument was suppose to measure. Moreover, the three scales corresponded to Harren's (1979) conceptual definitions with some notable exceptions. The authors concluded that the findings suggest that more than one decision-making style construct may be measured in each

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of the scales. They asserted that the Dependent decision-
making style was the most clearly defined of the three
styles. The Rational and Intuitive decision-making styles
appeared to need the most refinement. More specific, it was
found that there was no reference to the speed that
individuals make decisions with the intuitive factor. The
researchers suggested that further research be conducted to
address the issue of impulsivity.

Phillips, Pazienza, and Ferrin (1984) investigated the
relationship between decision-making styles and problem-
solving appraisal of undergraduate students. They found
that students with a Rational decision-making style tended
to approach rather than avoid problem-solving situations.
Students with a Dependent decision-making style were also
likely to approach problematic situations but did so with
little confidence in their abilities. Furthermore, students
with a Rational or Intuitive decision-making style
approached problem-solving situations with greater
confidence but reported limited sense of personal control.

Drawing on the findings of Phillips, Pazienza, and
Ferrin (1984), Scott and Bruce (1995) asserted that decision
makers were also characterized by a tendency to avoid
decision making. Accordingly, the Avoidant decision-making
style was conceptualized. Subsequently, behaviorally

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phrased items were developed to reflect the Rational,

Intuitive, Dependent, and Avoidant styles. Bruce (1991)

initially used these items for a study of aviation career

transitions (Scott & Bruce, 1995, p. 821).

In an effort to create a conceptually consistent

measurement tool of decision-making styles, Scott and Bruce

(1995) developed survey items to identify decision-making

styles in career decisions. The new instrument was first

administered to a sample of male military officers.

Subsequently, they discovered that a fifth dimension of

decision-making style had emerged. They concluded that

decision makers were also characterized by "spontaneity, or

the amount of time devoted to decision making" (p. 823).

This finding supported the beliefs of Phillips et al. (1985)

that impulsivity could possibly be a construct of decision-

making style. Appropriately, the Spontaneous decision-

making style was conceived. New items were added to the

evolving instrument to address spontaneity, and "the wording

of all items was changed to allow the measure to be used in

decision contexts other than that of career decisions"

(Scott & Bruce, 1995, pp. 823-824). After administering the

revised instrument to a sample of Master of Business

Administration students and to a sample undergraduate

business students, Scott and Bruce (1995) found that

individuals consistently utilized the Rational, Intuitive, Dependent, Avoidant, and Spontaneous decision-making styles in important decision situations. This finding further confirmed the assertion made by Phillips et al. (1985) that there may be additional decision-making style constructs. The final version of the instrument was designated as the General Decision-Making Styles (GDMS) instrument.

Findings during the development of GDMS confirmed Harren's (1979) three conceptual assumptions and other research findings about the Rational, Intuitive, and Dependent decision-making styles. First, Scott and Bruce (1995) found that individuals with a Rational decision-making style tend to approach rather than avoid decision-making situations. This finding confirmed Harren's (1979) assumption of the Rational decision maker and the findings of Phillips, Pazienza, and Ferrin (1984). Second, it was found that individuals with a Dependent decision-making style were more likely to avoid decision making. This finding contrasted Phillips, Pazienza, and Ferrin's (1984) conclusion that Dependent decision makers were no less likely to avoid decision making than Rational or Intuitive decision makers, but it confirmed Harren's (1979) assumption that Dependent decision makers were passive and compliant to decision making. Third, it was found that the fundamental

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typology of decision-making styles that emerged appeared to be neither context nor problem specific. Fourth, the findings suggested that the Rational decision maker is less likely to be innovative when approaching problematic situations. Finally, it was found that decision-making styles are not mutually exclusive and that individuals do not rely on a single decision-making style in all important decision situations.

Situational Decision-Making Styles

The decision-making process can be approached in numerous ways. However, "the proper approach must be matched to the situation" (Hopkins, 1993, p. 58). In this important sense, a situation is "a set of environmental conditions . . . with which the participant is interacting that can be characterized uniquely by a set of information, knowledge and response options" (Pew, 1994, p. 18). As such, situational leadership recognizes that the best managers and supervisors adapt their leadership to the situation ("How Situational Leadership Fits," 1996, p. 1). Similarly, pilots' successful aviation performance depends largely on situational awareness (Roscoe, 1997, p. 195). Such is also the case for the decision-making styles of individuals in various situational contexts. The best decision-making style of individuals depends on the

characteristics of the decision situation (Driver et al., 1993, p. 6).

"Some people use a particular style so often and so strongly that they almost caricature the style" (Driver et al., 1993, p. 11). On the other hand, the behavior of some people make it difficult to recognize their particular style (p. 38). Nonetheless, there is no one decision-making style that is ideal. The effectiveness of each depends on the right environment (Driver, 1979, p. 89). In other words, none of the five decision-making styles "is right or wrong in and of itself" (Hopkins, 1993, p. 58). Each style has its own strengths and weaknesses depending on the circumstances in which it is used (Driver et al., pp. 15-16).

Although most people tend to use one decision-making style more often and in more situations than any other style (Driver et al., 1993, p. 44), "many people adapt their styles to suit environmental . . . conditions" (p. 38).

> On a short-term, day-to-day basis-or sometimes from one hour to another-people shift from one style to another as conditions around them change. When you work under "normal" conditions-that is, when conditions are as you experience them most often-you tend to use one particular decision style most frequently. As conditions change, however, you gravitate toward a different style, and then as conditions return to normal, you shift back to the style that you normally use. You may shift back and forth between these styles many times during any one day. (p. 39)

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The conditions that influence these shifts in decision-making styles are called environmental load (p. 39). Environmental load is "anything that increases a person's sense of pressure" (p. 39). Thus, the development of individuals' decision-making styles depend on the amount of information they process during any particular load situation (i.e., low, moderate, or high) (Driver et al., 1993).

To achieve success in organizations, individuals must approach decision-making situations with appropriate decision-making styles conducive to the current situation. "It is important to tailor the decision-making style to the situation at hand" (Johnson & Kazense, 1993, p. 180). Thus, if individuals' decision-making styles are not conducive to a situation, they are in a realistic position to adapt their style (Driver et al., 1993). However, it is strongly suggested that "changing styles is clearly a less than ideal way to deal with a bad fit between a style and a situation" (p. 164). "A more appropriate, easier, and realistic action might be to change situations" (p. 164). Oftentimes, however, it is much more practical to change decision-making styles to fit a situation even though it may be a challenge for individuals that have learned and have been ingrained with a particular style during their lifetime. To develop a

decision-making style that fits a situation will involve

individuals changing the amount of information that they

typically use and/or changing the number of problem

solutions that they generate (p. 176).

Situation and Experience

Experience plays a significant role in the decision-

making process. Experience is an individual's "living

textbook" (Lindeman, 1961). In fact, nothing has meaning or

is learned in isolation from experience (Cervero, 1988, p.

41). Moreover, experiences are a rich resource for learning

(Knowles, 1980, p. 44). However, it "is not merely that the

accumulation of experience makes a difference; it is how

learners attach meanings to or make sense of their

experience that matters" (Merriam & Brockett, 1997, pp. 152-

153). In this important sense, the interrelated learning

processes of metacognition and reflective practice are

related to individuals' awareness and application of

appropriate decision-making styles in decision-making or

problem-solving situations.

Metacognition has been described as "our knowledge

about how we perceive, remember, think, and act" (Metcalfe &

Shimamura, 1994, p. xi). "It is often viewed as the highest

level of mental activity and is especially needed for

complex problem solving" (Merriam & Caffarella, 1999, p.

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206). As such, metacognition guides the transformation of the initial state of a problem into a desired state (Davidson, Deuser, & Sternberg, 1994, p. 225).

Four metacognitive processes are important to the success of problem-solving situations: (a) identifying and defining the problem, (b) mentally representing the problem, (c) planning how to proceed, and (d) solution evaluation (Davidson et al., 1994). Problem identification and definition begins with an individual storing features of the problem in working memory and retrieving from long-term memory information that is relevant to these features in the situation (p. 208). Next, mental representations of the features of the problem help the individual to understand the problem and to think through its solution (p. 210). Selective comparison is one related mental process that leads to a change in the problem solver's mental representations of the problem. Selective comparison:

> Involves discovering a nonobvious relationship
> between new information and information acquired
> in the past. It is here that analogies,
> metaphors, and models are used to solve problems.
> The person having an insight suddenly realizes
> that new information is similar to old information
> in certain ways (and dissimilar to it in other
> ways), and then uses this information to form a
> mental representation based on the similarities.
> (pp. 212-213)

Insightful thinking that results from forming mental representations of the problem leads the problem solver to

deciding on steps and resources to use in solving the

problem (p. 215). These plans for proceeding are determined

by how well-structured the problem is. When problems are

ill-structured, more time will be required for efficient

problem solving (p. 215). Finally, problem solvers control

the internal representations they have formed and still need

to form in order to understand and solve a problem (p. 218).

The self-reflective nature of these metacognitive

processes helps individuals "monitor what is perceived, to

judge what is learned or what requires learning, and to

predict the consequences of future actions" (Davidson et

al., 1994, p. xi). As such, an integral form of

metacognition is reflective practice. Reflective practice

is a cognitive learning process that focuses on learners

reflecting on their experiences to help guide them through

the complexity, uncertainty, instability, uniqueness, and

value-conflict of problematic situations that are

characteristic of most practice situations (Schön, 1983, p.

39).

> In this way we engage with the situation. We do
> not have a full understanding of things before we
> act, but, hopefully, we can avoid major problems
> while "testing the water". When looking at a
> situation we are influenced by, and use, what has
> gone before, what might come, our repertoire, and
> our frame of reference. We are able to draw upon
> certain routines. As we work we can bring
> fragments of memories into play and begin to build
> theories and responses that fit the new situation.

(Smith, 2001, p. 12)

As a result, the indeterminate situation is transformed into

a determinate one (Schön, 1987).

Continuing Professional Education

The concept of "continuing professional education" has

been in general use since the late 1960's (Houle, 1980).

The concept evolved to reflect "all efforts to provide

learning for active professionals" (p. 7). Continuing

professional education (CPE) as a distinct field of practice

and study can be traced back to the early 1980's with the

publication of Cyril Houle's landmark book, Continuing

Learning in the Professions (1980), and the first

publication of the International Journal of Lifelong

Education in 1981 (Cervero, 2001). Many professions sought

to improve the ways continuing education was conceptualized,

organized, and delivered (p. 17)

The "traditional" professions (e.g., doctors and

lawyers) have always been held in high regard, but the

public distrust in them has always loomed heavily. This in

part has been due to inadequate and irrelevant education and

training. Overall, professional knowledge acquired in

formal academic settings has been mismatched to the changing

character of real-world practice situations (Schön, 1983, p.

14). "Professionals conduct most of their practice in the

swamp of the 'real world' where problems do not present themselves as well-formed, unambiguous structures, but rather as messy, indeterminate situations" (Cervero, 1990, p. 163). It is in the swamp where the problems of greatest human concern lie (Schön, 1987, p. 3). Houle (1980) asserted that in order for practicing professionals to carry out their duties with utmost integrity and competence, they needed to engage in lifelong learning. This shift away from an emphasis on structured pre-service professional preparation was premised on "the ways in which professionals try, throughout their active lives of service, to refresh their own knowledge and ability and build a sense of collective responsibility to society" (p. 2).

In the 20-year period since its emergence as a distinct field of practice and study, CPE or continuing education for the professions continues to beg the question, "What is a profession?" The answer to this question has been debated since the early 1900s. Today, however, a universally accepted definition for the concept of "profession" still eludes educators in the field of continuing professional education. Because there is not a commonly agreed upon definition, the CPE literature is frequently prefaced with discussions distinguishing professions from occupations. These differences have been addressed through three major

definitional approaches: the static approach, the socio-economic approach, and the process approach (Cervero, 1988).

The earliest attempt to distinguish professions from occupations rests with Abraham Flexner. Flexner (1915) contended that six qualities were prerequisite to occupations calling themselves professions. Professions must:

> Involve essentially intellectual operations with large individual responsibility; they derive their raw material from science and learning; this material they work up to a practical and definite end; they possess and educationally communicable technique; they tend to self-organization; they are becoming increasingly altruistic in motivation. (p. 904).

However, Flexner's static or criteria approach to defining a profession is too restrictive and demanding for professional practice (Arnold & Scaramella, 1998). It suggests "limited possibilities for learning" (Houle, 1980, p. 24).

The socio-economic approach is also too restrictive and demanding to occupations wanting a professional status. With this approach, professional status is defined by the occupation's relationship with society (Larson, 1977).

Unlike the demands of both the static and socio-economic approach, the process approach allows any occupation a chance to achieve professional status. "This approach carries with it the implication that all occupations seeking the ideals of professionalization are

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worthy of sympathetic study and that no clear-cut boundary separates the professions from other vocations" (Houle, 1980, p. 27). As such, occupations and professions are in a favorable position for constant improvement and continual learning (Cervero, 1988, p. 8).

Houle (1980) identified a number of qualities that occupations and professions alike should constantly strive for during their movement along the professionalization continuum. First and foremost, members of an occupation should be familiar with their central mission. "Changing social conditions and the new values they create cause profound alteration in the conception of central missions" (p. 37).

Practitioners should also seek a mastery of theoretical knowledge of their occupation (Houle, 1980, p. 40). They should apply this knowledge and the wisdom of acquired experience to competently deal with the problems that are characteristic of professional practice. Professionals confront one problem after another and are required, with the insight, skill, and knowledge available, to do the best they can to deal with each confronted situation (p. 42).

Practitioners should use the wealth of practical resources that are available to them to cope more effectively with situations that they confront (Houle, 1980,

p. 45). They should also make an effort toward self-enhancement throughout their careers. Interests other than work can often be a form of relaxation, foster creativity, and provide them with new insights into their work (p. 47).

Formal training should be established that provides the necessary knowledge to all members of the occupation (Houle, 1980, p. 51). They should be formally tested on the application these competencies (p. 54). They should be part of subcultures with distinctive attributes. Furthermore, occupations should seek legal support and formal administrative protections for its members (p. 59) and public awareness and acceptance (p. 61).

A tradition of ethical practice should be established. It can be reinforced with a strong but flexible code of ethics (Houle, 1980, p. 63). "Penalties (including the ultimate-denial of the right to practice) should be established and enforced for those practitioners who are incompetent or who fail to act in terms of accepted ethical standards" (p. 66).

Lastly, practitioners should have professional working relationships within their occupation and with practitioners of allied occupations (Houle, 1980, p. 67). Moreover, there should be clearly defined relationships between practitioners and their clients (p. 70).

While CPE has primarily focused on educational experiences after professional credentialing, it is also closely associated with pre-service or professional preparation and workplace learning (McDonald, 2001). A simple association between the three facets of CPE, however, does not suffice with regard to professional practice. Each facet should be a strong link on a professional education continuum toward facilitating professional practice (Knox, 2000).

Pre-service or professional preparation is a vital part of the CPE process of practitioners. "It influences the practitioner's needs and attitudes regarding learning" (McDonald, 2001, p. 32). Pre-service preparation should be a smooth transition from acquired knowledge to the application to professional practice. Oftentimes, however, there is a mismatch between the curriculum of pre-service programs and the nature of professional practice (p. 33). This discontinuity often causes "reality shock" with many new professional practitioners (p. 33). To resolve the discontinuity between education and practice, it has been recommended that pre-service preparation must:

> (a) help students develop an effective system for learning that will facilitate their transition from education to practice and (b) integrate problem-solving experiences with knowledge acquisition in order to emphasize the continuous need to utilize and apply knowledge in practice.

(Cavanaugh, 1993, pp. 114-115)

Important to these processes is the development of students'

understanding of and mechanisms for self-directed and

lifelong learning and a development of critical thinking and

problem-solving skills (pp. 115- 118).

   Meaningful learning can also occur as a result of

worklife (McDonald, 2001, p. 33). The workplace offers

practitioners opportunities to integrate learning in the

practice situation through different strategies (Smutz &

Queeney, 1990, p. 196). In this important sense, "the

workplace can become the primary benefactor of the increased

professional self-efficacy that comes from empowered action"

(Flagello, 1998, p. 51).

   Cervero (1990) proposed a continuing professional

education model that integrates the functionalist and

critical viewpoints.

> Where functionalism sees well-defined problems,
> the critical viewpoint assumes that professionals
> construct the problem from the situations.
> Because professionals often make choices about
> what problems to solve as well as how to solve
> them, this approach stresses the need to be
> critically aware of these choices and their
> implications. (p. 162)

Despite the learning situation, the model holds that

professionals learn best when they "construct an

understanding of current situations of practice using a

repertoire of practical knowledge acquired primarily through

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experience in prior 'real life' situations" (p. 178). As

such, the adult learning principles of real-life learning,

reflective practice, self-directed learning, and andragogy

are essential to facilitating professional practice.

Real-Life Learning

Real-life learning is a process experienced by many

adults on a daily basis. It is "learning that is relevant

to the living tasks of the individual in contrast to those

tasks considered more appropriate to formal education"

(Fellenz & Conti, 1989, p. 3). On-the-job problem solving

is one living task shared by many adult learners. It is

often considered to be one of the best sources for

professional learning (Cervero, 1988). Herein, the

discrepancy exists. There is often a vast difference

between everyday real-world problems and problems that are

developed by teachers in formal academic settings

(Sternberg, 1990). "Some educators fear that students are

losing out because they are too busy learning about

everybody else's ideas rather than cultivating their own

abilities to think critically and problem-solve effectively"

(McDonald, 2001, p. 33).

Sternberg (1990) differentiated between problem-solving

in real-life settings and in academic settings to help adult

educators create learning environments that facilitate real-

life problem solving. First, adults have to recognize that a problem exists. This is usually the case for problem solving in real life. In formal learning settings, however, someone else often identifies the problem for the student. Not only do adults have to recognize problems in real-life, they must also be able to correctly define them to determine the appropriate solution. However, if adults "are taught that they are always going to have problems defined for them . . . they are not going to be ready for practical problems" (p. 36).

The "structuredness of problems" in real life are different than those in academic settings (Sternberg, 1990, p. 37). Academic problems are often well-structured. On the other hand, real-life problems are often ill-structured. Teaching adults to solve well-structured problems is not preparing them for solving problems in real life (p. 38).

Adults must be able to adapt to problem-solving situations. However, the decontextualized nature of academic problems make it difficult to solve problems. Real-life problems cannot be solved in isolation from other variables (Sternberg, 1990, p. 38).

There is one right answer to academic problems. However, the complex nature of most real-life problems entails generating alternatives and all of them may be right

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solutions. Teaching adults "that problems have right

answers may work for test problems, but not for many real-

life problems" (Sternberg, 1990, p. 39).

Relevant information is often given in academic

problems while in real life it is often difficult to find

information or to even know exactly what information is

needed (Sternberg, 1990, p. 39). Moreover, adults often

accept beliefs or facts that are given to them by authority,

or they have to justify what they believe. However, "in the

real world, we need disconfirmation as well as confirmation"

(p. 40).

Feedback is something that adults receive often in

academic settings. However, this is not what happens in

real life. "Feedback in everyday situations is very

muddled, if it is given at all. What we must learn is how

to operate with incomplete or unclear feedback" (Sternberg,

1990, p. 40).

Lastly, most academic problem-solving occurs on an

individual basis. However, most real-life problem-solving

involves other people (Sternberg, 1990, p. 40).

Reflective Practice

Professional learning is also often a result of

reflecting on practice (Cervero, 1988). Reflecting on

practice involves individuals thoughtfully considering their

own experiences when applying knowledge to practice (Schön, 1987). As such, the cognitive learning process of reflective practice is essential to practitioner effectiveness. More specific, the central features of reflective practice, reflection-in-action and reflection-on-action, are what continually improves or enhances professionals' performance (McDonald, 2001, p. 35).

Reflection-in-action is reflecting on knowledge about practice while in the midst of it (Schön, 1983, pp. 61-62). "It involves looking to our experiences, connecting with our feelings, and attending to our theories in use. It entails building new understandings to inform our actions in the situation that is unfolding" (Smith, 2001, p. 11). Reflection-in-action can happen at any time during a decision-making situation. Depending on the nature of the situation, it "may stretch over minutes, hours, days, or even weeks or months" (Schön, 1983, p. 62).

The general pattern of the reflection-in-action inquiry that Donald Schön (1983) refers to as "reflective conversation with the situation" consists of the following five-step process.

1. Inquiry begins with an effort to solve a problem.
2. Inquiry turns into a frame experiment.
3. Inquirers draw on some element of their familiar repertoire.
4. As inquirers reflect on perceived similarities,

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they formulate new hypotheses.
5. Inquirers test these hypotheses with moves for
   shaping the situation and probes for exploring
   it (pp. 268-269).

These steps are crucial to the creativity and insights of

professionals. "This form of reflective practice allows

professionals to go beyond the routine application of rules,

facts, and procedures and gives them the freedom to practice

their craft more as professional artistry" (Merriam &

Caffarela, 1999, p. 237).

In some situations, unfortunately, reflection-in-action

may be detrimental to the decision-making process. Schön

(1983) cautions that reflection-in-action can possibly

interfere with action. He identifies four potential

limitations to reflective inquiry.

1. There is no time to reflect.
2. Complexity of reflection can paralyze action.
3. An infinite regression of reflection-on-action
   occurs.
4. Reflection is incompatible with the action.
   (pp. 277-278)

Thus, reflection-on-action or reflecting on reflection-

in-action (Schön, 1987) may hinder the decision-making

process if there is an infinite regression of reflecting on

knowledge of past experiences during a situation. However,

reflection-on-action can be very beneficial to professionals

in "sterile" learning environments (e.g., pre-service and

in-service programs) where there is no risk of negative

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decision outcomes such as injury or death. Therefore, "we [can] consciously return to the experiences we have had, reevaluate these experiences, decide what we could do differently, and then try whatever we decided to do differently" (Merriam & Caffarella, 1999, p. 235).

