

PROBLEM-BASED LEARNING IN POLICE ACADEMIES: ADULT LEARNING
PRINCIPLES UTILIZED BY POLICE TRAINERS

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Problem-based Learning in Police Academies: Adult Learning Principles Utilized by

Police Trainers

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ABSTRACT

Eric Paul Werth. PROBLEM-BASED LEARNING IN POLICE ACADEMIES: ADULT LEARNING PRINCIPLES UTILIZED BY POLICE TRAINERS. (Under the direction of Dr. Brian Satterlee) School of Business Administration, March, 2009.

This study explored the use of adult learning principles by instructors at two state-run multi-jurisdictional police training academies using Problem-Based Learning (PBL). Instructor use of adult learning principles was assessed using an electronic version of the Principles of Adult Learning Scale (PALS). PALS scores indicate that instructors at both institutions favor an instructor-centered as opposed to student-centered teaching style, that time since PBL implementation did not lead to a greater use of adult learning principles by instructors at the academy utilizing PBL for a greater length of time, and that there is little significant difference in the use of adult learning principles by instructors at the two PBL academies compared to instructors at an academy not using PBL. The results of this study will potentially impact the training provided to police instructors both prior to and following adoption of PBL as well as the decision of some agencies to convert to PBL-based curricula.

DEDICATION

This study is dedicate to all police educators who are willing to look beyond the confines of traditional training practices to investigate what is the best method to prepare student officers for a life of service to their communities and society as a whole. In a training profession where stepping outside the established boundaries is often greeted with skepticism, you are evidence of the truth of the statement *damnant quod non intellegunt*, they condemn what they do not understand.

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Chapter I

Introduction

Introduction

This research is a report of the adult learning principles utilized by police instructors at two state-run, multijurisdictional training facilities utilizing Problem-Based Learning (PBL). The study is based on data obtained using the Principles of Adult Learning Scale (PALS) created by Gary Conti. The first chapter of the dissertation presents the background of the study, outlines the research questions which were investigated, summarizes the significance of the report, and presents an overview of the methodology utilized. At the end of this first chapter, special terms are defined and limitations of the study are presented.

Background

It is commonly accepted that society has been changing at an ever increasing pace since the middle of 20th century and with it the expectations people have of service providers. As in many other service industries, police organizational operations have undergone a variety of transformations in an attempt to adapt to evolving job tasks and community expectations. During the 1970s, the focus of police work began to shift from a reactionary role of enforcing laws to a more proactive stance of working to prevent crime for occurring (Greene, 2000). Two policing models, problem-oriented policing (POP) and community-oriented policing (COP) were developed with the aim of improving police service and community relations (Kelling & Moore, 1988).

Although it seems logical to expect that police training would have changed along with police practice, it has been noted that this has not generally been the case (Bradford & Pynes, 1999). In fact, it could be argued that police academy training has changed little in the past several decades (Bradford & Pynes, 1999). Traditionally, the majority of students graduating from police academies have been taught using teacher-centered and behavioralistic approaches. Under this philosophy, students are passive recipients of information presented to them by subject matter experts or more experienced officers, an approach that is ineffective in building the decision-making, problem-solving, and interpersonal skills needed by police officers today (Birzer, 1999; Bradford & Pynes, 1999). Recently, more attention has been given to evaluating the training needs of officers expected to work in non-traditional policing models such as POP and COP. The result has been a growing body of literature supporting an active, student-centered, andragogical approach to police training (Birzer, 2004, Birzer & Tannehill, 2001; Cleveland & Saville, 2007; Della, 2004; Dwyer & Laufersweiler-Dwyer, 2004; Marenin, 2004; McCoy, 2006).

While many police academies across the United States have not made significant changes to their training practices to accommodate shifts in society, there are academies where the staff has begun to integrate more learner-centered approaches into their curriculum (Birzer, 1999; Birzer, 2003; Bradford & Pynes, 1999; Eisenberg & Glasscock, 2001). One training method that has gathered support within the field of police officer training is Problem-Based Learning (hereinafter referred to as PBL). PBL was developed by medical educators because the traditional lecture-based approach for training medical students failed to prepare them adequately for jobs where problem-solving and

interpersonal skills are as important as a diverse knowledge base. PBL aims to help students develop problem-solving, critical thinking, interpersonal, and self-directed learning skills while gaining knowledge in a variety of subject matter areas (Barrows, 2002).

Faced with training challenges similar to those of medical school educators, in the late 20th century police academy trainers began modifying PBL to fit the needs of student officers. Problem-Based Learning has been adopted in police training academies including the Royal Canadian Mounted Police, Kentucky Department of Criminal Justice Training, and Washington State Criminal Justice Training Center. PBL is also being investigated by agencies in California, Colorado, Kansas, Maine, Michigan, Minnesota, South Dakota, Virginia, and Wisconsin and is being evaluated by staff in Idaho and North Carolina (Featured Agencies, 2007; T. Dischinger, personal communication, March 2, 2007).

Although anecdotal evidence by those using PBL to train police officers suggests that this training strategy is better for building problem-solving, critical thinking, decision-making, and collaborative skills than traditional lecture-based methodology, much remains unknown about the effectiveness of PBL within a police training environment. One gap in the professional literature is an exploration of what adult learning principles are utilized by instructors at police academies following PBL methodology. The research described here investigated three questions related to the adult learning principles used by police trainers at PBL academies. This study benefits those using PBL or considering a transition to PBL and adds to the professional knowledge based regarding Problem-Based Learning and police training.