Self-directed Learning

Since the early 1970s, the process of self-directed learning has significantly altered the nature of inquiry for many adult learners. Self-directed learning has been described as "attempts of adults to acquire skills, knowledge, and self-insight through educational experiences that they are responsible for arranging" (Brookfield, 1986, p. 149). In other words, self-directed adult learners have control over their own learning experiences and take control of the purposes of learning (Knowles, Holton, & Swanson, 1998, p. 135). As such, self-directed learning encompasses the internal dimensions of autonomy and empowerment. Autonomy is the most important of the two dimensions for most learning professionals (p. 136). Empowerment encourages adults to be proactive rather than reactive learners (Brookfield, 1986, p. 11). "The most fully adult form of self-directed learning, however, is one which critical reflection on the contingent aspects of reality, the exploration of alternative perspectives and meaning

systems, and the alteration of personal and social circumstances are all present" (pp. 58-59).

Adults have participated in self-directed learning activities throughout the ages. However, it was not until Allan Tough's (1971) work on adult learning projects that very much attention had been given to self-directed learning inside and outside the field of adult education (Merriam & Caffarella, 1999, p. 288). Learning projects are major, highly deliberate efforts to gain certain knowledge and skills (Tough, 1971, p. 1). Learning projects can be initiated to "gain new knowledge, insight, or understanding" (p. 1). Furthermore, adult learners can initiate learning projects to improve a skill or performance, to change attitudes and emotional reactions, to change overt behavior, or to break bad habits (p. 1). Tough (1971) found that nearly all individuals participate in at least one or two learning projects a year, and about 70% of all learning projects are self-directed. He also discovered that it was not unusual for adults to devote 700 or more hours to these deliberate learning efforts. Regardless of the amount of time that was spent at learning projects, however, intent to learn or change was the primary motivation for learning. Moreover, learning projects were found to be initiated by adult learners for highly practical reasons.

There are learning situations in which it would be appropriate to be dependant on or directed by others for effective learning to transpire. However, all learning situations should encourage adult learners to more self-directed (Knowles, 1975, p. 11). Self-directed or proactive learners: (a) learn more and learn better than reactive learners, (b) are more in tune with the natural processes of psychological development, (c) are better prepared to cope with new developments in education, and (d) are better able to adapt to rapid social change (pp. 14-15). Accordingly, Knowles (1975) offered several implications for education and learning. First, the purpose of education can no longer be premised on the transmittal of knowledge, but rather it should be on the development of skills of inquiry. Second, learning should be primarily based upon life experiences and not on what is taught in the classroom. Third, education and learning is no longer associated only with youth; it is a lifelong process.

Andragogy

The learning principle of andragogy is especially critical to facilitating the lifelong learning processes that are essential for professionals to adapt practice to social changes (Knowles, 1984a). Therefore, andragogy provides a learning platform by which the interrelated adult

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learning principles of real-life learning, reflective practice, and self-directed learning can be successfully facilitated in continuing professional education environments.

Malcolm Knowles introduced andragogy to the United States in the early 1970s (Knowles et al., 1998, p. 1). His introduction of the concept forever changed the field of adult education and particularly the teaching-learning process of adults. The scope of its impact on the field of adult education has been such that the terms "andragogy" and "adult education" have been frequently used synonymously (Draper, 1998, p. 3). Knowles proposed that "if given the opportunity, adults prefer to be active participants in all phases of the learning process and that self-directed learning provides this opportunity, encouraging adults to be proactive, lifelong learners" (Cyr, 1999, p. 8). His theoretical proposition was originally premised on four crucial assumptions about the characteristics of adult learners: (a) an adult's self-concept moves from one of being dependent personality toward one of being self-directing human being, (b) adults accumulate a growing reservoir of experience that becomes an increasing resource of learning, (c) an adult's readiness to learn becomes oriented increasingly to the developmental tasks of one's

social roles, and (d) an adult's time perspective changes from one of postponed application of knowledge to immediacy of application to learning (Knowles, 1970, p. 39).

Knowles (1970) used the four underlying assumptions of andragogy to differentiate the characteristics of adult learners and child learners. He contended that the andragogical model of education was antithetical to the pedagogical model of education (Knowles, 1984b, p. 52). Accordingly, he designated the subtitle of "Andragogy Versus Pedagogy" to the 1970 edition of The Modern Practice of Adult Education. Until Knowles' introduction of andragogy, the theory and assumptions underlying "pedagogy" or "the art and science of teaching children" were the bases of most teaching-learning transactions (Knowles, 1970, p. 37). In fact, the "entire educational enterprise . . . was frozen into the pedagogical model" (Knowles, 1984b, p. 52). As a result, adult education had not been able to impact society in the ways that it is capable (Knowles, 1970, p. 37).

In the decade following Knowles' introduction of andragogy, elementary and secondary teachers experimented with the andragogical model, and in many circumstances, they reported increased learning. Moreover, teachers and trainers in adult learning situations reported that the andragogical model did not work (Knowles, 1984b, pp. 61-62).

Knowles realized that the andragogical and pedagogical
models had unique underlying assumptions that could be
appropriate to given learning situations. "He advocated
that the situation determined which model was applicable,
not whether the learner is a child or adult" (Cyr, 1999, p.
8). He acknowledged this revelation when he changed the
subtitle of the second edition of <u>The Modern Practice of
Adult Education</u> (1980) from "Andragogy Versus Pedagogy" to
"From Pedagogy to Andragogy." The two models are "on a
continuum ranging from teacher-directed to student-directed
learning" (Merriam, 1990, p. 6). Knowles (1984b) later
added two more assumptions to further differentiate
andragogy and pedagogy. One was that adults need to know
how they will be able to apply what they learn to real life;
the other was that they are primarily motivated by internal
pressures.

Knowles' (1980) program development model provides for
a process by which andragogical theory, assumptions, and
techniques can be applied in comprehensive educational
programs and all types of learning activities. The process
includes seven phases: (1) setting a climate for learning,
(2) establishing a structure for mutual planning, (3)
diagnosing needs for learning, (4) formulating directions
(objectives) for learning, (5) designing a pattern of

learning experiences, (6) managing the execution of the

learning experiences, and (7) evaluating results and

rediagnosing learning needs (pp. 222-223). These seven

phases are important to facilitating successful adult

learning in numerous learning situations. Specifically, the

concern of the process is to provide the "procedures and

resources for helping learners acquire information and

skills" (Knowles, 1990, p. 120).

The andragogical "process" model has been successfully

implemented in numerous learning situations with a diversity

of learners. The model:

> Has been widely adopted or adapted in a variety of
> programs-from individual courses at every level of
> education to total programs of in-service
> education, undergraduate education, graduate
> education, continuing education, human resources
> development, continuing professional education,
> technical training, remedial education, and
> religious education. It appears in almost every
> kind of institution, including elementary and
> secondary schools, community colleges, colleges
> and universities, business and industry,
> government agencies, health agencies, professional
> societies, churches, and voluntary
> organizations-in North America and around the
> world. (Knowles, 1984a, p. 20)

As such, the application of andragogical processes to formal

and informal continuing professional education environments

can help fill the gaps that exist in practice. First,

however, the epistemological and pedagogical barriers that

separate knowledge construction and theory from actual

professional practice must be broken down (Bickham, 1998, p. 73).

Continuing Professional Education and Policing

Although Peel's ideas of police professionalism were recognized by American police agencies in the mid 1840s, it was not until the early 1900s that formal police education and training began to take shape in America. Shortly after being appointed chief of police in Berkeley, California, in 1909, August Vollmer established the first police training school in America (Meadows, 1987, p. 2). He argued that the key elements of police effectiveness included a scientific approach to policing, a college-educated police force, professional integrity, and centralized police operations (MacNamara, 1977, p. 178). It would be Vollmer's vision of the college-educated police officer, however, that would become the cornerstone for the police professionalism movement during the first half of the 20th century (Sherman & The National Advisory Commission on Higher Education for Police Officers, 1978).

With higher education as the basis for the push toward a professional status, police reformers sought to rectify the problems in policing that had been a mainstay since the mid 1840s. Legitimizing the police as a profession was characterized by seven elements: (a) elimination of

political influences, (b) primary functions of crime control and criminal apprehension, (c) centralized organizational structure, (d) remote but professional relationship with citizens, (e) demand management for police services, (f) preventive patrol and rapid response to calls for service, and (g) measured outcomes--crime control (Kelling & Moore, 1988, pp. 5-8). These elements of professional reform were emulated in television shows such as <u>Dragnet</u> and <u>Adam-12</u> which were officially endorsed by the Los Angeles Police Department (LAPD). With the blessing of society, the police became an equipped and organized army of professional crime fighters (Frontline, 1999). Police training and education reflected these developments. Regardless of the subject matter, a large majority of the education and training was "carried out in the lecture method, with very little input on the part of the trainee" (Birzer, 2000, p. 84; Birzer & Tannehill, 2001, p. 234). The use of pedagogical methods such as these creates questions concerning the appreciation of adult learning (Dailey, 1984).

During the transition period from traditional policing to community policing, it was widely recognized that the police had to change their methods of education accordingly. It was noted that the structure of police education often resulted:

In little more than tacking credentials on to police personnel, serving the status quo in policing, rather than stimulating change. Police education will have to do much more if it is to help the police find new methods, new organizational structure, and a more effective role in society for coping with crime and providing social justice. (Sherman et al., 1978, p. 1)

The National Advisory Committee on Higher Education for Police Officers recommended that "the best way to educate the police . . . for change is to develop the capacity of the police to use knowledge to solve problems" (p. 1).

While steps have been taken to integrate community problem-solving approaches into the curricula, the current state of police continuing professional education has not kept pace with the evolution and institutionalization of community policing. In fact, it has changed very little in past 20 years (Bradford & Pynes, 1999). The major emphasis in preservice preparation (i.e., police academy training) and continuing education (i.e., in-service training) continues to have a primary emphasis in the traditional uniform application of standardized procedures in decision-making situations. One study found that less than 3% of academy time focuses on the cognitive and decision-making domain (p. 288). Interestingly, approximately 90% of police officers' patrol duties are spent in these and other service-related areas (Bureau of Justice Statistics, 1983).

Thus, "the paradox in the current state of police training is that the majority of training curricula are designed almost exclusively to teach officers what they will be doing a small percentage of their on-duty time" (Birzer, 1999, p. 17).

> After graduating from the training academy and completing their probationary period under the supervision of field training officers (FTOS), inexperienced police officers are then thrust into an environment that requires them to use skills and knowledge not developed in basic training. (Bradford & Pynes, 1999, p. 297)

A similar epistemology is prevalent in police continuing education. Consequently, the mismatch that exists between acquired knowledge and practice will inevitably impede the professional development of the police. In order for the police to progress on the continuum of professionalism, the ways that police officers are trained must be carefully examined (Arnold & Scaramella, 1998, p. 266). The success of community policing will depend greatly on developing and implementing training environments that stress the cognitive areas of problem-solving, decision-making, and other interpersonal perspectives (Bradford & Pynes, 1999, p. 284). Accordingly, training should encourage officers to be self-directed learners when identifying and solving community problems. Self-directed learning and community policing go hand in

hand (Birzer, 1999, p. 18; Birzer, 2000, p. 31; Palmiotto, Birzer, & Unnithan, 2000, p. 18).

Recognizing the success of the andragogical processes in a diversity of learning situations, it has been contended that community policing and andragogy are a perfect fit (Birzer, 1999; Birzer, 2000; Birzer & Tannehill, 2001; Dantzker et al., 1995; Palmiotto et al., 2000). "Bringing these two theories together into the training curriculum will help officers to apply various subjects to the problem-solving process and also teach them how to immediately apply these subjects within the context of the community" (Birzer, 1999, p. 19).

With an emphasis on self-directed learning and the teacher's role as the facilitator of learning, application of andragogical approaches to training environments offers numerous advantages to promoting effective problem solving in the community. First, it draws on trainees' past experiences (Birzer & Tannehill, 2001, p. 240). Second, trainees are treated as adults (p. 240). Third, "it adapts to diverse needs and expectations of participants" (p. 240). Fourth, critical thinking, judgement, and creativity skills can be developed (p. 240). The openness and flexibility of the andragogical model to learning in training environments allows for the assimilation of knowledge necessary to

empower police officers to be proactive problem solvers.

<u>Learning Strategies</u>

Whether seeking short-term or long-term solutions to decision situations, decision-making by adults is a dynamic process that is synonymous and symbiotic with learning. As such, decision-making situations are real-life learning tasks. Individuals tend to approach real-life learning tasks with different learning strategies (Conti & Kolody, 1999a, p. 2). In other words, learning strategies deal with the way individuals differ in their approach to specific learning situations or tasks (Conti & Kolody, 1995).

Learning strategies are often so customary to individuals that they are given little thought. Sometimes, however, much deliberation can be given to the selection of a learning strategy (Fellenz & Conti, 1989, p. 8). Every individual has a preferred learning strategy that has been developed over their lifetime, but it can vary according to the task or situation (Conti & Kolody, 1999a, p. 2). As individuals "better understand their own learning strategies, the more empowered they are to enhance their personal learning" (p. 2).

The foundational research on learning strategy with adults in formal and informal learning situations has been conducted utilizing the Self-Knowledge Inventory of Lifelong

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Learning (SKILLS) instrument. SKILLS is a self-report
instrument than can be completed in less than 20 minutes
(Conti & Fellenz, 1991b, p. 1). It is a valid and reliable
measure that incorporates real-life scenarios to measure
adult learning strategies drawn from the areas of
Metacognition, Metamotivation, Memory, Critical Thinking,
and Resource Management (Conti & Kolody, 2003).

Metacognition

Metacognition is simply the ability of learners to
think about the learning process (Conti & Fellenz, 1991b, p.
2). More specific, "it is a conscious, reflective endeavor;
it is one that requires the learner to analyze, assess, and
manage learning activities" (Conti & Kolody, 1999a, p. 3).
Metacognition was conceptualized from researchers'
observations of active learners who had the ability to
reflect on and control their learning processes (Fellenz &
Conti, 1989, p. 9). "The learner who is conscious of his or
her learning processes exercises more control over those
processes and becomes a more effective learner" (p. 9).

Metacognition used in SKILLS is further divided into
the learning strategies of Planning, Monitoring, and
Adjusting. Planning entails learners accepting
responsibility and control over their learning experiences
(Conti & Kolody, 1999a, p. 4). Monitoring allows learners

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to be constantly aware of any obstacles that may interfere
with the learning process (p. 4). Furthermore, "it reminds
them of purpose, of resources, of previous experience, and
of their strengths and weaknesses" (Conti & Fellenz, 1991b,
p. 2). Oftentimes, changes occur during learning situations
or tasks. Metacognitive adjusting allows learners to modify
or revise the learning plans (Conti & Kolody, 1999a, p. 4).
Thus, it may include changing learning strategies to match
the situation (Fellenz & Conti, 1989).

Metamotivation

Metamotivation is an "awareness of and influence over
factors that energize and direct one's learning" (Fellenz &
Conti, 1993, p. 12). Furthermore, it "deals with one's
knowing and understanding how or why one is motivated to
participate or remain in a learning activity" (Conti &
Kolody, 1999a, p. 4).

Metamotivation involves the learning strategies of
Attention, Reward/Enjoyment, and Confidence. Attention is
"focusing of learning abilities on the material to be
learned" (Conti & Fellenz, 1991b, p. 4). This learning
strategy is crucial to the learning process. In this
important sense, creating a suitable learning environment
with limited distractions is key to successful learning
(Conti & Kolody, 1999a, p. 5). Another motivation to

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participation in learning activities is through rewards or

enjoyment. Learners seek the "relevance, enjoyment, or

satisfaction produced by a learning activity" (Conti &

Fellenz, 1991b, p. 4). Confidence is another key element

that motivates learners to participate in learning

activities. The "belief that one can complete the learning

task successfully is an important factor in the motivation

to learn" (Fellenz & Conti, 1993, p. 16).

Memory

Memory is "what people know about how they remember"

(Paul & Fellenz, 1993, p. 22). In other words, memory is

set of metal activities that are used to store, retain, and

retrieve knowledge (Conti & Kolody, 1999a, p. 6).

The learning strategies of Organization, External Aids,

and Memory Application are used in the memory process.

Organization learning strategies help to process information

so that it can be "better stored, retained, and retrieved"

(Conti & Kolody, 1999a, p. 7). Chunking is one technique to

enhance memory. It is the organization of information into

sets so that there is less categories to remember (Fellenz &

Conti, 1993, p. 23). External aids strategies allow

learners to control their environment in a way to help with

their memory (Conti & Kolody, 1999a, p. 7). External aids

can include a number of things including calendars and

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appointment books. Memory application strategies involve

internal organization strategies "for the purpose of

planning, completing, and evaluating learning (p. 7).

Critical Thinking

Critical Thinking refers to the "reflective thinking

process utilizing higher order thinking skills in order to

improve learning" (Conti & Kolody, 1999a, p. 7). The

critical thinking learning strategies used in SKILLS are

based on Brookfields's (1986) four components of critical

thinking (Conti & Kolody, 1999a, p. 7). His approach to

real-life situations involves (a) identifying and

challenging assumptions, (b) challenging the importance of

concepts, (c) imagining and exploring alternatives, and (d)

reflective skepticism (p. 7).

As such, Critical Thinking used in SKILLS includes the

three learning strategies of Testing Assumptions, Generating

Alternatives, and Conditional Acceptance. Testing

assumptions is "the process of challenging assumptions

[which] presumes the ability to identify these assumptions

and the willingness to examine them" (Conti & Kolody, 1999a,

pp. 7-8). Critical thinking entails generating alternative

solutions in learning situations that enables learners to

effectively solve real-life problems (Fellenz & Conti, 1993,

p. 32). Conditional acceptance refers to "advocating

reflective skepticism to avoid absolutes or over simplifications" (Conti & Kolody, 1999a, p. 8).

Resource Management

Resource Management refers to the ability to identify and use the appropriate resources in learning situations (Conti & Fellenz, 1991b, p. 4). Essentially, there is an unlimited number of appropriate resources (e.g., books, computers, teachers, and co-workers) available to adult learners in both formal and informal learning situations. However, it is the effective use of these resources in learning situations that can have a positive effect on learning outcomes (Fellenz & Conti, 1993, p. 37).

Resource Management involves the learning strategies of Identification of Resources, Critical Use of Resources, and Use of Human Resources (Conti & Kolody, 1999a). Identification of Resources refers to both an "awareness of appropriate sources and confidence in one's ability to use such sources" (Conti & Fellenz, 1991b, p. 4). Critical Use of Resources involves evaluating the selection of the resource. In other words, adult learners need to critically reflect about their selection of the most appropriate resources rather than simply selecting resources that are available (Conti & Kolody, 1999a, p. 9). Use of Human Resources is part of the learning process that includes the

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input of others. People can have a powerful impact on the

learning process of adult learners (Conti & Fellenz, 1991b,

p. 4).

Learning Strategy Preference Groups

The numerous studies that utilized SKILLS to

investigate these 15 learning strategies of adults in

diverse learning situations have provided "depth and

insights not previously available regarding the learning

strategies of adults" (James, 2000, p. 66). The most

noteworthy revelations were that adults do not differ in

their use of learning strategies based on demographic

variables and that distinct groups of learners do form based

on learning strategy patterns (Conti & Kolody, 1999b, p.

86). These revelations encouraged further empirical

inquiry. The entire data set of 3,070 cases of SKILLS

studies was analyzed using cluster and discriminant

analysis. As a result, three distinct groups of learners

based on learning strategy usage emerged (Conti & Kolody,

1999a , pp. 17-18). Subsequently, the Assessing The

Learning Strategies of AdultS (ATLAS) instrument was created

and validated to quickly identify the preferred learning

strategies of adults (Conti & Kolody, 1998). Adult learners

are characterized as having a preference for the Navigator,

Problem Solver, or Engager learning strategy when

approaching learning tasks or situations (Conti & Kolody,
1999a)

Navigators "are conscientious, results-oriented high
achievers who favor making logical connections, planning and
organizing activities" (Conti & Kolody, 1999a, p. 9). In
learning situations, they are characterized as relying
heavily on the Metacognition learning strategy of Planning,
the Metamotivation learning strategy of Attention, the
Resource Management learning strategies of Identification
and Critical Use of Resources, and the Critical Thinking
learning strategy of Testing Assumptions (pp. 9-10).

When planning for learning activities, Navigators like
to know what is expected in the learning situation (Conti &
Kolody, 1999a, p. 9). Navigators like structured learning
environments where they are in control (p. 10). As such,
they systematically and purposefully create an environment
that facilitates learning (p. 10). Knowing how to locate
and use the best information is beneficial to facilitating
Navigators' learning (Fellenz & Conti, 1989). Provided with
factual information, they are "slow to commit to an idea and
want to 'weigh out' or test the assumptions" (Conti &
Kolody, 1999a, p. 10).

Problem Solvers are critical, reflective thinkers. As
such, their "critical thinking skills are sustained by the

ongoing modification and revision of their learning plans in relationship to their evaluation of their own learning process" (Conti & Kolody, 1999a, p. 12). Accordingly, Problems Solvers make extensive use of the Critical Thinking learning strategies of Testing Assumptions, Generating Alternatives, and Conditional Acceptance (pp. 12-13).

Problem Solvers "test assumptions to evaluate the specifics and generalizability within a learning situation" (Conti & Kolody, 1999a, p. 12). They formulate options to devise a number of solutions to learning situations. However, although curious, inventive, and intuitive, their ability to generate alternatives and consider various solutions can also tend to result in increased difficulty in making decisions" (p. 12). Problem Solvers "are open to conditional acceptance of learning outcomes while keeping an open mind to other learning possibilities" (p. 12).

"Engagers are passionate learners who love to learn, learn with feeling, and learn best when they are actively engaged in a meaningful manner with the learning task" (Conti & Kolody, 1999a, p. 13). As such, they make extensive use of the Metamotivation learning strategies of Reward/Enjoyment and Confidence, and they use the Memory learning strategy of Memory Application more than the Navigators and Problem Solvers (pp. 14-15).

The extent of fun or satisfaction that is seen in a learning situation is a motivating factor for Engager participation.

> Engagers monitor the value of the learning experience and level of motivation on an economy of scale to determine if the expected reward is worth the effort. If the learning activity is not perceived or expected to be a worthwhile or enjoyable experience, the Engager will seek out another activity that they will find more meaningful. (Conti & Kolody, 1999a, p. 14)

Another motivating factor is the extent of the Engager's confidence. However, "confidence is not dependent so much on the . . . [belief] that they can complete the learning task successfully as it is on whether they are confident that the learning task will keep them interested enough to complete the learning task" (p. 14). They also make use of their memories in learning situations. The use of mental images to facilitate problem solving is a common trait of learners with the Engager learning strategy (p. 15).

The creation of ATLAS signifies the transition to a new generation of learning strategy research. Moreover, it serves as a means for carrying on the SKILLS tradition of inquiry into addressing individual differences of adults in diverse real-life learning situations. ATLAS' inauguration as a research tool was with Conti and Kolody's (1999b) investigation of the relationship between learning strategy and personality type of adult learners in the United States

and Canada. It was found that no significant relationship

existed between overall personality type and learning

strategy preference adult learners. However, there was a

relationship between learning strategy preference and three

of the four personality types. Moreover, learning

strategies were found to be not related to demographic

variables.

Numerous studies utilizing ATLAS with diverse

populations in real-life learning situations soon followed

Conti and Kolody's (1999b) investigation. They included

adult self-directed Internet users (Spencer, 2000), adult

basic education students (James, 2000), traditional and

community policing police officers (Birzer, 2000), first and

second generation community college students (Willyard,

2000), eBay users on the Internet (GhostBear, 2001), church-

affiliated retired senior professionals (Lively, 2001),

rental car agency telephone sales representatives (Goodwin,

2001), nontraditional MBA students (Turman, 2001), 3-year

technical college students (Massey, 2001), university

presidents (Turner, 2001), an African-American community

(Hinds, 2001), international ESL students (Shumaker, 2001),

teacher training college students in Africa (Pinkins, 2001),

undergraduate business students (D. Munday, 2002), graduate

level business students (W. Munday, 2002), and

nontraditional pastoral clergy members (Ossom, 2002).

Collectively, these ATLAS studies have further clarified the

characteristics of the three learning strategy preference

groups. They have also confirmed the findings of the SKILLS

studies that learning strategies are not related to

demographic variables, and they have suggested that the

learning situation attracts adults with certain learning

strategy preferences.

Situational Learning Strategies

Decision-making styles and learning strategies are

similar concepts in that they are both learned, habitual

characteristics of an individual that can be selected to

approach a specific situation or task. Like decision-making

styles, each learning strategy has its own strengths and

weaknesses depending on the learning situation or task in

which it is used. Therefore, the success of a learning task

or situation is often influenced by the selection of the

appropriate learning strategy (Conti & Kolody, 1999a, p. 3;

Fellenz & Conti, 1993, p. 3). For example, Birzer (2000)

concluded that the traits and skills desired of police

officers in the community policing approach closely parallel

the traits of the Problem Solver learning strategy.

Therefore, "it would make sense that those police officers

who identify their learning strategy as Problem Solvers, may

in general be better suited for community oriented policing duties" (p. 103). Because of the nature of tasks required to assure the success of the community policing approach, it may be necessary for officers in this particular environment to learn to adjust to the Problem Solver learning strategy (p. 98). This does not suggest, however, that the Problem Solver approach is the only learning strategy that should be used in the community policing environment. There may be many decision-making situations where the Navigator or Engager learning strategy would be a more appropriate approach.

As with decision-making styles, the appropriate use of a learning strategies in learning situations can be influenced by the metacognitive processes of adult learners. In particular, adult learners can reflect on their knowledge of past or current learning experiences to help them become aware of and adjust their learning strategies to learning situations. Because of the changes that often occur in the characteristics of a learning situation, it is important for learners to be aware of and appropriately adjust their learning strategies throughout the learning process (Conti & Fellenz, 1991b). Preliminary empirical evidence that metacognitive processes, particularly reflective practice, related to learning strategies leads to improved learning

was found in a cross-case comparison by D. Munday (2002) and W. Munday (2002).

D. Munday (2002) investigated the effects of learning strategy awareness on learning with 25 adult students in 2 8-week business administration degree program courses at Newman University in Wichita, Kansas. Using the logic of an experimental design, the 11 students in an undergraduate business ethics course were selected as the Non-ATLAS group. The 14 students in an undergraduate business management course were selected as the ATLAS group. The ATLAS group:

> Received a lecture on ATLAS as a learning strategy
> preference instrument. The group members then
> took ATLAS to identify their learning strategy
> preferences and then participated in a group
> advising session that discussed the
> characteristics of each learning strategy group
> and explored ways that each group could relate
> this information to their learning. The students
> were also encouraged to talk about and think about
> how their learning strategies applied during the
> remainder of the course. (p. 75)

The Non-ATLAS group was not exposed to ATLAS and did not receive any counseling on learning strategies. However, each group was given the same pretest before any instruction and the same posttest after 4 weeks of instruction.

A paired t-test was used to compare the pretest and posttest scores of both groups. The results of this statistical analysis showed that the ATLAS group of students had a significantly greater increase in learning as a result

of an awareness of learning strategies and how to make
adjustments in learning situations after this awareness
compared to the learning outcomes of the Non-ATLAS group of
students. In addition, the qualitative data provided by the
ATLAS group of students (except the Engagers) and the
instructor during a voluntary follow-up group session at the
end of the 4 weeks of instruction confirmed the quantitative
findings that there is a statistically significant
relationship between student awareness of learning
strategies and improved learning.

   Navigator and Problem Solver students provided
information that indicated that they were able to utilize
their awareness of learning strategies to improve their
learning in learning situations. For example, one Navigator
commented, "I learned from ATLAS how to handle the stress in
learning environments" (Munday, D., 2002, p. 82). Another
Navigator said, "I do not get along with procrastinators,
after ATLAS I now have more understanding of other people"
(p. 83). A Problem Solver added, "I usually read just the
first page, last page, and summary of assigned chapters.
But, after being exposed to ATLAS I now know the impact of
reading the whole chapter. I started reading more after
ATLAS and my grades improved" (p. 86). Moreover, the
instructor noted that the ATLAS students "acted differently

in this class than other groups of students that he has taught. The effect of ATLAS on the students may have caused this behavior" (p. 88).

W. Munday (2002) conducted a similar line of inquiry. However, in addition to being the researcher, she was the instructor of the class of interest. The class consisted of 27 students in the Webster-McConnell graduate degree in business administration program in Wichita, Kansas. She divided the class into two groups. One group consisted of 14 students and was called the Non-ATLAS group. The other group consisted of 13 students and was called the ATLAS group. The ATLAS group was introduced to ATLAS and received counseling concerning their learning strategies and how to apply learning strategies to learning situations. Furthermore, she encouraged them to discuss and document the effects of learning strategy counseling on their learning in weekly journals. The Non-ATLAS group did not receive any exposure to ATLAS, learning strategies, or any counseling concerning learning strategies. However, both groups were given an identical pretest and posttest to determine differences in the two groups' learning effectiveness after 8 weeks of instruction.

The same statistical procedure was used to compare the pretest and posttest scores of the two groups as was used in

D. Munday's (2002) study. Like the findings in D. Munday's study, the ATLAS group of students had a significantly greater increase in learning at the end of instruction as a result of an awareness of learning strategies compared to the Non-ATLAS group. Furthermore, similar qualitative data was provided by the ATLAS group of students during the follow-up focus group session that confirmed and generalized the relationship between students' awareness of learning strategies and improved learning in learning situations.

The ATLAS groups in both studies provided similar comments about their awareness of learning strategies. However, unlike in D. Munday's (2002) study, Engagers in this study joined the Navigator and Problem Solver students in the voluntary follow-up focus group session at the end of the 8 weeks of instruction. The Engagers provided additional information that further reinforced the effectiveness of learning strategy awareness in learning situations. For example, if Engagars "did not see the immediate benefit of a line of inquiry or discussion, they began to ask questions concerning their own situation looking for this benefit" (p. 89).

W. Munday (2002) noted that "participants in both studies expressed an increased understanding of themselves as learners and the specific needs they have in learning

situations. They expressed confidence in their ability to perform better in learning situations" (p. 99). The encouraging findings of these two adult learning studies corroborate Fellenz and Conti's (1993) assertion that an "adeptness and insight in the use of learning strategies appears to be a significant part of one's ability to learn how to learn" (p. 3). As such, the learning processes of metacognition and instrumented learning are effective in learning situations.

<div align="center">Instrumented Learning</div>

Facilitating the learning processes of learners with the aid of instruments is referred to as instrumented learning. Some of the most common instrument techniques used for this method of learning include rankings, ratings, forced-choice, sentence completion, and multiple choice (Blake & Mouton, 1972a, p. 116). However, learning instruments can take on many other forms. Therfore, instruments can offer tremendous flexibility for various topics or issues and learning situations (Blake & Mouton, 1972a, p. 116; Blake & Mouton, 1972b, p. 151). Learning instruments can often provide more of an educational experience than that provided by teachers (Blake & Mouton, 1972a, p. 113). Furthermore, learning instruments can provide guidance and direction usually provided by a teacher

(Mouton & Blake, 1984, p. 60). "In this important sense, an instrument is a teacher-in-absentia" (Mouton & Blake, 1975, p. vii). Unlike the teacher-centered approach to learning, however, the instrumented approach to learning allows the teacher to be a "learning manager" rather than a "subject-matter specialist" (Blake & Mouton, 1972b, p. 150).

The process of learning with instruments consists of a four-phase learning cycle of experience: Learning from dilemmas, Invention, Critique, and Generalization (Blake & Mouton, 1972b). The first phase involves confronting a dilemma and figuring out how to solve it (p. 150). The second phase necessitates inventing or acting in other ways to find a solution for the dilemma (p. 150). The third phase involves the use of personal feedback or an assessment of performance and achievement (p. 150). The final phase of the learning cycle occurs when it becomes clear that the experience is a basis for integrating larger experiences or knowledge (p. 150). When individuals intentionally try to apply the principles they have learned to practice, they are "in the best position to 'learn from experience'" (p. 150).

The idea of learning with instruments originated in the training field during the mid 1950's with the evolution of instrumented training laboratories (Blake & Mouton, 1962). The nature of these laboratory experiments emphasized the

use of a variety of quantitative measurements in the place
of a participating trainer for "feedback-learning" (pp. 61-
62). The innovativeness and general acceptance of the
instrumented training laboratory led to numerous
advancements in the field of training and a spectrum of
other fields using instruments as an alternative approach to
learning (Blake & Mouton, 1962).

One of the earliest and more recognizable learning
instruments is the Grid developed by Robert Blake and the
late Jane Mouton. By the early 1970's their series of Grids
consisted of over 500 instruments that had been adapted to a
diverse number of training environments that included
education, management, leadership, and sales (Blake &
Mouton, 1972a, p. 114).

Blake and Mouton's (1970) Sales Grid provides for a
classic example of the Grid strategy and more important an
illustration of the general use of instrumented learning
from theory to practice. The Sales Grid is a set of
theoretical assumptions about the relationships between
salespeople and customers (p. 2). The Sales Grid is a
diagram that is divided in half by a vertical axis that
represents concern for making a sale and a horizontal axis
that represents concern for the customer. Each axis is
expressed as a 9-point scale. Five positions on the Grid

(i.e., 1,1, 1,9, 5,5, 9,1, and 9,9) indicate the five sales strategies based on 5 different theories with separate sets of assumptions (pp. 4-7). In general, the five strategies represent: sales representatives with a low concern for the sale and the customer (1,1), a low concern for the sale and a high concern the customer (1,9), an intermediate concern for the sale and customer (5,5), a high concern for the sale and a low concern for the customer (9,1), and a high concern for the sale and the customer (9,9) (pp. 5-7).

Individuals identify their sales strategies by first responding to a series of five statements that are based on the six elements of Sales Grid assumptions. They rank each of the five statements in the order that best describes their sales behavior (Blake & Mouton, 1970, p. 17). Next, individuals summarize their rankings for each element. The highest score represents a person's dominant sales strategy (p. 21). An identified dominant sales strategy is "not meant to suggest that an individual salesman is a fixed, unchanging type. . . . There is a pattern, certainly, but it may not be the only one he adopts or could adopt" (p. 8). A sales representative can now compare their dominant set of sales assumptions to others. When a comparison is made, "conditions are favorable for learning" (p. 177). They "can learn how to change their behavior by making use of

different assumptions" (p. 9).

Instrumented learning has been a relatively obscure and even dormant concept in the field of adult education. However, with the recent completion of the two related studies of D. Munday (2002) and W. Munday (2002), it has been revived from quiescence. The primary focus of both studies was to test the effectiveness of ATLAS as a learning instrument. In other words, does ATLAS stimulate metacognitive processes related to learning strategies? Both studies found that metacognitive processes related to learning strategies led to improved learning of students. The groups of students that went through the instrumented learning process with ATLAS had a significantly greater increase in learning at the end of instruction than the groups that had not been exposed to ATLAS. Apart from the statistical significance of these findings, follow-up interviews with students in the ATLAS groups accentuated ATLAS' effectiveness in stimulating learning processes. D. Munday (2002) maintained that the ATLAS students "were so impressed with the instrument and learning about their learning preference that the group felt every adult student should be exposed to [the] ATLAS experience" (p. 85). He concluded that "ATLAS seemed to be a 'triggering' device for adult students to reflect on previous learning experiences

and evaluate themselves" (p. 112).

Although learning instruments have often been used for self-learning, they can also be applied to acquiring skills of teamwork effectiveness, intergroup problem solving, organization diagnosis, and performance (Blake & Mouton, 1972a, p. 116). This process of learning with instruments is appropriately referred to as Instrumented Team Learning (ITL). ITL was conceived out of a concern for the limited success of learner-centered education (Mouton & Blake, 1975). Mouton and Blake (1975) argued that two essential elements were missing that kept learner-centered education or "real learning" from prospering: the instrument through learning designs and teamwork (pp. vii-viii).

Apart from an increased motivation to learn, a core contribution of ITL is its capability to develop skills of personal and social effectiveness (Mouton & Blake, 1975, p. 54). The use of instruments for these reasons "is a far stronger, broader, and deeper source of learning than is self-examination itself" (Blake & Mouton, 1972b, p. 150). Teamwork allows learners to learn from each other for greater effectiveness in any learning situation. "Through feedback as to what is happening, participants can learn to see themselves better--as well as the other group members and the problems in the situation--and, hence, can learn

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skills of interacting with others more effectively" (Blake &
Mouton, 1962, p. 63). In this respect, instrumented
learning can be directly related to the concept of learning-
how-to-learn.

The learning-how-to-learn concept is a well established
and important contribution to the field of adult education
and, in particular, the field of adult learning. It is a
process that "involves possessing, or acquiring, the
knowledge and skill to learn effectively in whatever
learning situation one encounters" (Smith, 1982, p. 19). In
other words, if learners develop a self-awareness and self-
understanding of themselves, they have learned how to learn
(p. 57). Similarly, with instrumented learning, individuals
that possess an understanding and insight into their
behavior through the use of instruments are enabled to learn
how to make any kind of self-change for the better (Blake &
Mouton, 1972a, p. 114). An understanding of the three
interrelated subconcepts of learning-how-to-learn is
beneficial to better relate it to the process of learning
with instruments.

The first subconcept of learning-how-to-learn is
learner's needs. These are what learners "need to know
about learning itself for success in learning" (Smith, 1982,
p. 20). Through the use of instruments, learners can see

who they actually are in terms of behavior, and by comparing their behavior to others, they "learn best, that is, in ways that will result in changed and more effective [behavior]" (Blake & Mouton, 1972a, p. 114).

Learning style is the second subconcept of learning-how-to-learn. Learning style is "the individual's characteristic ways of processing information, feeling, and behaving in learning situations" (Smith, 1982, p. 24). Learning styles differ with adult learners. As such, using instruments in the learning process may be received by learners in different ways. Recognition of these differences "have important implications for program planning, teaching, and learning" (p. 24).

The third subconcept of learning-how-to-learn is training. Training refers "to deliberate efforts to help people become better at learning and more successful in the educational arena" (Smith, 1982, p. 25). The thrust behind instrumented learning is to help or train people to better understand themselves as learners and to adapt to any learning situation for successful application to professional practice.

Standing alone, self-report instruments ask questions and provide feedback without interpretation (Ayers, n.d.). For example, the General Decision-Making Styles (GDMS)

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instrument was designed to provide individuals with their primary decision-making style when making important decisions (Scott & Bruce, 1995). However, in the narrow context of the instrument developers' intentions, self-report or feedback of respondents' approaches to important decision-making situations does not provide practical meaning for respondents. They gain an awareness of their decision-making styles, but they do not learn how to learn to adapt their decision-making styles to decision-making situations.

In the instrumented learning process, however, self-report instruments ask questions and provide feedback with interpretation (Ayers, n.d.). The instrumented learning process usually begins with a self-description or feedback of a habitual approach to behavior (Blake & Mouton, 1972a, p. 114). Next, individuals interpret their self-description or feedback to a theory of behavior which makes sense of it (p. 114). GDMS as a learning instrument provides respondents with a description of their decision-making styles, and, more important, an interpretation of their decision-making styles that helps them understand themselves and others. With this awareness, individuals "are in a position to plot a course for self-development" (p. 114).

Appropriately, nine questions should be asked before

using self-report measures in the instrumented learning

process (Ayers, n.d.). First, and most important, is the

instrument valid and reliable? Second, is the instrument

based on established theory and empirical research? Third,

can the instrument's questions be clearly understood and

interpreted? Fourth, do respondents enjoy completing the

instrument, or does it create an "aha" response? Fifth, can

the instrument answer the "so what" question? Sixth, does

it look like a quality instrument? Seventh, is the

instrument user friendly for both facilitators and

respondents? Eighth, does the instrument have enough

support material to facilitate the necessary learning?

Ninth, if the instrument produces undesirable effects, can

they be minimized? These questions can help researchers,

teachers, and practitioners alike to effectively facilitate

the instrumented learning process using self-report

instruments.

CHAPTER 3

METHODOLOGY

<u>Design</u>

This study utilized a causal-comparative research design. This method of associational research seeks to describe conditions that already exist between or among groups of individuals (Fraenkel & Wallen, 1993, p. 317). More specific, "it involves selecting two or more groups that differ on a particular variable of interest and comparing them on another variable or variables" (p. 321). Group difference variables either cannot be manipulated or for one reason or another have not been manipulated (p. 317).

This study investigated the unchartered area of decision-making styles and learning strategies of police officers in the context of the current era of community policing. As part of a policing continuing professional education workshop, the full-time police officers self-reported their decision-making styles, learning strategies, and various demographic information. These self-report data were used in this study to open the line of inquiry into the learning processes of police officers in decision-making situations.

<u>Sample</u>

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A population is a "group of interest to the researcher, the group to which she or he would like the results of the study to be generalizable" (Gay & Airasian, 2000, p. 122). The population for this study was full-time police officers serving jurisdictions in and around the area of southwest Missouri. This area includes portions of southeast Kansas, northeast Oklahoma, and northwest Arkansas. A sample is a representative group of a larger population (Brown & Curtis, 1987, p. 50). A representative sample of the population participated in a Missouri POST (Peace Officers Standards and Training) certified policing continuing professional education workshop titled "Law Enforcement Ethics and Professionalism". The sample consisted of 150 full-time police officers. The workshop examined the theoretical and practical considerations of discretionary decision-making in policing. The goal of the workshop was to challenge participants' sense of professionalism and personal integrity as it relates to everyday responsibilities and the community. Moreover, it was designed to have participants think critically about the decisions they make during everyday activities. The eight-hour workshop was held on three separate dates in January, February, and March of 2002. The workshop was facilitated by the researcher.

The General Decision-Making Styles (GDMS) instrument

and Assessing the Learning Strategies of AdultS (ATLAS) instrument were used to aid in the instructional process. A large majority of the workshop participants were full-time police officers. Other participants included reserve or part-time police officers and criminal justice students. Both instruments were administered to the workshop participants in order to stimulate their learning for the duration of the workshop.

Before the administration of the GDMS, the workshop participants were given a gave a brief overview of the decision-making style concept. The overview included a definition of decision-making style. Once all of the participants completed the instrument, they were given instructions to determine their primary and backup decision-making styles. After all of the participants identified their decision-making styles, they were given a description of each of the five decision-making styles.

A similar approach was taken with the administration of the ATLAS instrument to the workshop participants. After a brief overview of the learning strategy concept, ATLAS was given to the workshop participants. A class discussion of the three learning strategies followed the identification of preferred learning strategies by participants. With an insight of how adults approach real-life learning tasks,

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participants became empowered to direct their own learning
during the exercises throughout the workshop.

<center>GDMS</center>

Instruments used in research should be selected that
will provide pertinent data about the topic under
investigation and meet the purpose of the researcher (Gay &
Airasian, 2000, p. 145). GDMS was developed by Susanne
Scott and Reginald Bruce in order to provide researchers
with "a generally available, psychometrically sound
instrument for measuring decision style" (Scott & Bruce,
1995, p. 819). It is an easily administered survey that can
be completed in approximately 3 to 5 minutes depending on a
respondent's reading level. It is a 25-item survey that
uses a 5-point Likert scale ranging from 1 to 5. Options on
the scale are as follows: 1--Strongly Agree, 2--Somewhat
Disagree, 3--Neither Agree Nor Disagree, 4--Somewhat Agree,
and 5--Strongly Agree. Five scales, each consisting of five
items, are representative of the five independent dimensions
of decision-making style: Rational, Intuitive, Dependent,
Avoidant, and Spontaneous. The highest score represents the
respondent's primary decision-making style, the second
highest score represents the respondent's backup decision-
making style, and the lowest score represents the decision-
making style least associated with the respondent.

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Scott and Bruce (1995) conducted "a multistage, four sample study . . . to develop a conceptually consistent and psychometrically sound measure of decision-making style" (p. 818). The four samples studied were 1,441 military officers (Sample 1), 84 MBA students (Sample 2), 229 undergraduate students (Sample 3), and 189 engineers and technicians (Sample 4).

The validity and reliability of any data-collection instrument are two of the most important aspects to be considered when considering empirical research. Validity is the most important characteristic of measuring instrument (Gay & Airasian, 2000, p. 161). It is "the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration" (Babbie, 1989, p. 124). Educational research is primarily concerned with the construct, content, and criterion-related validity of an instrument (Kerlinger, 1973, p. 457).

The most important form of validity is construct validity (Gay & Airasian, 2000, p. 167). It is the extent to which the test reflects the construct it is intended to measure (p. 167). The construct validity of the GDMS was established through factor analyses (Scott & Bruce, 1995). Data obtained from Sample 1 resulted in 32 of the original 37 items having factor loadings above .40 which explained

45% of the total variance (p. 823). After the discovery of
a fifth factor, an additional 6 items were written.
Separate factor analyses of the data obtained from Samples 2
and 3 revealed the same five-factor solution as found in
Sample 1. Factor loadings for 37 of the 43 items were over
.40 which explained 54% of total variance in Sample 2 and
48% of total variance in Sample 3 (p. 824). The 37 items
were further reduced to the final 25 items. Separate factor
analyses of the 20 items from Sample 1 and the 25 items
across Samples 2 and 3 were completed. The total item
variance explained was 50% for Sample 1, 63% for Sample 2,
and 58% for Sample 3 (p. 824).

"Content validity refers to the degree to which a
measure covers the range of meanings included within the
concept" (Babbie, 1989, p. 125). In most cases, experts in
the content area covered by the measure are asked to assess
the content validity (Gay & Airasian, 2000, p. 164). The
content validity of GDMS was established by conducting a
thorough search of both related theoretical and empirical
research literature (Scott & Bruce, 1995, p. 827).
Furthermore, independent researchers assessed the
appropriateness of each item (p. 827). Possible decision-
making style items "were written specifically to tap
behaviors that prior literature suggested would indicate a

particular style" (p. 827).

Criterion-related validity involves correlating a measure with a second measure (Gay & Airasian, 2000, p. 164). "The second test is the criterion against which the validity of the initial test is judged" (p. 164). The two forms of criterion-related validity are concurrent validity and predictive validity. "Concurrent validity is the degree to which scores on one test correlate to scores on another test when both tests are administered in the same time frame" (p. 164). The degree to which scores of two tests correlate taken at different times is predictive validity (p. 164). The form of criterion-related validity used for GDMS was concurrent validity. Analyses of variance (ANOVA) and Scheffé's post hoc procedure were used to determine if there were any significant differences between the five decision-making styles across the four samples (Scott & Bruce, 1995, p. 827). From these analyses, significant differences were found among the samples on the Rational (p < .001), Intuitive (p < .001), Avoidant (p < .001), and Dependent (p < .01) decision-making styles (p. 827). Samples 2 and 3 (the only two groups to receive the spontaneity scale) were not significantly different on Spontaneous (p < .05) decision-making style (p. 827).

Reliability is the degree to which a test consistently

measures what it is suppose to measure (Gay & Airasian, 2000, p. 169). The two basic forms of reliability are test-retest reliability and internal consistency reliability. Test-retest reliability refers to the consistency of scores on the same test over time (p. 171). Internal consistency reliability refers to the consistency of items one test at a time (p. 173). The reliability of GDMS was established through an analysis of internal consistency. Tests with Cronbach's alpha coefficients exceeding .70 are considered to have adequate internal consistency reliability (Leary, 1995, p. 61). The decision-making style scales across the four samples consistently had Cronbach's alphas ranging from .68 to .94 (Scott & Bruce, 1995).

<u>ATLAS</u>

ATLAS was developed by Gary Conti and Rita Kolody. ATLAS allows respondents to easily and quickly identify their preferred learning strategy. The instrument is spiral bound on 8.5" x 5.5" colored cards. On the opposite side of the front cover are clearly stated directions for completing the instrument. The instrument uses a flow-chart design. Beginning with the first page, instrument items are printed on smaller colored cards that progressively get larger as the respondent flips to subsequent pages. On each page:

> Sentence stems, which are in the top box on the page, lead to options in other boxes which

complete the stem. Connecting arrows direct the
respondent to the options. Each option leads the
respondent to another box which either instructs
the respondent to proceed to another colored card
or which provides information about the
respondent's correct group placement. (Conti &
Kolody, 1999a, p. 16)

Once the respondents identify their learning strategy group,
they are directed to the Groups of Learners card which is on
the inside of the back cover and on the back of the last
page of the instrument. Here, the respondents can read a
brief summary of the characteristics of their identified
preferred learning strategy.

The construct validity of ATLAS is based on that of the
Self-Knowledge Inventory of Lifelong Learning Strategies
(SKILLS) instrument. Cluster analysis was used with a data
set of 3,070 cases from a number of studies that utilized
SKILLS (Conti & Kolody, 1999a, pp. 16-17). Three groups of
learners with similar learning strategies were identified:
Navigators, Problem Solvers, and Engagers (pp. 17-18). The
distribution of the respondents among the three groups was
relatively equal: Navigators--36.5%, Problem Solvers--31.7%,
and Engagers--31.8% (p. 18). Thus, the construct validity
of ATLAS is rooted in the established validity of SKILLS and
the similarity of the three groups identified by ATLAS with
the groups identified in studies with SKILLS (p. 18).

The content validity of ATLAS is "concerned with the

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degree to which the items are representative of the learning strategy characteristics of the three groups identified in the SKILLS' research" (Conti & Kolody, 1999a, p. 19). Discriminant analyses were used to determine how each of the three groups differed in their approach to a learning task (p. 18). The results of these analyses were used for writing the items in ATLAS. The best wording and arrangement of instrument items were further based on qualitative data obtained from field testing (p. 19).

The criterion-related validity of ATLAS was established through a comparison of ATLAS scores and group placement of individuals using SKILLS (Conti & Kolody, 1999a, p. 19). Adult learners in Alberta, Montana, and Oklahoma were administered SKILLS and draft versions of ATLAS. Subsequently, respondents' suggestions obtained during individual interviews and group discussions were considered in improving ATLAS. It was determined that approximately 70% of the respondents were correctly placed in their appropriate SKILLS group (p. 19). In two recent studies, it was reported that at least 90% of respondents indicated that ATLAS accurately described their identified preferred learning strategy (Ghost Bear, 2001; Spencer, 2000). Furthermore, additional studies reported a high percentage of respondents confirming that their identified

learning strategy group placement accurately described them (James, 2000; Hinds, 2001; Lively, 2001; Willyard, 2000).

Establishing the reliability of ATLAS is an on-going process. Test-retest reliability is being used to establish the reliability of ATLAS. In one-week to three-week periods, the re-administering of ATLAS has a reliability coefficient of .84 (GhostBear, 2001, p. 92). Moreover, "test-retest results are approximately 90% accurate for placing people in the same learning strategy preference category" (Willyard, 2000, pp. 88-89).

Procedures

In January, February, and March of 2002, the researcher facilitated a policing continuing professional education workshop on the campus of Missouri Southern State College at Joplin, Missouri. The workshop focused on the ethical and professional decision making of police officers. The learning emphasis of the workshop was to draw upon the real-life experiences of the participants. Furthermore, critical reflection of the decision-making process was an important objective of the facilitator. As part of the workshop curriculum, participants completed a "Workshop Participant Information" sheet, GDMS, and ATLAS.

The participant information sheet was primarily completed as part of an introductory group exercise called

"Group Resume." The exercise was intended for participants to provide their professional experiences, educational background, personal information, additional information as deemed necessary by each group, and group statements concerning ethics and professionalism in policing. Each group completed and presented their resume in a creative manner that distinguished themselves from other groups. Moreover, the exercise added a certain comfort level for participants for the remainder of the workshop.

GDMS was administered to participants to identify their primary and backup decision-making styles. After determining their primary decision-making styles, participants were placed into their respective primary decision-making style groups somewhere in the classroom. The five decision-making styles (i.e., Rational, Intuitive, Dependent, Avoidant, and Spontaneous) were then discussed in the context of how they influence the ethical and professional decision-making process in policing problem-solving situations.

ATLAS was administered to participants to identify their preferred learning strategies. Participants indicated their preferred learning strategy on their workshop information sheet. After participants identified their learning strategy, they were placed into their respective

preferred learning strategy groups somewhere in the classroom. The three learning strategies (i.e., Navigators, Problem Solvers, and Engagers) were then discussed in the context of how police officers approach ethical and professional decision-making situations.

Both descriptive and inferential statistics were used to report the self-reported data obtained from the full-time police officers that participated in the three policing continuing professional education workshops. First, basic descriptive statistics were used to provide a profile of the officers. Second, chi square was used to compare officer responses on ATLAS to the national norms. Third, the univariate analysis techniques of chi-square analysis and analysis of variance were used to investigate the relationships involving police officer decision-making styles, learning strategies, and demographic variables. Fourth, the multivariate analysis techniques of cluster analysis and discriminant analysis were used to uncover distinct and meaningful groups of decision-making styles among the police officers.

CHAPTER 4

FINDINGS

Introduction

Information gathered from the 150 full-time police

officers who participated in a Missouri POST (Peace Officers

Standards and Training) certified policing continuing

professional education (CPE) workshop served as the data for

this study. Specifically, quantifiable data provided by a

"Workshop Participant Information" sheet, the General

Decision-Making Styles (GDMS) instrument, and the Assessing

The Learning Strategies of AdultS (ATLAS) instrument were

used to provide a profile of the police officers and to

facilitate statistical analyses using chi square analysis,

analysis of variance, cluster analysis, and discriminant

analysis.

Profile of Police Officers

The 150 full-time police officers that participated in

the workshop were predominantly white males (see Table 1).

A cross-tabulation of gender and race showed that 94.4% were

white males. While there has been a steady growth in the

number of minorities and women in policing in the last few

decades, this result remains reflective of a tradition of

the police being a predominantly white male occupation.

According to a 2000 national survey of local (i.e.,

municipal and township) police departments, it was estimated
that about 71% of all sworn full-time police officers were
white males (Bureau of Justice Statistics, 2003, p. 4).
However, as the populations of jurisdictions in which the
departments served decreased, the number of minority and
women police officers also decreased. The percentage of
minority police officers ranged from 36.5% in departments
serving populations of 1,000,000 or more to 12.1% in
departments serving fewer than 2,500 residents (p. 4).
Similarly, the percentage of female police officers ranged
from 16.5% in departments serving populations of 1,000,000
or more to 3.9% in departments serving populations with
fewer than 2,500 residents (p. 4). It was estimated that
about 85% of police officers in local departments that
served populations of fewer than 50,000 residents were white
males (p. 4). The 150 full-time police officers that
participated in the CPE workshop primarily represented small
city police departments and rural county sheriff's
departments from the southwest Missouri area that serve
jurisdictions with populations with fewer than 50,000
residents. Over four-fifths of the police officers
represented city police departments (see Table 1).

Table 1. Frequency of Demographic Variables

Variable	Frequency	Percent
Gender		
Male	143	95.33
Female	7	4.67
Race		
African American	2	1.33
Hispanic	2	1.33
White	142	94.67
Other	4	2.67
Government		
City	127	84.67
County	22	14.67
State	1	0.67
Education		
High School	88	58.67
Associate's	25	16.67
Bachelor's	35	23.33
Master's	2	1.33
Community Policing		
Yes	80	53.33
No	70	46.67
Experience		
1-5	58	38.67
6-10	45	30.00
11-15	24	16.00
16-20	9	6.00
21-45	14	9.33
Age		
22-25	14	9.33
26-30	44	29.33
31-35	33	22.00
36-40	15	10.00
41-45	17	11.33
46-50	7	4.67
51-68	20	13.33

Since the 1920s there has been an increased emphasis

placed on higher education for police officers. The policing literature is inundated with evidence of this trend. The President's Commission on Law Enforcement and the Administration of Justice (1967) recognized the need for higher education in policing because of the nature of police tasks (p. 126). Subsequently, extensive federal funding resulted in the development of numerous college law enforcement degree programs. While the number of law enforcement degree programs and people attending college to pursue careers in policing have increased, the minimum educational requirements for police departments have not. In 2000, 83% of local police departments nationwide had a minimum requirement of a high school diploma for new officer recruits (Bureau of Justice Statistics, 2003, p. 6). Moreover, the minimum educational requirement of some college hours ranged from 33% for departments serving populations of 1,000,000 or more to 4% for departments serving populations under 2,500 (p. 6).

To become eligible for employment as a sworn full-time police officer in the State of Missouri, individuals must first obtain a Missouri Peace Officer Certification by successfully completing a POST-mandated curriculum from one of the several Missouri POST-certified police academies or by fulfilling minimum reciprocity requirements when

transferring police qualifications from jurisdictions

outside the State of Missouri. As part of this requirement,

individuals must have at least a high school diploma or its

equivalent before being granted a certification. As such,

the minimum educational requirement to be employed as a

sworn full-time police officer with a police department in

the State of Missouri is a high school diploma or its

equivalent. Thus, all of the 150 full-time police officers

that participated in the workshop had a minimum of a high

school diploma or its equivalent. For slightly over half of

the participants, this was their highest level of education,

but 41.33% had at least some college work (See Table 1).

While only 2 had completed graduate degrees, nearly one-

fourth had a bachelor's degree and about one sixth had an

associate's degree.

The 150 full-time police officers that participated in

the workshop were asked if they serve as community policing

officers or otherwise regularly engage in community policing

activities. Just over one-half of the police officers

indicated that their duties involved one or both of these

two areas (see Table 1). This result reflects the growing

emphasis on community policing as the prevalent approach to

policing for police departments nationwide. In 2000, 62% of

local police departments serving populations fewer than

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10,000 and 75% in those departments serving populations

10,000 to 49,999 residents utilized community policing

officers (Bureau of Justice Statistics, 2003, p. 15).

Community policing activities varied among departments

depending on the type of activity and the size of the

population that they served. For example, the number of

departments that conducted citizen police academies ranged

from 2% that served populations fewer than 2,500 residents

to 49% that served populations of 25,000 to 49,999 residents

(p. 16).

Since age and experience are units of time, it would

make sense that the two variables go together. The age of

the 150 full-time police officers that participated in the

workshop ranged from 22 to 68 (see Table 1). The mean age

was 36.3 with a standard deviation of 10.9. The number of

years of full-time law enforcement experience of the police

officers ranged from 1 to 45 years (see Table 1). The mean

number of years of full-time law enforcement experience was

9.1 with a standard deviation of 7.7. A Pearson's

correlation between age and years of experience (r = .78, p

= .01) revealed a statistically significant relationship

exists between the age and the number of years of full-time

law enforcement experience of the police officers.

Primary Decision-Making Styles

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The General Decision-Making Styles (GDMS) instrument
was administered to all of the workshop participants as part
of the course curriculum. Responses on the 25 items of the
GDMS determined the primary decision-making styles of the
150 full-time police officers that participated in the
workshop (see Table 2). Each of the five decision-making
styles (i.e., Rational, Intuitive, Dependent, Avoidant, and
Spontaneous) were represented by 5-item subscales on GDMS.
Respondents indicate the extent to which they agree or
disagree with each item. Responses for each item are
indicated on a Likert scale ranging from 1 to 5: 1--Strongly
Disagree; 2--Somewhat Disagree; 3--Neither Agree or
Disagree; 4--Somewhat Agree; and 5--Strongly Agree. Scores
for each decision-making subscale range from 5 to 25. A
total score of 5 indicates that a respondent does not have a
tendency for a particular decision-making style whereas a
score of 25 indicates a strong tendency for a particular
style.

Table 2. Items of the General Decision-Making Styles
          Instrument

No.	Items
1	I plan my important decisions carefully.
2	I double-check my information sources to be sure I have the right facts before making decisions.
3	I make my decisions in a logical and systematic way.
4	My decision making requires care thought.
5	When making a decision, I consider various options in terms of a specific goal.
6	When making decisions, I rely upon my instincts.
7	When I make decisions, I tend to rely on my intuition.
8	I generally make decisions which feel right to me.
9	When I make a decision, it is more important for me to feel the decision is right than to have a rational reason for it.
10	When I make a decision, I trust my inner feelings and reactions.
11	I often need the assistance of other people when making important decisions.
12	I rarely make important decisions without consulting other people.
13	If I have the support of others, it is easier for me to make important decisions.
14	I use the advice of other people in making my important decisions.
15	I like to have someone to steer me in the right direction when I am faced with important decisions.
16	I avoid making important decisions until the pressure is on.
17	I postpone decision making whenever possible.
18	I often procrastinate when it comes to making important decisions.

No.	Items
19	I generally make important decisions at the last minute.
20	I put off making many decisions because thinking about them makes me uneasy.
21	I generally make snap decisions.
22	I often make decisions on the spur of the moment.
23	I make quick decisions.
24	I often make impulsive decisions.
25	When making decisions, I do what seems natural at the moment.

After completing GDMS, participants were placed in their respective decision-making style group of Rational, Intuitive, Dependent, Avoidant, or Spontaneous. Scott and Bruce (1995) contend that "individuals select particular environments on the basis of congruence between personal style and perceptions" (p. 822). Nearly two-thirds of the 150 full-time police officers identified their primary decision-making style as being Rational (see Table 3). About one-fifth of the police officers identified their primary decision-making style as being Intuitive. Several police officers had equal high scores for their primary decision-making style on the Rational and Intuitive scales. Only four had equal high scores in other combinations.

Table 3. Frequency of Primary Decision-Making Styles

Decision-Making Style	Frequency	Percent
Rational	92	61.33
Intuitive	27	18.00
Dependent	8	5.33
Spontaneous	3	2.00
Avoidant	1	0.07
Rational/Intuitive	15	10.00
Other Combinations	4	2.67

Figure 1. Frequency of Rational Decision-Making Style
Scores
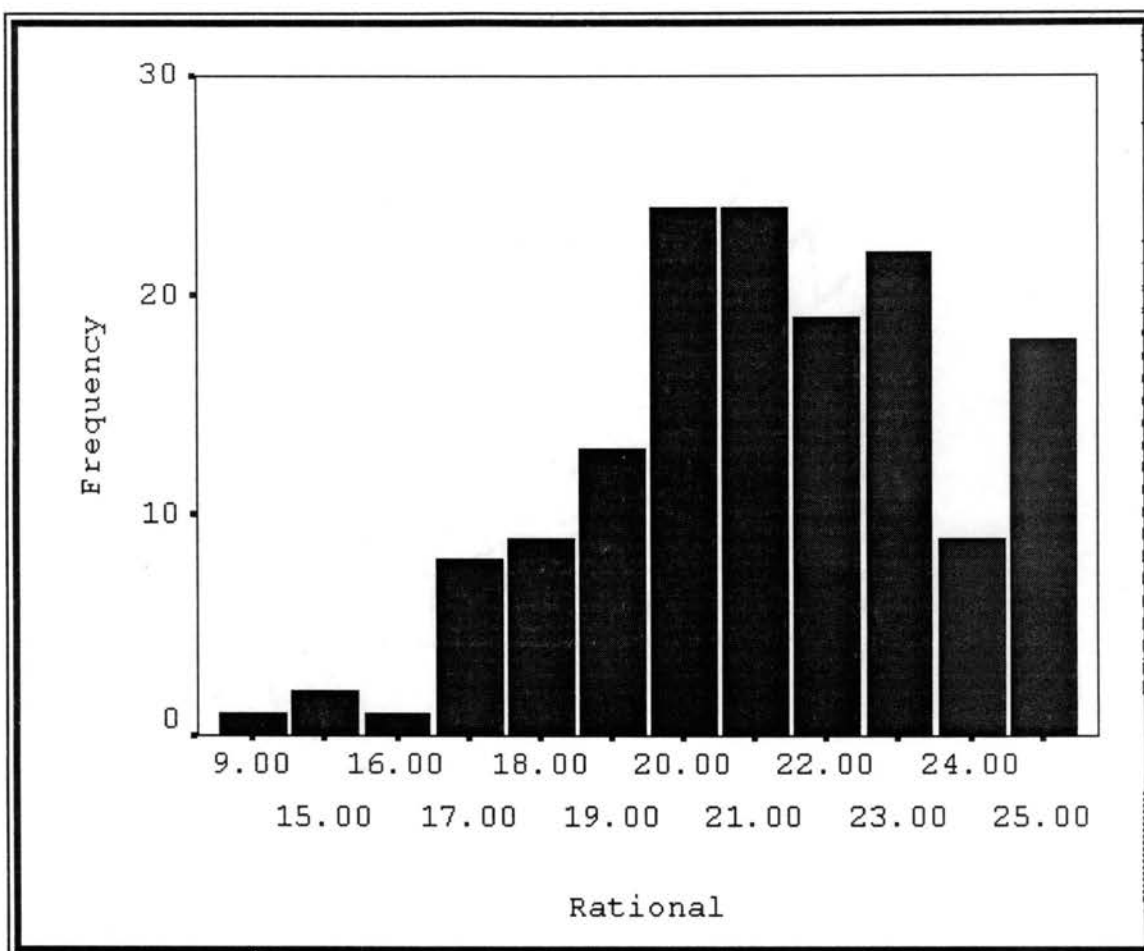
The most popular decision-making style of police
officers was the Rational decision-making style. Scores on
the Rational decision-making style subscale ranged from 9 to
25 with over three-quarters (77.3%) of the scores 20 or
above (see Figure 1). The mean score was 21.2 with a
standard deviation of 2.6, the median score was 21, and the
mode scores were 20 and 21.

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Figure 2. Frequency of Intuitive Decision-Making Style
         Scores
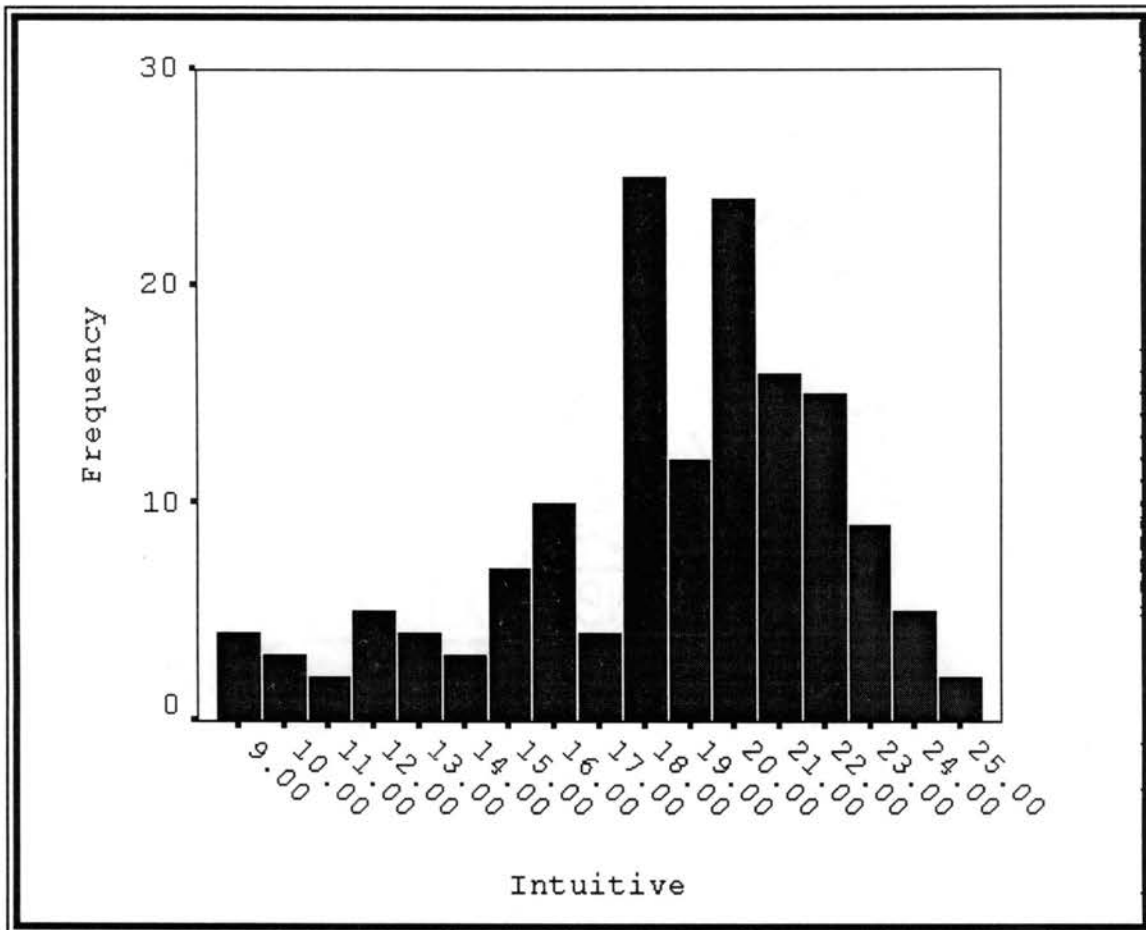
The Intuitive decision-making style was the second
highest decision-making style utilized by the police
officers. Like the scores on the Rational decision-making
style subscale, the scores on the Intuitive decision-making
subscale ranged from 9 to 25 with 72% of the police officers
having a score of 18 or above (see Figure 2). The mean
score was 18.5 with a standard deviation of 3.7, the median
score was 19, and the mode score was 18.

Figure 3. Frequency of Dependent Decision-Making Style
         Scores
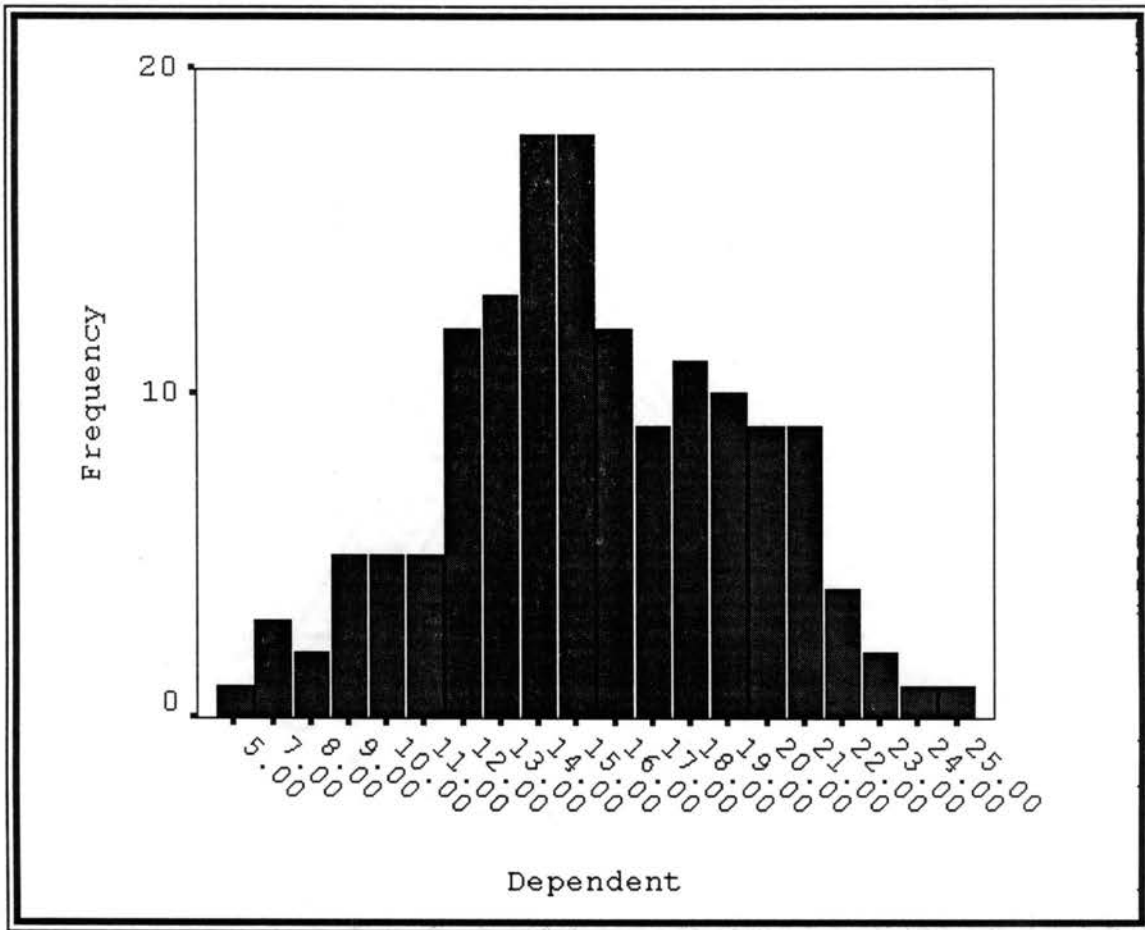
The police officers neither indicated a very strong or very little tendency toward the Dependent decision-making style. This was evidenced by scores that ranged from 5 to 25 and by very few scores above 21 (5.3%) and below 10 (7.3%) (see Figure 3). The scores of 12 to 18 represented 62% of the total Dependent decision-making scores. The mean score was 15.4 with a standard deviation of 3.9, the median score was 15, and the mode scores were 14 and 15.

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Figure 4. Frequency of Spontaneous Decision-Making Style
         Scores
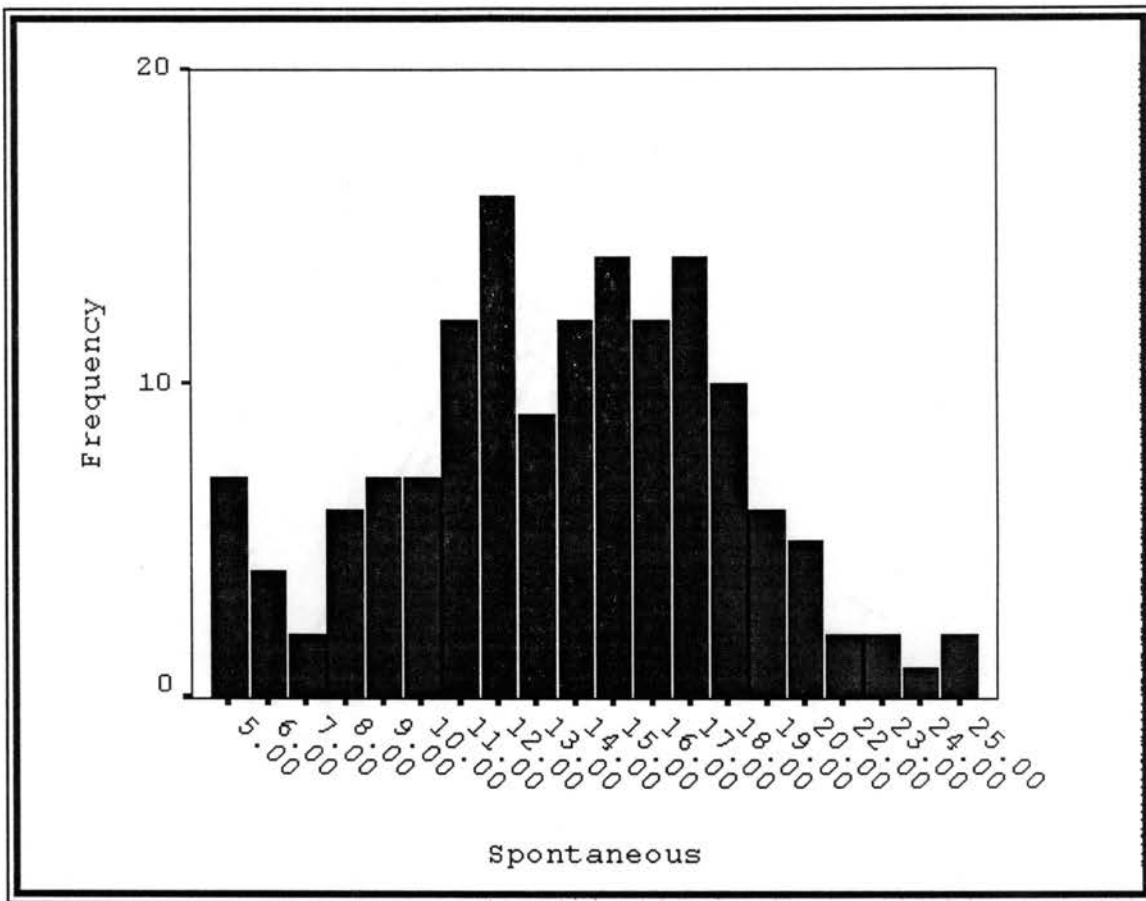
        Overall, scores on the Spontaneous decision-making

style subscale were similar to the scores on the Dependent

decision-making subscale (see Figure 4).   Scores ranged from

5 to 25, and a few police officers had scores above 19 (8%)

and below 9 (12.7%).   Moreover, scores of 12 to 18

represented 58% of the total Spontaneous decision-making

scores.   The mean score was 13.7 with a standard deviation

of 4.4, the median score was 14, and the mode score was 12.

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Figure 5. Frequency of Avoidant Decision-Making Style
          Scores
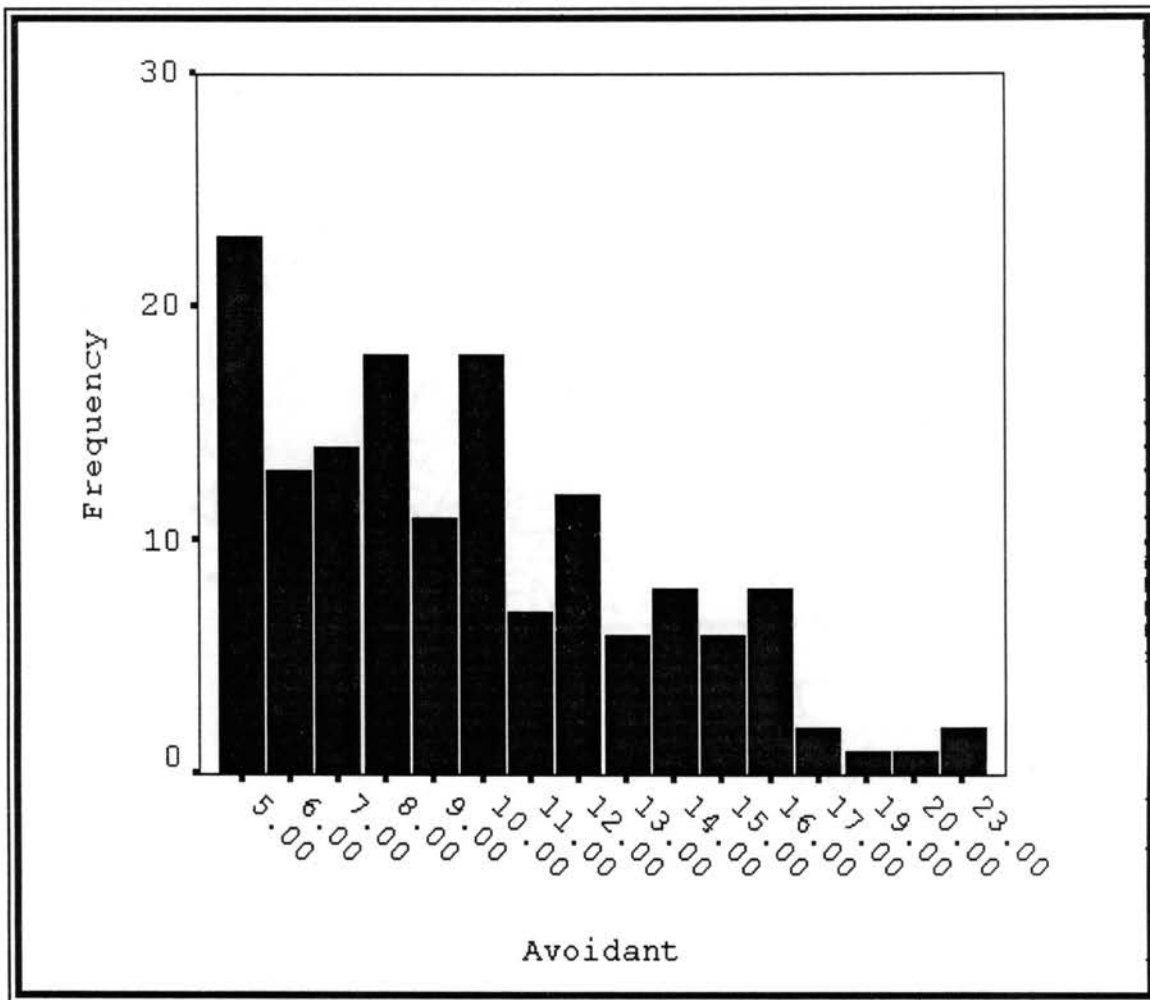
The police officers were least associated with the
Avoidant decision-making style. Several statistics
supported very little tendency toward the Avoidant decision-
making style. The scores on the Avoidant decision-making
subscale ranged from 5 to 23 with less than 4% of the scores
above 16 (see Figure 5). Over three-fourths (77.3%) of the
scores were under 13. Furthermore, the lowest score of 5

was the most frequent (15.3%) score. The mean score was 9.7
with a standard deviation of 3.9, and the median score was
9.

Although five decision-making styles exist, the police
officers overwhelmingly practice just two of these styles.
Collectively, just under 90% of the police officers had a
Rational or Intuitive primary decision-making style. A
small minority (8%) of the police officers identified their
primary decision-making style as being either Dependent,
Avoidant, or Spontaneous. A very small number of the police
officers (2.7%) identified their primary decision-making
style as being equally other combinations of the five
decision-making styles.

<u>Learning Strategy Preferences</u>

As with GDMS, the Assessing The Learning Strategies of
AdultS (ATLAS) instrument was administered to all of the
workshop participants as part of the course curriculum.
They were asked to identify their preferred learning
strategy as determined by ATLAS. Participants were placed
in their respective group of learners (e.g., Navigator,
Problem Solver, or Engager). The majority (44.7%) of the
150 full-time police officers that participated in the
workshop identified their preferred learning strategy as
being Engager (see Table 4). This result contradicts the

findings of a previous study with police officers. Birzer's (2000) study found that the majority (50%) of a sample population of police officers with the Wichita, Kansas, Police Department identified themselves as Problem Solvers. Just over one-quarter (27.3%) of the police officers in this study identified their preferred learning strategy as being Problem Solver. Likewise, just over one-quarter (28%) of the police officers identified their preferred learning strategy as being Navigator. The findings in Birzer's study revealed a similar proportion (23.8%) of Navigators among his sample population of police officers.

A chi-square analysis was calculated to determine if there was a significant difference between the observed frequency distribution of the police officers' preferred learning strategies in the current study to the expected preferred learning strategy frequency distribution based on the norms for ATLAS. Chi square is a test of significance appropriate when the data is the form of frequencies (Gay & Airasian, 2000, p. 502). It "compares the proportions actually observed in a study to the proportions expected, to see if they are significantly different" (p. 502). The learning strategy frequencies observed in this study were significantly different from the expected frequencies (χ^2 = 11.68, $\underline{df}$ = 2, $\underline{p}$ = .003) (see Table 4).

Table 4. Observed and Expected Distribution of Learning
        Strategy Groups

Learning Strategy	Observed	Expected	Difference
Navigator	42	54.8	-12.8
Problem Solver	41	47.6	-6.6
Engager	67	47.7	19.3

Navigators were under-represented by 30.48%. Problem
Solvers were under-represented by 16.1%. Engagers were
over-represented by 28.81%.

Univariate Analysis

Research utilizing a causal-comparative design involves
selecting two or more groups that differ on a particular
variable and comparing them on one or more variables. For
this study, the primary decision-making styles and the
preferred learning strategies of the 150 full-time police
officers that participated in the workshop were compared one
variable at a time to the demographic variables and to each
other.

Because approximately 90% of the police officers
indicated that their primary decision-making style was
either Rational, Intuitive, or a combination of the two, the
Dependent, Avoidant, and Spontaneous primary decision-making
styles were excluded from any univariate analysis.
Furthermore, because all but one of the police officers

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represented city and county police departments and because about 95% of the police officers were white and 95% were male, the demographic variables of government level of law enforcement agency, race, and gender were also excluded from any univariate analysis. As such, the primary decision-making styles and the preferred learning strategies of the police officers were compared to the demographic variables of educational level, participation in community policing activities, number of years of full-time law enforcement experience, and age. In addition, the primary decision-making styles and the preferred learning strategies of the police officers were compared to each other. Chi-square analysis and one-way analysis of variance (ANOVA) were used to make these comparisons.

Chi-Square Analysis

Chi-square analysis was used to investigate the relationships between the variables with categorical data. "Chi-square . . . is a test of the independence of the relationship between nominal or categorical variables. It asks whether the two variables are independent, exhibit no relationship or an association due to chance, or are dependent where the relationship is real and would seldom occur due to chance alone" (Hagan, 1993, p. 341). As such, the chi-square test is appropriate for testing hypotheses

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with nominal level data (Brown & Curtis, 1987, p. 74).

Since both primary decision-making styles and learning-strategy preferences are categorical data, three chi-square tests for independence were used to examine the relationship between the variables. A criterion-level was set at .05.

A chi-square analysis was calculated to determine if there was a significant relationship between the primary decision-making styles and the educational level of the police officers. The participants were grouped by the three decision-making styles of Rational, Intuitive, and Rational /Intuitive and by the three educational levels of High School Diploma, Associate's degree, and Bachelors's degree. No significant relationship was found between the primary decision-making style and the educational level of the police officers (χ^2 = 1.07, $\underline{df}$ = 4, $\underline{p}$ = .90).

A chi-square analysis was calculated to determine if there was a significant relationship between the preferred learning strategies and the educational level of the police officers. The participants were grouped by the three learning strategies of Navigator, Problem Solver, and Engager and by the three educational levels of High School Diploma, Associate's degree, and Bachelors's degree. No significant relationship was found between the preferred learning strategy and the educational level of the police

officers (χ^2 = 6.37, <u>df</u> = 4, <u>p</u> = .17).

A chi-square analysis was calculated to determine if there was a significant relationship between the primary decision-making styles and the preferred learning strategies of the police officers. The participants were grouped by the three decision-making styles of Rational, Intuitive, and Rational/Intuitive and by the three learning strategies of Navigator, Problem Solver, and Engager. No significant relationship was found between the primary decision-making style and the preferred learning strategy of the police officers (χ^2 = 8.07, <u>df</u> = 4, <u>p</u> = .09). Although .05 is a reasonable probability level for most studies, a higher probability level such as .10 can be selected to explore differences (Gay & Airasian, 2000, p. 479). Thus, if the probability level in this analysis was changed from .05 to .10, there would have been a significant relationship between the two variables (see Table 5). Specifically, there would be an interaction between the Engagers and the Intuitive decision makers who both tend to approach decision-making situations with internal feelings and confidence.

Table 5. Cross-Tabulation of Decision-Making Style and
         Learning Strategy

Decision-Making Style	Learning Strategy			
	Navigator	PS	Engager	Total
Rational	30	27	35	92
Intuitive	3	6	18	27
Rat/Int	5	3	7	15
Total	38	36	60	134

Analysis of Variance

ANOVA was used to investigate the primary decision-
making styles and the preferred learning strategies of the
full-time police officers that attended the workshop.
ANOVA is a parametric test that is used "to see if there is
a significant difference among the means of three or more
groups" (Gay, 1987, p. 255). The variance within and
between groups is examined to determine if any differences
exist among the means of the groups (Gay, 1987). If no
significant differences are found, further analysis is not
necessary (p. 392). If significant differences are found,
further analysis would be needed.

Two sets of one-way analyses were conducted. One set
compared decision-making style to demographic variables, and
the other compared learning strategy preference to the same
demographic variables. For these analyses, the three
decision-making styles of Rational, Intuitive, and Rational/

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Intuitive, and the police officer's learning strategy group were used. The demographic variables were participation in community policing activities, number of years of full-time law enforcement experience, and age. Participation in community policing activities was treated as a dichotomy. "A dichotomy is a variable with only two possible categories or values" (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975, p. 5). The police officers self-identified whether or not they participated in community policing activities. Because dichotomies can be treated as interval-level measures, the distance between the two possibilities are naturally equal (p. 5), and the data can be analyzed as though they were continuous scores (Kerlinger, 1986, p. 557). The .05 level of significance was used to evaluate the significance of the analyses.

Three separate ANOVAs were calculated to determine whether there were any significant differences between the primary decision-making styles of the police officers and participation in community policing activities, number of years of full-time law enforcement experience, and age. No significant differences were found between the primary decision-making style and participation in community policing activities, the number of years of full-time law experience, and the age of the police officers (see Table

6).

Table 6. ANOVA of Primary Decision-Making Styles by Age,
Years of Full-Time Law Enforcement Experience,
and Participation in Community Policing
Activities

Variable	SS	df	MS	F	p
Age					
Between	417.57	2.00	208.78	1.71	0.185
Within	16020.53	131.00	122.29		
Total	16438.10	133.00			
Experience					
Between	208.64	2.00	104.32	1.69	0.189
Within	8104.70	131.00	61.87		
Total	8313.34	133.00			
Community Policing					
Between	0.73	2.00	0.36	1.47	0.234
Within	32.50	131.00	0.25		
Total	33.23	133.00			

Three separate ANOVAs were calculated to determine
whether there were any significant differences between the
preferred learning strategy of the police officers and
participation in community policing activities, number of
years of full-time law enforcement experience, and age. No
significant differences were found between the preferred
learning strategy and participation in community policing
activities, the number of years of full-time law enforcement
experience, and the age of the police officers (see Table
7).

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Table 7. ANOVA of Learning Strategy Preferences by
         Participation in Community Policing Activities,
         Age, and Years of Full-Time Law Enforcement
         Experience

Variable	SS	df	MS	F	p
Community Policing					
Between	0.25	2.00	0.13	0.49	0.611
Within	37.08	147.00	0.25		
Total	37.33	149.00			
Age					
Between	43.59	2.00	21.79	0.18	0.835
Within	17737.41	147.00	120.66		
Total	17780.99	149.00			
Experience					
Between	2.68	2.00	1.34	0.02	0.978
Within	8893.62	147.00	60.50		
Total	8896.29	149.00			

These two sets of analyses revealed that there were no
relationships between the police officers' demographic
characteristics of participation in community policing
activities, number of years of full-time law enforcement
experience, and age and their decision-making styles and
learning strategies.

Multivariate Analysis

Unlike univariate analysis, multivariate analysis
"involves the interaction of many variables" (Conti, 1996,
p. 70). The General Decision-Making Styles (GDMS)
instrument consists of 25 items with 5 subgroupings of 5
items each. When these items were collapsed into the scales
as designed by the authors of the instrument, they presented

a picture of police officers who overwhelmingly support either the Rational or the Intuitive decision-making style. The 25 items from the instrument were used with multivariate analysis techniques to explore for possible groups within the population of police officers.

Cluster analysis was used to identify groups of police officers with similar decision-making style characteristics. Discriminant analysis was used to determine the differences between the identified groups. Both multivariate analysis procedures provided the researcher with the ability to take an inductive and a deductive approach with the data. The inductive approach allowed the researcher to "tease sense out of the data" (Conti, 1996, p. 67). The deductive approach allowed the researcher to "impose sense upon the data" (p. 67) and thereby name these groups.

Cluster Analysis

Researchers often overlook the possibility that a given set of objects that were assumed to be homogeneous in nature could be divided into subsets that would show reliable non-random differences (Kachigan, 1991, p. 261). The multivariate analysis technique of cluster analysis can accomplish "the task of partitioning a set of objects into relatively homogeneous subsets based on the inter-object similarities" (p. 261). Simply put, cluster analysis is a

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powerful multivariate tool that allows researchers "to identify groups which inherently exist in the data" (Conti, 1996, p. 71).

A widely used method for forming groups or clusters is agglomerative hierarchical clustering. The essence of agglomerative hierarchical clustering technique is that all objects in a data set are merged into groups or clusters at different stages depending upon the similarities between the objects (Kachigan, 1991, p. 270). "This procedure of sequential clustering continues until all the objects merge into a single undifferentiated group" (p. 270). Researchers have the task of determining at what stage the optimal number of clusters are the most appropriate for describing the data (Conti, 1996, p. 69).

Before computing a cluster analysis, a number of decisions must be made by researchers. An essential step in forming groups or clusters is to obtain a measure of similarity (proximity) or a measure of difference (distance) between objects (Kachigan, 1991, pp. 262-264). Difference relates to how far apart objects are while similarity measures the closeness of the objects (Conti, 1996, p. 69). The four types of measures of similarity or difference are correlation coefficients, Euclidean distances, matching-type measures of similarity, and direct scaling of similarities

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(Kachigan, 1991). Another essential step for researchers is to decide on the appropriate criteria for combining objects into the clusters or groups. While there are numerous cluster formation techniques, the Ward's method is widely used in the social sciences (Aldenderfer & Blashfield, 1984, p. 43).

A agglomerative hierarchical cluster analysis was computed using the 150 full-time police officer's responses to the 25 decision-making items of the GDMS scale. Using a squared Euclidean distance measure of similarity, the Ward's method was used to link the similar decision-making style items into similar clusters. This method of linking descriptors into clusters optimizes the minimum variance within clusters (Aldenderfer & Blashfield, 1984, p. 43). The most appropriate solution for describing the data in this study was a 4-cluster solution. This solution grouped the police officers into four decision-making groups of 42, 41, 38, and 29.

Discriminant Analysis

While the cluster analysis technique is a powerful multivariate tool for identifying groups, further statistical analyses can be used to provide additional insight into the meaning of the groups (Conti, 1996, p. 70). Discriminant analysis is one data analysis technique that

can be used to assist with group interpretation (p. 71). It "focuses upon the groups that exist and the set of discriminating variables that may explain the differences between the groups" (Conti, 1993, p. 91). In other words, it can be used to determine which variables contribute the most to the formation of the clusters (Kachigan, 1991, p. 269). By discerning the group differences in this way, researchers are in a better position to name and describe the groups in an insightful manner (Conti, 1996, p. 71).

The key components of discriminant analysis are the criterion variables and the predictor variables (Kachigan, 1991). The interrelationship of these two variables provides for an explanation of a person's placement in a particular group (Conti, 1993, p. 91). The criterion variable is a qualitative label given to a group (Kachigan, 1991, p. 218). The predictor variable is a quantitative variable that discriminates or distinguishes criterion groups (p. 216). Thus, discriminate analysis assigns given objects to criterion groups according to information on various predictor or classification variables (p. 218).

The discriminant function is employed in the discriminant analysis to classify objects into the criterion variable groups (Kachigan, 1991, p. 219). Two criteria of the discriminant function are examined to determine the

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usefulness of the discriminant analysis. First, the
coefficients in the structure matrix should have a value of
.3 or greater (Conti, 1993, p. 93). The structure matrix
indicates "how closely a variable and the discriminant
function are related" (pp. 93-94). Second, a certain
percentage of the objects should be correctly classified
into the proper group (p. 93).

Three separate discriminant analyses were computed in
this study to see what separated the four identified
clusters from each other. For these analyses, the groups
were the four groups from the cluster analysis and the
discriminating variables were the 25 items from the GDMS.
In a cluster analysis, "once a cluster is formed, it cannot
be split; it can only be combined with other clusters"
(Norusis, 1988, p. 14). At the 2-cluster level, the four
clusters formed two clusters that were nearly equal in size.
The group of 42 and the group of 29 combined to form one
group of 71, and the group of 38 and the group of 41 formed
the other group of 79.

The first discriminant analysis was computed to
identify the process that separated the 150 police officers
at the 2-cluster level. One cluster contained 71 police
officers and the other cluster contained 79 police officers.
At this two-cluster level, the police officers were

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correctly classified with 94.7% accuracy. In the cluster of
71 police officers, 67 of them were correctly classified.
In the cluster of 79 police officers, 75 of them were
correctly classified. The structure matrix was examined to
see what separated the two clusters. Using a minimum
structure-coefficient criteria of .3, decision-making style
items 9, 10, 21, 22, 23, 24, and 25 (see Table 2)
discriminated between the two clusters. Items 21, 22, 23,
24, and 25 make up the 5-item Spontaneous decision-making
style subscale. Items 9 and 10 are from the Intuitive
decision-making style subscale. It is the interaction of
these seven items that separated the two clusters of police
officers. The average scores for the items for the cluster
of 71 police officers were higher than the average scores
for the cluster of 79 police officers. Thus, at the 2-
cluster level, the cluster of 71 police officers believe
that impulsive decisions are occasionally okay whereas the
cluster of 79 police officers believe impulsive decisions
should be avoided.

The differences within each cluster of the 2-cluster
solution were identified. The second discriminant analysis
was computed to further discriminate between the two
clusters in the cluster of 71 police officers who felt that
impulsive decisions were occasionally appropriate. Within

this cluster of 71 was one cluster of 42 police officers and another cluster of 29 police officers. In this analysis, the police officers were correctly classified with 98.6% accuracy. In the cluster of 42 police officers, 41 of them were correctly classified. In the cluster of 29 police officers, all 29 of them were correctly classified. The structure matrix was examined to see what separated the two clusters. Using a minimum structure-coefficient criteria of .3, decision-making style items 17, 18, 19, and 20 (see Table 2) discriminated between the two clusters. All four items are from the Avoidant decision-making subscale. As such, avoidant decision making is what separates the two clusters of 42 and 29 police officers. The average scores on the items for the cluster of 42 police officers were lower than the average scores on the same items for the cluster of 29 police officers. As such, the cluster of 42 police officers believe that postponing decision making should be avoided whereas the cluster of 29 police officers believe that postponing decision making may sometimes be necessary.

The third discriminant analysis was computed to further discriminate between the two clusters in the cluster of 79 police officers who believe that impulsive decisions should be avoided. Within this cluster of 79 was one cluster of 41

police officers and another cluster of 38 police officers.

In this analysis, the police officers were correctly

classified with 98.7% accuracy. In the cluster of 41 police

officers, 40 of them were correctly classified. In the

cluster of 38 police officers, all 38 of them were correctly

classified. The structure matrix was examined to see what

separated the two clusters. Using a minimum structure-

coefficient criteria of .3, decision-making style items 6,

7, and 10 (see Table 2) discriminated between the two

clusters. All three items are from the Intuitive decision-

making style subscale. As such, intuitive decision making

is what separates the two clusters of 41 and 38 police

officers. The average scores on the items for the cluster

of 41 police officers were lower than the average scores for

the cluster of 38 police officers. As such, the cluster of

41 police officers believe that trusting their inner

feelings and instincts should generally be avoided in

decision making whereas the cluster of 38 police officers

believe that trusting their inner feelings and instincts is

generally good in decision making.

The 4-cluster solution can be displayed in a flow chart

to describe in a meaningful and insightful manner how the

police officers' decision-making style characteristics

interacted across the group (see Figure 6). As with ATLAS,

this flow chart shows the differences between the groups at various levels. Overall, the group of 150 police officers is divided into two groups of nearly equal size. The two halves differ over the belief that impulsive decisions are either occasionally okay if their inner feelings say to go with them or that they should be avoided. The group of police officers that believe impulsive decisions are occasionally okay divide into two groups that differ over whether postponing decision making either should be avoided or may sometimes be necessary. The group of police officers that believe impulsive decisions should be avoided divide into two groups that differ over whether trusting their inner feelings and instincts either should generally be avoided or is generally good. Appropriately, these four groups have tentatively been named after four well-known police officers from television series: Marshall Matt Dillon, Lieutenant Columbo, Sheriff Andy Taylor, and Sergeant Joe Friday.

The decision-making characteristics of U.S. Marshall Matt Dillon from the 1950s to 1970s television series Gunsmoke are synonymous with the decision-making characteristics of the group of police officers who believe impulsive decisions are occasionally okay but postponing decision making should be avoided. When confronted with the

frontier villainy common to 1890's Dodge City, Kansas,
Marshall Dillon occasionally acted with impulsivity but
would avoid putting decisions off as action was paramount.
Confrontational dialogue such as "Decide how you want it
mister--hard or easy" demonstrates his decisive nature.

The decision-making characteristics of Lieutenant
Columbo from the 1970s television series of <u>Columbo</u> are
synonymous with the decision-making characteristics of the
group of police officers who believe impulsive decisions are
occasionally okay and postponing decision making may
sometimes be necessary. Lt. Columbo was a Los Angeles
Police Department (LAPD) homicide detective driven by his
instinctive impulses and was comfortable with waiting until
the right moment to trap his killer. Following his
instincts, there was very little he would not do in order to
solve a case. "Just one more thing . . . ?" was a common
question that he posed to interviewees that demonstrated his
impulsive cunning for revealing evidence.

The decision-making characteristics of Sheriff Andy
Taylor from the 1960s television series <u>The Andy Griffith
Show</u> are synonymous with the decision-making characteristics
of the group of police officers who believe impulsive
decisions should be avoided and trusting their inner
feelings and instincts is generally good. Sheriff Taylor

was a patient and methodical lawman who was rarely impulsive but trusted his intuition in dealing with problematic situations. His best weapon for solving problems in the small town of Mayberry, North Carolina, was his instincts, not a gun. "Now, Barney . . . ." was a common expression used by Andy to keep Deputy Barney Fife from hastily jumping into decision situations.

The decision-making characteristics of Sargent Joe Friday from the 1950s to 1970s television series <u>Dragnet</u> are synonymous with the decision-making characteristics of the group of police officers who believe impulsive decisions should be avoided and trusting their inner feeling and instincts should generally be avoided. Sgt. Friday was a fact-based, straight-arrow LAPD detective who avoided impulsive decisions and relied heavily on policies and procedures when making decisions. Procedure dialogue such as "Just the facts, ma'am." describes his no-nonsense approach to solving problems.

The differences in learning strategy preferences of the groups was explored. Overall, there was a significant difference in the frequency distribution for the learning strategy preferences groups for the four decision-making groups (χ^2 = 16.71, $\underline{df}$ = 6, $\underline{p}$ = .01) (see Table 8). In a chi-square analysis, the Marshall Dillion and Lieutenant

Columbo groups contained more Engagers than expected and were under-represented in both the Navigator and Problem Solver groups. The Sheriff Taylor and Sergeant Friday groups had less Engagers than expected while the Navigator and Problem Solver groups were larger than expected. This pattern was more evident when the groups were analyzed at the 2-cluster level (see Table 8). The significant difference at this level was due to the large number of Engagers (60.56%) that feel that it is okay to occasionally make impulsive decisions (χ^2 = 14.69, $\underline{df}$ = 2, $\underline{p}$ = .001). While differences exist between the groups at the 2-cluster level, there are no significant differences within these groups. There are no significant differences between the two groups that make up the group that feels that it is okay to occasionally make impulsive decisions (χ^2 = 1.46, $\underline{df}$ = 2, $\underline{p}$ = .48) and between the two groups that make up the group that feels that impulsive decisions should be avoided (χ^2 = .46, $\underline{df}$ = 2, $\underline{p}$ = .79).

Table 8: Distribution of Decision-Making Groups by Learning
        Strategy Groups

Groups	Navigator	PS	Engager	Total
4-Group Level				
Marshall Dillon	8	11	23	42
Lt. Columbo	4	5	20	29
Sheriff Taylor	13	13	12	38
Sgt. Friday	17	12	12	41
2-Group Level				
Make impulsive decisions	12	16	43	71
Avoid impulsive decisions	30	25	24	79

Figure 6. Flow Chart of Decision-Making Processes

```
                    ┌──────────────────────────┐
                    │   Impulsive decisions:   │
                    │         N=150            │
                    └──────────────────────────┘
                         │                │
            ┌────────────┘                └────────────┐
            ▼                                          ▼
┌──────────────────────────┐        ┌──────────────────────────┐
│   Are occasionally okay  │        │                          │
│    if my inner feelings  │        │    Should be avoided.    │
│  tell me to go with them.│        │                          │
│           n=71           │        │           n=79           │
└──────────────────────────┘        └──────────────────────────┘
            │                                     │
            ▼                                     │
   ┌──────────────────┐                           │
   │    Postponing    │                           │
   │ decision making: │                           │
   └──────────────────┘                           │
       │          │                               │
   ┌───┘          └───┐                           │
   ▼                  ▼                           │
┌──────────┐   ┌──────────────┐                   │
│Should be │   │May sometimes │                   │
│avoided.  │   │be necessary. │                   │
│  n=42    │   │    n=29      │                   │
└──────────┘   └──────────────┘                   │
     │               │                            │
     ▼               ▼                            ▼
┌──────────┐   ┌──────────────┐        ┌──────────────────────┐
│ Marshall │   │  Lieutenant  │        │      Trusting my     │
│Matt Dillon│  │   Columbo    │        │    inner feelings    │
└──────────┘   └──────────────┘        │    and instincts:    │
                                       └──────────────────────┘
                                            │          │
                                        ┌───┘          └───┐
                                        ▼                  ▼
                              ┌──────────────┐   ┌──────────────┐
                              │ Is generally │   │    Should    │
                              │good in decision│ │ generally be │
                              │   making.    │   │   avoided.   │
                              │    n=38      │   │    n=41      │
                              └──────────────┘   └──────────────┘
                                     │                  │
                                     ▼                  ▼
                              ┌──────────────┐   ┌──────────────┐
                              │   Sheriff    │   │   Sergeant   │
                              │ Andy Taylor  │   │  Joe Friday  │
                              └──────────────┘   └──────────────┘
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CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

Purpose

The police profession in America finds itself in the midst of an exciting but challenging period in its brief evolutionary history. The recent metamorphosis from a predominantly reactive to a more proactive approach to solving community problems has created both aspiration and uncertainty for its future. Despite these two opposing perceptions, community policing has been widely recognized as the most appropriate means of policing for enhancing the quality of life in communities today. Community policing entails a police-community partnership to solve problems in the community. To insure its success, the police must conform to the demands inherently created by society.

Community policing places a strong emphasis on empowering police officers who have daily interaction with the community with more autonomy and discretionary authority in decision-making situations. Moreover, the community policing environment encourages police officers to be thinking professionals when approaching decision-making situations. However, the lack of flexibility in the current structure of police organizations and police training limits

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the degree by which they can decide or influence decision outcomes. Police officers are often indoctrinated to "what to think" rather than "how to think" in decision-making situations. As a result, they are making robotic-like decisions dictated by the existing narrow scope of policies and procedures and rules and regulations. Most real-world decision-making situations, however, are presented in ambiguous and ill-structured ways.

The professional status of police officers in the community policing environment will be determined primarily by how well they approach decision-making or problem-solving situations in a diverse and complex society. Accordingly, the formal and informal learning environments of police officers must accommodate the learning processes necessary for them to properly adjust to real-life decision-making situations. The recognition and appropriate selection of decision-making styles and learning strategies by police officers can influence the success of any given police encounter.

Before progress can me made for the inclusion of these ideas in the learning environments of police officers, decision-making styles and learning strategies of police officers need to be identified and investigated. Therefore, the purpose of this study was to describe the decision-

making styles and learning strategies of full-time police officers in the context of the current era of community policing.

Design

The primary decision-making styles and preferred learning strategies of 150 full-time police officers that participated in a policing continuing professional education (CPE) workshop were investigated. Because these two pre-existing behavioral characteristics of the police officers were identified and utilized in a workshop, a causal-comparative or ex post facto research design was used.

As part of the workshop, the decision-making styles of the police officers were identified with the General Decision-Making Styles (GDMS) instrument, and the learning strategy preferences were identified with the Assessing The Learning Strategies of AdultS (ATLAS) instrument. Along with a "Workshop Participant Information" sheet that identified various demographics of the police officers, these two measures were used to aid in the instructional process.

The data gathered from these items was used to describe the group of police officers and determine factors for pre-existing differences among the group. To achieve this, both descriptive statistics and inferential statistics were used.

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A profile of the police officers was constructed using descriptive statistics. The univariate analysis techniques of chi-square analysis and analysis of variance and the multivariate analysis techniques of cluster analysis and discriminant analysis were used to describe and differentiate the group of police officers. The Statistical Package for the Social Sciences (SPSS) was used to analyze the data.

Findings

Descriptive statistics were used to construct a profile of the 150 full-time police officers that participated in the workshop. "These statistics enable the researcher to characterize (i.e., describe) a large set of data with a few measures" (Brown & Curtis, 1987, p. 63). For the current study, measures of frequency, measures of central tendency, measures of variability, and measures of relationship were used to characterize the police officers.

Descriptive statistics were used to describe the demographic variables of the police officers. The following summary characterizes the demographics of the police officers in this study:

    (a) Nearly all of the police officers were white males;

    (b) The majority of the police officers were employed by small municipal police departments;

    (c) Nearly one-half of the police officers had a

minimum of an associate's degree;

(d) Over one-half of the police officers participated in community policing activities;

(e) Over two-thirds of the police officers had 10 years or less of full-time law enforcement experience;

(f) The average age of the police officers was 36.

Descriptive statistics were used to describe the decision-making styles of the police officers. Utilizing the information gathered through the administration of GDMS, the primary decision-making styles of the police officers were identified. Over 60% of the police officers identified themselves has having a Rational decision-making style. Eighteen percent of the police officers identified themselves has having an Intuitive decision-making style. Ten percent of the police officers identified themselves as having equally a Rational and Intuitive decision-making style. Only 10% of the police officers identified themselves as having a Dependent, Avoidant, Spontaneous, or other combination of decision-making style.

Descriptive statistics were used to describe the learning strategies of the police officers. Utilizing the information gathered through the administration of ATLAS, the preferred learning strategies of the police officers were identified. Nearly 45% of the police officers identified themselves as having the Engager learning

strategy. Just over 25% of the police officers identified themselves has having the Problem Solver learning strategy. Similarly, just over 25% of the police officers identified themselves as having the Navigator learning strategy. A chi-square analysis revealed that the learning strategy distribution observed in this study was significantly different than the expected learning strategies based on the national norms of ATLAS.

The univariate analysis techniques of chi-square analysis and analysis of variance were used to compare the primary decision-making styles, preferred learning strategies, and the demographic variables of the police officers. Both techniques revealed that the decision-making styles, preferred learning strategies, and the demographic variables of the police officers were independent of each other. While no significant relationships were found between the primary decision-making styles and the preferred learning strategies of the police officers, it was determined that there would be a significant relationship between the Intuitive decision-making style and the Engager learning strategy if a probability level .10 was selected.

The multivariate analysis techniques of cluster analysis and discriminant analysis were used to determine if the decision-making style characteristics from the GDMS

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scale interacted in any meaningful way across the group of
police officers. Using the items from the GDMS, a cluster
analysis revealed four distinguishable groups of police
officers with similar decision-making style characteristics.
Three separate discriminant analyses were calculated to name
the differences between the four groups. The 150 police
officers were differentiated by impulsive decisions. A
group of 42 police officers believe that impulsive decisions
are sometimes necessary. A group of 29 police officers
believe that postponing decision making is sometimes
necessary but it is occasionally okay to make impulsive
decisions. A group of 38 police officers believe impulsive
decisions should be avoided and that trusting inner feelings
and instincts is okay in decision making. A group of 41
police officers believe that impulsive decisions should be
avoided and that trusting inner feelings and instincts
should be avoided in decision making.

Conclusions

Decision-Making Styles

Police officers tend to be basically Rational and
Intuitive decision makers when approaching
important decision-making situations.

Police officers with Rational and Intuitive
decision-making styles are well equipped to
effectively solve community problems.

Police officers with Dependent, Avoidant, and
Spontaneous decision-making styles will need to be

taught the skills of the Rational and Intuitive
styles to be effective community problem solvers.

Police officers' decision-making styles are
independent of their demographic characteristics.

Primary decision-making styles are the general approach

that people have for approaching decision-making situations.

They use them because the approach works for them in most

decision situations. There are situations that may best fit

one or more of the five decision-making styles rather than

having conditions that are equally fit for each style. For

example, the group of full-time police officers have two

dominant primary decision-making styles: Rational and

Intuitive. Moreover, several of the police officers that

are not dominant in the Rational or Intuitive decision-

making style make use of both styles equally. An

overwhelming majority of the police officers are

characterized by the Rational decision-making style when

approaching important decision-making situations. This

suggests that the policing profession is drawing in police

officers that have the capacity to make important decisions

in problem-solving situations that are congruent with the

nature of the field. Several conclusions have been drawn

from this inference.

First, a contradiction exists between the Rational and

Intuitive groups of police officers. The maxim for this

country comes out of the constitutional principle that America is a nation of laws and not of men. A nation of laws has laws written out that should be interpreted and enforced in a very logical and rational kind of way; that is, the law is the law. However, a number of the police officers are characterized by the Intuitive decision-making style. They interpret the law according to personal feelings and instincts. Therefore, there are dual types of decision makers making important choices in problem-solving situations that are often the first step in the criminal justice process. Moreover, "unlike most organizations, it is the individual police officers at the bottom of the organization's hierarchy who have the most discretion in decision making. They are the ones who decide whether to apply the law" (Jetmore, 1997, p. 29).

On the other hand, the two independent decision-making styles of Rational and Intuitive can compliment each other well in problem-solving situations. If police officers are dominant in one of these two decision-making styles, they tend to use the other style as a back-up or supportive style as situations change. Individuals do not have to rely on a single decision-making style when making important decisions (Scott & Bruce, 1995). The Rational and Intuitive decision-making styles have behavioral characteristics that are

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similar to the traits desired of police officers when confronted with problem-solving situations. Rational decision makers display many of the characteristics of the reflective practitioner which are essential to the professional practice of community policing. They have "the ability to recognize the consequences of earlier decisions for later decisions" (Harren, 1979, p. 125). Moreover, they anticipate the need to make decisions in the future and prepare for them by seeking information about themselves and the situation (p. 125). As such, they logically and deliberately approach problem-solving situations (p. 125). Intuitive decision makers rely heavily on their instincts when approaching decision situations. Their innovativeness provides them with the ability to generate and implement new and creative ideas in important decision situations (Scott & Bruce, 1995). Police officers that use the community policing approach to decision situations reflect on their previous experiences which allows them to generate innovative and creative alternatives to solving problems. Thus, when these two decision-making styles are combined or used in a supportive role in problem-solving situations, police officers are better equipped to deal with many of the problems presented in the community.

Because police officers are Rational or Intuitive or a

combination of the two, they are approaching problem-solving

situations in an appropriate manner congruent to the nature

of community policing. However, these two dominant

decision-making styles may not be the most appropriate

styles for approaching all of the problem-solving situations

that will be encountered by police officers. Nevertheless,

the three other decision-making styles of Dependent,

Avoidant, and Spontaneous are less than desirable for police

officers dealing with many of the problems presented in the

community; they may even be detrimental. "The use of the

dependent decisional strategies is damaging, particularly in

early stages of the decisional process" (Phillips, Pazienza,

and Walsh, 1984). Moreover, the Dependent and Avoidant

decision-making styles are characteristic of individuals

that are more than likely to avoid decision making (Scott &

Bruce, 1995). These two decision-making approaches are

counterproductive to the current nature of the police

profession. Avoidant police behavior is antithetical to the

human services commitment which is a major incentive for

police work (Scogin & Brodsky, 1993, p. 2). Police officers

in the community policing environment are autonomous, self-

directed decision makers who practice proactive problem

solving. They are now problem solvers who are interested in

creating solutions and not being dependent on others (Peak &

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Glensor, 2002). The Spontaneous decision-making style is characteristic of decision makers who quickly get in and out of decisions without giving much thought to the circumstances of situations. Police officers approaching problem-solving situations in the community policing environment need to be critical thinkers that rely on a number of resources and the generation of alternatives which often requires additional time to arrive at proper solutions.

Because the Rational and Intuitive decision-making styles may not be the most appropriate approach in all situations, police officers can be taught how to identify and react to certain situations where they may need to be careful about implementing their Rational or Intuitive style or they may need to take into consideration the information load in a situation to implement a different approach. For example, in a hostage situation, Rational, Intuitive, or Rational/Intuitive police officers may need to avoid taking action against the hostage taker in order to prevent further harm to the victim. While these police officers could figure this out with their style, they may need to be taught how to incorporate avoidance conditions into their respective styles to better adjust to the situation and become much more effective.

Although the policing profession is drawing in predominantly police officers with Rational and Intuitive decisional-making styles, a small number of police officers with Dependent, Avoidant, and Spontaneous decision-making styles are still attracted to rural policing. While there may be problem-solving situations that may be tailor-made for each of these three styles, this would not be advantageous to the professional practice of community policing. Both neophyte and veteran police officers with these three decision-making styles will need to be taught problem-solving skills that are necessary for them to effectively accommodate and handle the decision-making situations that make up an overwhelming part of the job. However, because each of these three decision-making styles are how these police officers approach most decision situations, it may be more difficult for them to adapt the traits and skills necessary for effective community policing. In this case, police officers can be teamed with other police officers with the Rational, Intuitive, or Rational/Intuitive decision-making style to facilitate their development. In the most extreme cases, police officer recruits or practicing police officers who are not adjusting to the community policing approach and who in turn are exhibiting behavior that poses risk of injury or death to

others may need to be counseled out of the policing

profession.

There were no relationships found between the decision

making styles and the demographic variables of the group of

police officers. As such, the decision-making styles of the

police officers are independent of their demographic

characteristics. Thus, police officers with particular

decision-making styles cannot be stereotyped by their

demographics.

Learning Strategies

The majority of rural police officers approach
learning tasks or situations in terms of
relationships as indicated by their Engager
learning strategy.

Police officers that have a preference for the
Engager or Navigator learning strategy will need
to learn Problem Solver learning strategy skills
to be better equipped to solve problems in the
community policing environment.

Police officers learning strategies are
independent of their demographic characteristics.

There is a tendency for the Engager learning
strategy of police officers to be associated with
Intuitive decision-making style of police
officers.

Preferred learning strategies are the general, learned,

habitual approach that individuals have for approaching a

learning task or situation. They use them because the

approach works for them in most situations. There are

situations that may best fit one the three strategies rather

than having conditions that are equally fit for each

strategy. For example, Birzer's (2000) study found that

one-half of a sample of police officers with the Wichita,

Kansas, Police Department identified themselves as having

the Problem Solver learning strategy. Birzer clearly and

objectively laid the foundation for the Problem Solver

learning strategy as being the ideal approach to delivering

police services in the community-policing environment. He

found that many of the traits of the Problem Solver learning

strategy strongly parallel the traits desired of police

officers in the community-policing environment (see Table

8).

Table 8. Comparisons between Skills/Traits in the Problem
        Solver Learning Strategy and Community Oriented
        Policing

Problem Solver Learning Strategy	Community Oriented Policing
Critical thinking	Critical thinking
Generate alternatives	Generate alternative to solve problems
Identify resources	Identify resources to solve problems within the community
Test assumptions	Test assumptions as they pertain to traditional police response in dealing with community problems
Adjusting learning processes	Adjusting learning processes to respond to different community problems
Use many external aids	Use many external aids to solve problems within the community

Provide environment of practical experimentation	Experiment with different approaches to solve community problems
Give examples from personal experience	Use personal experience to solve problems
Assess learning by asking open-ended questions	Assess problem solving by open discussion with citizens
Problem solving activities	Problem solving central to community policing
Hands on activities	Hands on activities working with the community
Spontaneity and creativity	Encouragement of innovation and creative problem solving. Encourage creativity and risk taking

Note. From <u>Learning Strategies Utilized by Police Officers</u>, by M. L. Birzer, 2000, Unpublished doctoral dissertation, Oklahoma State University, Stillwater.

Accordingly, he argued that all police officers should apply the Problem Solver learning strategy to be effective problem solvers in the community policing environment. In this study, however, the majority of the police officers identified themselves has having a preference for the Engager learning strategy when approaching learning tasks or situations. As such, a contradiction exists between the findings of the two studies.

From this contradiction stems the idea that the nature of policing is drawing in police officers with certain learning strategy preferences. Overall, previous learning strategy studies have suggested that it is the learning

situation that attracts adults learners with particular

learning strategies. For example, in the learning strategy

studies of James (2000), Willyard (2000), and Massey (2001),

a disproportionate number of Engagers were identified. They

argued that it was the nature of the organization that drew

in more Engagers. Engagers make contemplated decisions

before entering into a specific learning situation (Conti &

Kolody, 1999a, p. 14). As such, the contradiction between

the finding in the current study and the finding in Birzer's

(2000) study is premised on the differences in the nature of

the policing environment in Wichita, Kansas, versus the

nature of the policing environment of the police officers in

the current study. The police officers in the current study

all work in small towns or rural communities. The police

officers in Birzer's study worked in a larger, more urban

environment. Thus, police officers with a preference for

the Engager learning strategy may be attracted to the nature

of policing in smaller towns where there is a greater

emphasis on people and the community than on "law

enforcement". On the other hand, police officers with a

preference for the Problem Solver learning strategy may be

attracted to the nature of policing in larger cities where

the perception is that many situations call for the testing

of assumptions, generation of alternatives, and practice of

conditional acceptance.

Since the majority of the rural police officers subscribe to the Engager learning strategy, they may need to be taught Problem Solver skills in order to more effectively deal with problem-solving situations in the community policing environment. This does not negate that there may be learning situations in the community policing environment that are ideal for the Engager learning strategy. Police officers that have a preference for the Engager learning strategy do not automatically generate alternatives, test assumptions, and practice conditional acceptance in problem-solving situations. Therefore, by teaching Engagers Problem Solver skills, they can incorporate these additional tools with their overall Engager approach. Morever, they have an additional awareness of how to use them. As such, training for police officers with the Engager learning strategy may require them to be teamed with police officers with the Problem Solver learning strategy. This interaction can create an awareness of the Problem Solver skills that will be necessary to effectively approach learning situations. For example, in a situation where someone is beating another person with a hammer, the Engager may likely want to talk down the suspect rather than deciding that the most appropriate level of force to stop the beating and control

the subject and the situation is lethal force. The failure to use the appropriate amount of force may result in the death of the victim. Therefore, by teaming Engagers with Problem Solvers, they can become aware of how to effectively adjust to deadly force situations.

Interestingly, about one-fourth of the police officers in both this study and Birzer's (2000) study preferred the Navigator learning strategy when approaching learning tasks or situations. This suggests that an equal number of Navigators may be found in populations of various sizes and geographic locations. Despite this, however, police officers that have a preference for the Navigator learning strategy do not automatically generate alternatives, test assumptions, and practice conditional acceptance in problem-solving situations. They rely on planning and monitoring when approaching learning situations. Therefore, by teaching Navigators Problem Solver skills, they can incorporate these additional tools with their overall Navigator approach. Morever, they have an additional awareness of how to use them. This does not negate that there may be learning situations that are ideal for the Navigator learning strategy. By teaming Navigators with Problem Solvers, they too can gain an awareness of how to better adjust to learning situations. For example, in a

situation where there are hundreds of people rioting, the Navigator may feel they do not have control and may resort to using excessive force to gain control. By being teamed with Problem Solvers, the Navigator may gain an awareness of how to learn to generate alternatives to peaceably gain control without overreacting.

Police officers with a preference for the Problem Solver learning strategy may also benefit from the teaching of Problem Solver skills necessary to effectively solve community problems. This additional training can reinforce or compliment their existing skills. Therefore, they too are better equipped to approach problem-solving situations. Furthermore, because all learning situations may not be conducive for Problem Solvers, they may need to be taught Navigator and Engager skills to more effectively approach learning situations.

Just as there were no relationships found between the decision-making styles of the police officers and their demographic characteristics, there were no relationships found between the learning strategies of the police officers and their demographic characteristics. This finding further corroborates previous learning strategy studies that found that the use of learning strategies was not associated with demographic variables (Conti, Kolody, & Schneider, 1997, p.

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71). As such, police officers with particular learning

strategies cannot be stereotyped by their demographics. It

can be expected that police officers with certain learning

strategies can be found anywhere.

There was no interaction between the decision-making

styles and the learning strategies of the police officers.

However, a tendency does exist for the Intuitive decision-

making style to be associated with the Engager learning

strategy. If the probability level for testing the

statistical analysis had been set at the exploratory level

of .10, there would have been some interaction between the

Intuitive decision-making style and the Engager learning

strategy. Both of these behavioral characteristics share

common traits that would explain the interaction. Intuitive

decision makers rely on feelings, approach problems with

confidence, and have an internal feeling of rightness.

Similarly, Engagers learn with feeling and actively engage

in leaning situations with confidence, and the affective

domain is the dominant factor in their learning.

<u>Natural Groups of Decision Makers</u>

>   Police officers have basically four styles of
>   policing when approaching problem-solving
>   situations.

>   The policing styles concepts developed can be used
>   in instrumented-learning situations to train
>   police officers about problem-solving situations.

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Even though the GDMS instrument says that there are five different decision-making styles that people can be expected to have when making important decisions, the police officers overwhelmingly do not make use three of them. There are four basic groups of police officers in relationship to their decision-making processes, and the most important factor in determining what kind of decision maker they are is impulsive decision making. Two groups of decision makers believe that impulsive decisions are occasionally okay, and two groups of decision makers believe that impulsive decisions should be avoided. The conventional wisdom is that impulsivity and intuition in decision making are related. An Intuitive decision maker's "commitment to a course of action is reached relatively quickly, and its basic 'rightness' is felt internally" (Harren, 1979, p. 125). The data in this study, however, does not support this interaction. The group of police officers that believe impulsive decisions should be avoided is separated by their views on intuition with about half supporting it and with about half opposing it.

These four groups of police officers were created using the multivariate statistical procedures of cluster analysis and discriminant analysis. An organizational flow chart of these four groups was created as a result of these powerful

statistical procedures. Cluster analysis was used to form the four groups and discriminant analysis provided the information to write the items. Cluster analysis and discriminant analysis "can provide the basis for developing user-friendly instruments that can be completed quickly" (Conti, 2002, p. 43). Before developing a new instrument, further testing of the four clusters should be done with other samples of this study's population and other diverse police officer populations. For example, a sample of police officers from the Wichita, Kansas, Police Department can be administered GDMS to see if the cluster structures hold up. Following the verification of the cluster structures, it can serve as an ATLAS-style instrument.

The validity and reliability of a new instrument must be established (Conti, 2002, p. 43). As a result of the analyses conducted for this study, the construct and content validity for the new instrument already exists. "The validation process for summated-rating scales focuses upon the items. However, multivariate statistical procedures shift the focus to the people being identified by the instrument and to how the items interact to create the categories in which the people fall" (p. 43). The construct validity of the new instrument is grounded in the GDMS instrument. "Construct validity assesses the underlying

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theory of the test" (p. 46). The content validity was

established through the findings from the structure matrix

for the three discriminant analyses. Content validity is

the sampling adequacy of the instruments content (Kerlinger,

1973, p. 458). The items which can be used for the new

instrument were based on the findings from the structure

matrix. The criterion-related validity of the new

instrument remains to be established. This form of validity

compares an instruments scores with an external criteria

known or believed to measure the attribute under study (p.

459). Following the model of ATLAS, the criterion-related

validity will need to be established in follow-up interviews

and focus groups. ATLAS respondents were asked if they felt

their identified description accurately described them

(Conti, 2002, p. 47).

The outline for this new instrument can serve as the

basis for an ATLAS-style instrument that can be used to

quickly and easily place police officers in this sample into

one of four decision styles groups. Moreover, it will

produce rich and meaningful categorical data that can be

used by instructors in the instrumented learning process.

> Instrumented learning uses instruments to provide
> information for participants so that it can be
> used for various types of self-improvement. This
> information is provided in the context and in
> relationship to a particular model so that the
> participant can use it to focus learning. (Conti,

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2002, p. 47)

With the development of this new instrument, the group

of police officers can now be identified equally across four

distinct decision-style groups instead of having about 90%

of the police officers with two predominant decision-making

styles. More importantly, respondents can have fun

completing the new instrument while gaining an insight into

how to approach decision-making situations.

Recommendations

Because all police officers are confronted with

inevitable change in the current environment of community

policing, they will need to learn how to learn new and

better ways of approaching decision-making or problem-

solving situations. The identification and understanding of

police officers' decision-making styles and learning

strategies can have a significant and influential impact on

the success of the community policing approach to policing.

The GDMS and ATLAS instruments are two valid and reliable

measurement tools that can be used stimulate the learning

processes of police officers necessary to accommodate such

change.

GDMS is a measurement tool that can be used to

recognize the primary decision-making styles of police

officers. ATLAS is a measurement tool that can be used to

recognize the preferred learning strategies of police officers. More important, GDMS and ATLAS can trigger the learning processes necessary for officers to learn how to adapt their decision-making styles and learning strategies to current situations and practice. GDMS and ATLAS are learning instruments that can be applicable and beneficial at any point during policing officers' careers.

For example, the participants in this study attended a workshop in which these two instruments were used to aid in the facilitation of their learning processes. "A powerful use of instruments is in a seminar setting where other students are people in the same profession as yourself" (Blake & Mouton, 1972b, p. 150). After administering the GDMS and ATLAS to the workshop participants and giving them a brief overview of the decision-making style and learning strategy concepts, the participants discussed the two concepts as a class. With this insight of how they approach important decision-making situations and real-life learning tasks, the participants became empowered to direct their own learning throughout the workshop. For example, the first learning exercise utilized agree-disagree statements and expanding groups (Conti & Fellenz, 1988). Participants were given a handout consisting of 10 statements addressing ethical and professional concerns of police officers. The

statements were written in such a way as to elicit divergent opinions (center insert). For example, one statement stated, "When making important decisions, you've got to follow department rules and regulations." Participants decided if they agreed or disagreed with each of the 10 statements. "While it is possible to have a large group discussion at this point with the individual's recorded opinions as a starting point, more stimulating discussions can be fostered with expanding groups" (center insert). Accordingly, participants were asked to team with another person and work together until they both agreed or disagreed with the statements. Once the teams of two police officers reached a consensus on all of the problems, they would team with another team of two police officers. "This expansion may be continued until there is only one group which contains all class members" (center insert). This expanding group process allowed police officers with various decision-making styles and learning strategies to learn from each other for a greater awareness of the skills needed in the problem-solving situations. This practical illustration is just one application of instrumented learning used in the workshop. There are many other possible applications of learning with instruments that range over a wide spectrum of topics (Blake & Mouton, 1972b, p. 151).

Police organizations can use GDMS and ATLAS to recognize the decision-making styles and learning strategies of police officer applicants. GDMS and ATLAS may help police organizations recognize the decision-making styles and learning strategies of potential officers, but they should not be used as a criterion in the recruiting and selection process (Ayers, n.d.). However, once they are employed, GDMS and ATLAS can be extremely influential in the neophyte officer's learning processes toward the community policing approach to problematic situations. Thus, the use of GDMS and ATLAS as learning instruments can begin with pre-service or police academy training.

The police academy is generally a new police officer's introduction to the policing profession. "It is at the academy that the recruits begin to develop a strong mind-set about their role as police officers" (Peak & Glensor, 2002, p. 221). In this important sense, the beginning of academy training would be an ideal time for academy instructors, coordinators, or directors to facilitate the instrumented learning process using GDMS and ATLAS. The new recruit should be given the GDMS and ATLAS before any instruction. Once they have identified and understand their decision-making styles and learning strategies, academy recruits can compare others' decision-making styles and learning

strategies with their own. With this awareness, recruits
can be in a advantageous position to learn how to learn to
adapt to and appropriately approach real-life problem-
solving situations that they will be exposed to throughout
pre-service training and their professional policing
careers. By exposing the recruits to numerous real-life
problem-solving situations, instructors can see how they
react. Moreover, it can help instructors determine which
decision-making styles or learning strategies of the
recruits are good in situations or which need to be
addressed by new learning. Importantly, they can determine
the decision-making styles and learning strategies that best
fit problem-solving situations. For example, the recruits
can be given the task of dealing with the problem of strong-
arm robberies occurring in the bar district of town.
Recruits with a Spontaneous decision-making style will more
than likely want to get through the problem-solving process
as soon as possible. However, this problem requires
extensive planning that will include defining the problem,
developing alternative solutions, and identifying resources.
As such, the skills of the Rational decision-making style
may be the most appropriate for addressing the problem. The
instructor may want to team the Spontaneous decision makers
with a group of Rational decision makers. Thus, the

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Spontaneous decision makers can recognize the strengths of the Rational approach and be able to better adjust to the situation. Similarly, Engagers may need to be teamed with a group of Problem Solvers.

Once graduating from the police academy, new police officers are socialized to their chosen profession. Their road to lifelong learning in policing has officially begun. Throughout their journey, they will experience many changes. Learning to adjust to these changes can sometimes be difficult and challenging. It can also be met with much resistance. Nevertheless, whether officers are rookies or seasoned veterans, adjusting to change will become necessary for individual and organizational success. This acclimation process usually takes place in the continuing professional education environment. This "in-service training provides an opportunity to impart information and to reinforce new skills learned in the academy" (Peak & Glensor, 2002, p. 222).

The use of GDMS and ATLAS as learning instruments can be extremely beneficial in helping current officers recognize their strengths and weaknesses in how they approach problem-solving situations. With this awareness, they can take the necessary steps to successfully apply what they have learned to the practice of professional policing.

Police officers with various amounts and kinds of policing experience can identify their decision-making styles and learning strategies. Once they identify their decision-making styles and learning strategies, they can see how they differ from each other in their approach to decision-making situations. If the topic of the in-service training is the use of less-lethal force, the instructor may want to conduct a values forum to see how police officers with various profiles react to a use-of-force situation. From this discussion, the most effective approaches to the situation can be determined. The police officers that provided input which would likely result in less than desirable outcomes can become aware of the need to adjust their approach to best fit the situation.

It is possible to use the findings from this research to develop a new instrument in the model of ATLAS that can be used to identify the decision-making processes of police officers. The new instrument has tentatively been named Categories Of Policing Styles (COPS). The groundwork for the new learning instrument has already been laid. The items, wording, and basic structure of the new instrument have been constructed. They are based upon the results of powerful multivariate statistics and rest in the established validity and reliability of the GDMS instrument. In order

to complete the instrument, all that is needed to have a quick, easy, and user-friendly measure to identify police officers' decision-making processes in important problem-solving situations is further field testing with police officers from various areas to test the exact wording of the items and testing to establish criterion-related validity and reliability. Once this is done, the new instrument of COPS can be used in instrumented-learning situations such as those with the GDMS and ATLAS.

The four groups of decision makers in this study have tentatively been given names. Additional studies should be conducted to find out more about these four distinct groups. As was done in the construction and improvement stages of ATLAS, follow-up interviews and focus groups with police officers can be conducted to describe the four decision maker groups.

Because this is the first known study to investigate the decision-making styles of police officers, it is recommended that additional studies be conducted using GDMS with police officers. These studies should draw from a larger population of police officers from across the country in order to better generalize the decision-making styles of police officers.

Lastly, because a large number of Engagers were

identified in this study and a large number of Problem
Solvers were identified in a prior study, follow-up
investigations into the learning strategies of police
officers are called for. Specifically, further research
using ATLAS among police officers with police agencies
serving communities of all sizes and located in various
locations across the country should be conducted to
determine if the nature of policing is drawing in different
types of learners.

<div align="center">Final Commentary</div>

Police officers are the gatekeepers to a peaceful and
civilized society. They make important decisions on a
routine basis that play a vital role in the quality of life
for citizens in communities across America. In this
important sense, police officers have the responsibility to
learn the necessary traits and skills to approach community
problems that are congruent with the natural expectations of
the people they serve and protect.

An awareness and understanding of decision-making
styles and learning strategies is an important step to
stimulating the learning processes necessary for police
officers to successfully solve community problems in formal
and informal training environments. The results of this
research have further opened the door to a line of inquiry

that allows for a better understanding of how police officers approach problem-solving situations. Police officers can now identify themselves with the policing styles of four well-known fictional policing figures as portrayed in the media. By identifying and understanding their own style and then comparing it to others, police officers can increase their awareness of learning how to learn to better adapt their decision-making approach to problem-solving situations. Once the COPS instrument is developed, continuing professional education through the instrumented-learning process will greatly enhance the training environments for police officers on the policing profession continuum.

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APPENDICES

APPENDIX A

WORKSHOP PARTICIPANT INFORMATION SHEET

Name (Please Print): _____

Workshop Participant Information

1. Are you a current full-time sworn police officer? Yes [ ]   No [ ]

    If yes, how many years of full-time law enforcement experience
    do you have? _____

    If no, what is your status in this workshop (e.g., reserve police officer, college student,
    etc.)? _____ **PLEASE GO TO QUESTION #4**

2. Do you serve as a community policing officer or otherwise regularly engage in
    community policing activities? _____

3. At what level of law enforcement are you employed? **(Please check one)**

    City [ ]   County [ ]   State [ ]   Federal [ ]

4. What is your current educational status? **(Please check one)**

    High School Diploma or Equivalency [ ]
    Associate's Degree [ ]
    Bachelor's Degree [ ]
    Master's Degree [ ]
    Doctorate Degree [ ]

5. What is your gender? Male [ ]   Female [ ]

6. What is your race? **(Please check one)**

    African American [ ]   Asian/Pacific Islander [ ]   Hispanic [ ]
    White/Non Hispanic [ ]   Other [ ]

7. What is your age? _____

8. What is your preferred learning strategy as indicated by the ATLAS Instrument?
    (Please check your identified learning strategy)

    Navigator *Subgroup One* [ ]
    Navigator *Subgroup Two* [ ]

    Problem Solver *Subgroup One* [ ]
    Problem Solver *Subgroup Two* [ ]

    Engager *Subgroup One* [ ]
    Engager *Subgroup Two* [ ]

APPENDIX B

GDMS INSTRUMENT

Listed below are statements describing how individuals go about making important decisions. Please indicate the extent to which you agree or disagree with each statement.
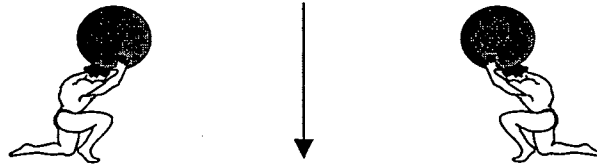
		Strongly Disagree 1	Somewhat Disagree 2	Neither Agree Nor Disagree 3	Somewhat Agree 4	Strongly Agree 5
a.	I plan my important decisions carefully.	[1]	[2]	[3]	[4]	[5]
b.	I double-check my information sources to be sure I have the right facts before making decisions.	[1]	[2]	[3]	[4]	[5]
c.	I make decisions in a logical and systematic way.	[1]	[2]	[3]	[4]	[5]
d.	My decision making requires careful thought.	[1]	[2]	[3]	[4]	[5]
e.	When making a decision, I consider various options in terms of a specific goal.	[1]	[2]	[3]	[4]	[5]
f.	When making decisions, I rely upon my instincts.	[1]	[2]	[3]	[4]	[5]
g.	When I make decisions, I tend to rely on my intuition.	[1]	[2]	[3]	[4]	[5]
h.	I generally make decisions which feel right to me.	[1]	[2]	[3]	[4]	[5]
i.	When I make a decision, it is more important for me to feel the decision is right than to have a rational reason for it.	[1]	[2]	[3]	[4]	[5]
j.	When I make a decision, I trust my inner feelings and reactions.	[1]	[2]	[3]	[4]	[5]
k.	I often need the assistance of other people when making important decisions.	[1]	[2]	[3]	[4]	[5]
l.	I rarely make important decisions without consulting other people.	[1]	[2]	[3]	[4]	[5]
m.	If I have the support of others, it is easier for me to make important decisions.	[1]	[2]	[3]	[4]	[5]
n.	I use the advice of other people in making my important decisions.	[1]	[2]	[3]	[4]	[5]
o.	I like to have someone to steer me in the right direction when I am faced with important decisions.	[1]	[2]	[3]	[4]	[5]
p.	I avoid making important decisions until the pressure is on.	[1]	[2]	[3]	[4]	[5]
q.	I postpone decision making whenever possible.	[1]	[2]	[3]	[4]	[5]
r.	I often procrastinate when it comes to making important decisions.	[1]	[2]	[3]	[4]	[5]
s.	I generally make important decisions at the last minute.	[1]	[2]	[3]	[4]	[5]
t.	I put off making many decisions because thinking about them makes me uneasy.	[1]	[2]	[3]	[4]	[5]
u.	I generally make snap decisions.	[1]	[2]	[3]	[4]	[5]
v.	I often make decisions on the spur of the moment.	[1]	[2]	[3]	[4]	[5]
w.	I make quick decisions.	[1]	[2]	[3]	[4]	[5]
x.	I often make impulsive decisions.	[1]	[2]	[3]	[4]	[5]
y.	When making decisions, I do what seems natural at the moment.	[1]	[2]	[3]	[4]	[5]

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APPENDIX C

ATLAS INSTRUMENT

ATLAS
(*A*ssessing *T*he *L*earning Strategies of *A*dult*S*)

Directions: The following colored cards have statements on them related to learning in real-life situations in which you control the learning situation. These are situations that are **not** in a formal school. For each one, select the response that best fits you, and follow the arrows to the next colored card that you should use. Only read the cards to which you are sent. Continue this process until you come to the Groups of Learners sheet. Along the way, you will learn about the group in which you belong. Follow the arrow to start.

Printed on Cool BLUE card stock

When considering a new learning activity such as learning a new craft, hobby, or skill for use in my personal life,

I like to identify the best possible resources such as manuals, books, modern information sources, or experts for the learning project.

I usually will not begin the learning activity until I am convinced that I will enjoy it enough to successfully finish it.

Go to Red Card

Go to Gray Card

Page 1 of ATLAS

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It is important for me to:

Focus on the end result and then set up a plan with such things as schedules and deadlines for learning it.

Think of a variety of ways of learning the material.

Go to Yellow Card

Go to Green Card

Page 2 of ATLAS

Printed on YELLOW card stock

I like to:

```
         │                              │
         ▼                              ▼
```

Involve other people who know about the topic in my learning activity.	Structure the information to be learned to help remind me that I can successfully complete the learning activity.

```
         │                              │
         ▼                              ▼
```

You are a **Navigator**: Subgroup 1	You are a **Navigator**: Subgroup 2

```
         │                              │
         ▼                              ▼
```

Go to **Groups of Learners** Card

Page 3 of ATLAS
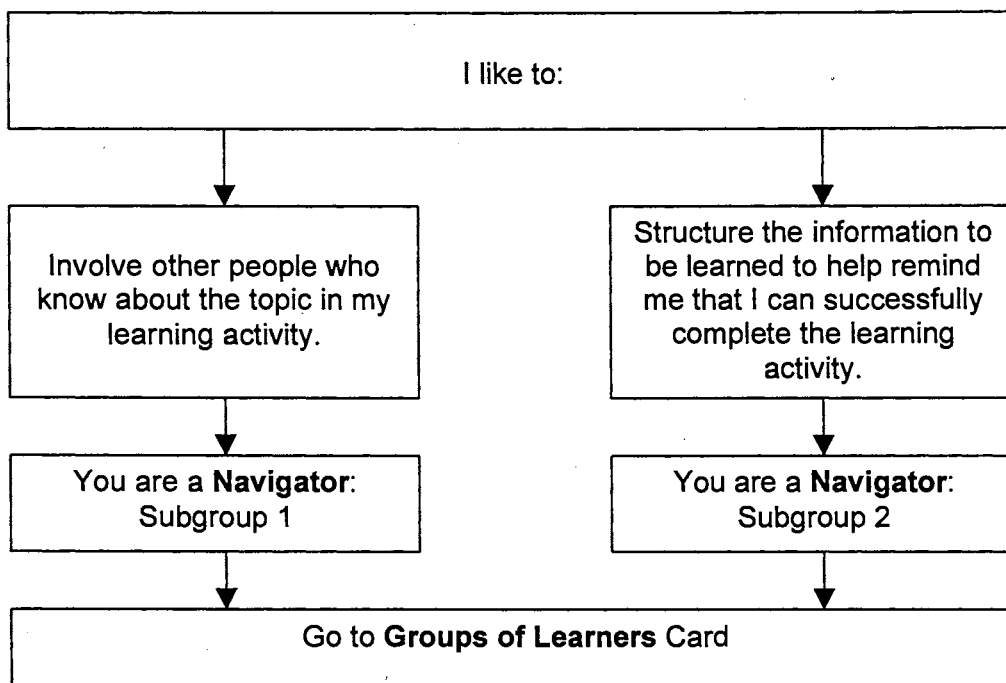
Printed on Gamma GREEN card stock

I like to:

Set up a plan for the best way to proceed with a specific learning task.	Check out the resources that I am going to use to make sure that they are the best ones for the learning task.

You are a **Problem Solver**: Subgroup 1	You are a **Problem Solver**: Subgroup 2

Go to **Groups of Learners** Card

Page 4 of ATLAS
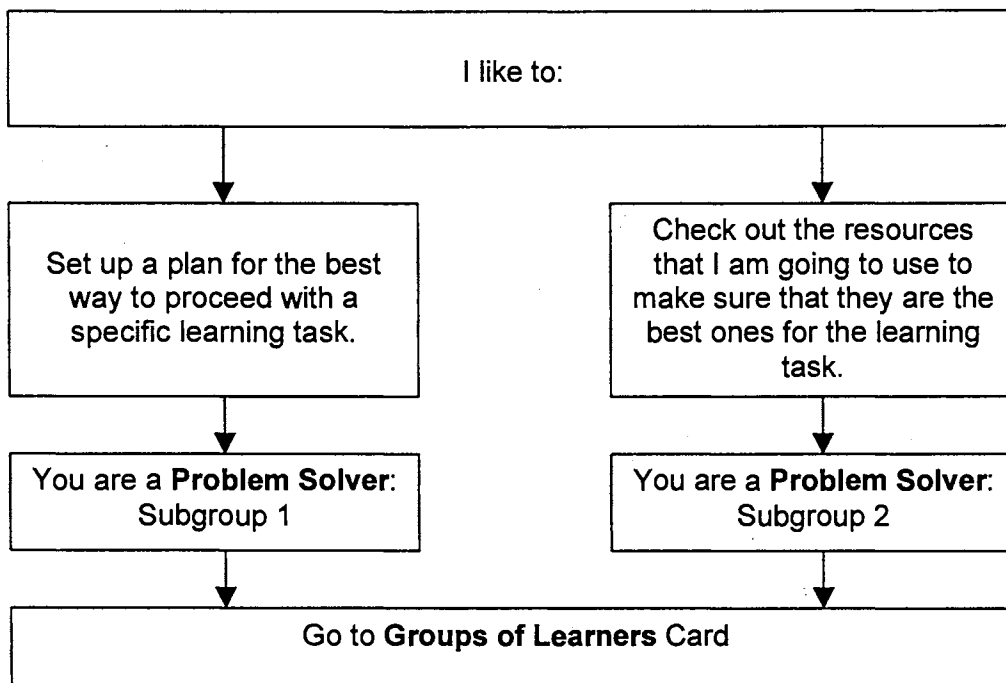
Printed on GRAY card stock

I like to:

Involve other people who know about the topic in my learning activity.	Determine the best way to proceed with a learning task by evaluating the results that I have already obtained during the learning task.

You are an **Engager**: Subgroup 1	You are an **Engager**: Subgroup 2

Go to **Groups of Learners** Card

Page 5 of ATLAS
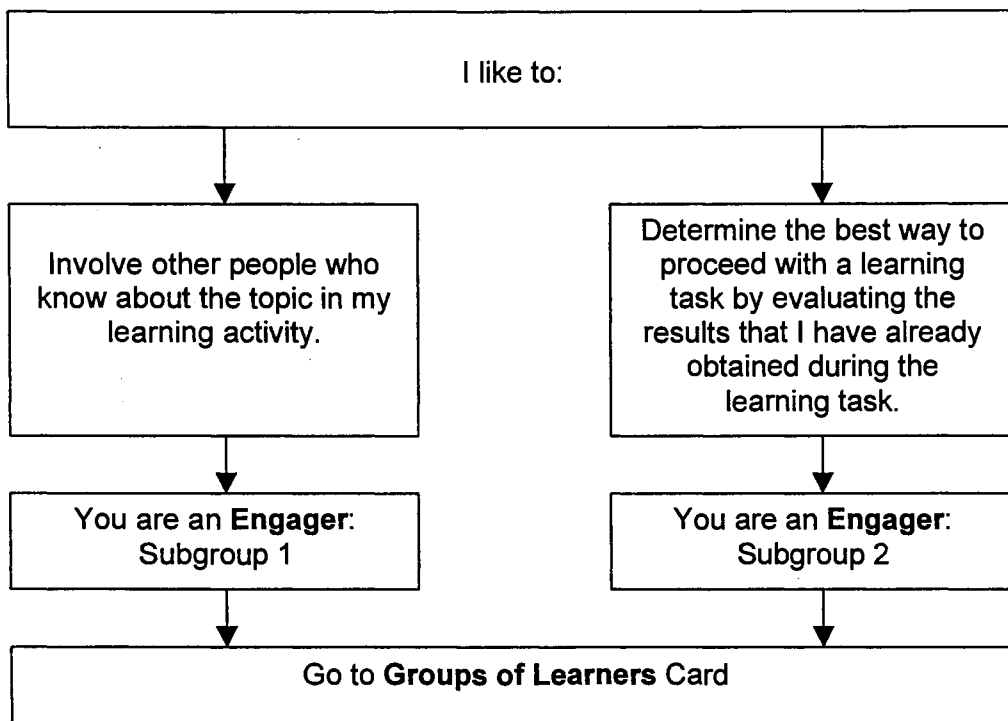
Navigators

Description: Focused learners who chart a course for learning and follow it. Subgroup 1 likes to use human resources while Subgroup 2 is more concerned with the organization of the material into meaningful patterns.

Characteristics: Focus on the learning process that is external to them by relying heavily on planning and monitoring the learning task, on identifying resources, and on the critical use of resources.

Instructor: Schedules and deadlines helpful. Outlining objectives and expectations, summarizing main points, giving prompt feedback, and preparing instructional situation for subsequent lessons.

Problem Solvers

Description: Learners who rely heavily on all the strategies in the area of critical thinking. Subgroup 1 likes to plan for the best way to proceed with the learning task while Subgroup 2 is more concerned with assuring that they use the most appropriate resources for the learning task.

Characteristics: Test assumptions, generate alternatives, practice conditional acceptance, as well as adjusting their learning process, use many external aids, and identify many of resources. Like to use human resources and usually do not do well on multiple-choice tests.

Instructor: Provide an environment of practical experimentation, give examples from personal experience, and assess learning with open-ended questions and problem-solving activities.

Engagers

Description: Passionate learners who love to learn, learn with feeling, and learn best when actively engaged in a meaningful manner. Subgroup 1 likes to use human resources while Subgroup 2 favors reflecting upon the results of the learning and planning for the best way to learn.

Characteristics: Must have an internal sense of the importance of the learning to them personally before getting involved in the learning. Once confident of the value of the learning, likes to maintain a focus on the material to be learned. Operates out of the Affective Domain related to learning.

Instructor: Provide an atmosphere that creates a relationship between the learner, the task, and the teacher. Focus on learning rather than evaluation and encourage personal exploration for learning. Group work also helps to create a positive environment.

GROUPS OF LEARNERS

VITA 2

Michael Andrew Hulderman

Candidate for the Degree of

Doctor of Education

Thesis: DECISION-MAKING STYLES AND LEARNING STRATEGIES OF
POLICE OFFICERS: IMPLICATIONS FOR COMMUNITY
POLICING

Major Field: Occupational and Adult Education

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Education: Graduated from Webb City High School, Webb
City, Missouri in May 1985; received Bachelor of
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degree in Criminal Justice from Northeastern State
University, Tahlequah, Oklahoma, in May 1992;
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Community College and Higher Education from
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Doctor of Education degree with a major in
Occupational and Adult Education at Oklahoma State
University, Stillwater, Oklahoma, in May 2003.

Experience: Employed as a police officer for the City
of Joplin, Missouri Police Department from 1992 to
1997. Employed as an Assistant Professor of
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from 1997 to present.

Professional Membership: Institute for Criminal Justice
Ethics.