Research Questions

The research described here investigated three questions:

- (1) Research Question 1: To what extent do police academy instructors trained in PBL facilitation implement various principles identified as important to adult learning?

A previous study by McCoy (2006) examined the use of adult learning techniques by police academy trainers in a Midwestern multi-jurisdictional academy **not** using PBL with the Principles of Adult Learning Scale (PALS). This research discovered that instructors at this academy had a strong preference for teacher-centered as opposed to student-centered approaches. To date, a similar study has not been published examining the use of adult learning principles by police academy trainers using PBL.

- (2) Research Question 2: Does length of time since adoption of PBL methodology increase use of adult learning principles by academy instructors?

Instructors at police academies work continually to improve training. This includes modifying curriculum, policies, and instructor training programs. Changes made to curriculum and instruction over time by academy staff may impact the adult learning profile of instructors working within these training environments.

- (3) Research Question 3: Is there a difference in the use of adult learning principles among police instructors at academies that have adopted PBL and instructors at an academy that has not adopted PBL?

Problem-Based Learning is purported to conform to current theory and research into the needs of adult learners (Cleveland, 2006). Considering this, one would expect police instructors working in a PBL academy to utilize more adult learning techniques more often than police instructors working in a non PBL academy. To date no reports have been published permitting this comparison.

Significance of the Study

This study adds to the professional knowledge base regarding Problem-Based Learning by examining PBL use from the instructor's perspective. A study exploring the adult learning principles practiced by a sample of police PBL instructors benefits law enforcement agencies contemplating the use of Problem-Based Learning and helps the staff at academies using PBL identify ways instruction could be altered to integrate more teaching techniques identified as beneficial to adult learners.

The general consensus among PBL practitioners is that this educational method is more effective at producing individuals prepared for the rigors of real-world work than traditional lecture-based methodology, although the reason for this is not known (Norman, 2008). It is possible that the educational benefits present in PBL exist because PBL integrates one or more principles identified as important to adult learning such as including learner-centered activities, personalizing instruction, relating to the past experience of learners, assessing student needs, building an appropriate climate for learning, allowing students to participate in the learning process, and allowing self-directed learning. Without a clearer understanding of what adult learning principles are

actually practiced in a PBL environment, future research cannot assess the importance of these principles to PBL success.

Methodology

The study described here is exploratory in nature and makes use of limited descriptive statistics. All three research questions are explored by means of descriptive research methodology utilizing a nationally normed, cross-sectional internet questionnaire, the Principles of Adult Learning Scale (PALS) (Conti, 1990).

An electronic version of the Principles of Adult Learning Scale, including an introduction letter and demographic questionnaire was sent to instructors at the Kentucky Departments of Criminal Justice Training (Kentucky DOCJT) and Washington State Department of Criminal Justice Training Commission (WSCJTC) facilities using the online survey tool Survey Monkey. The PALS questionnaire allows data to be examined in relation to both the overall teaching style of the instructor (student versus instructor-centered) as well as by seven separate adult learning principles. The overall PALS score was used to determine whether an instructor favors student-centered or instructor-centered training. Subsections of PALS measure instructor use of seven adult learning principles: (1) Learner-Centered Activities; (2) Personalizing Instruction; (3) Relating to Experience; (4) Assessing Student Needs; (5) Climate Building; (6) Participation in the Learning Process; and, (7) Flexibility for Personal Development.

The research participants used in this study were from the Kentucky Department of Criminal Justice Training (Kentucky DOCJT) and Washington State Department of Criminal Justice Training Commission (WSCJTC). These agencies were the best to

evaluate adult learning principles used by PBL instructors because they are the only state-run training facilities actively transitioning to Problem-Based Learning. PBL was integrated into the Kentucky DOCJT's curriculum in January of 2007 and was started at the WSCJTC in February of 2008.

A more detailed description of the methodology can be found in Chapter 3.

Definition of Terms

Adult Learning Principles: Those practices rooted in theory or research that are believed to meet specific needs of adult learners. Also called “Adult Learning Techniques.”

Andragogy: The art and science of teaching adult learners (Knowles, 1980).

Collaborative Teaching-Learning: A learner-centered approach where both instructor and students are involved in developing course content (Conti, 1985).

Community-Oriented Policing (COP): A policing model based on the idea that rather than focusing on responding to crime, officers should partner with members of the community to identify and solve the underlying cause of social problems (Greene, 2000).

Pedagogy: The art and science of teaching non-adult learners (Knowles, 1980).

Police Academy: A series of courses sponsored by a police or state agency designed to prepare new police recruits for work in the field.

Police Trainer/Instructor: Any individual who teaches a course within a police academy.

Problem-Based Learning (PBL): “. . . a distinct educational method aimed at giving the learner effective skills in problem solving, self-directed learning as a life-time habit and team work, all while acquiring an integrated body of knowledge from many different subject areas or disciplines” (Barrows, 2002, p. 119).

Problem-Oriented Policing (POP): A policing model based on the idea that rather than focusing on responding to crime, police officers should scan their community for problems, analyze the cause of the problem, implement a response aimed at

resolving the problem, and assess the effectiveness of their intervention (Greene, 2000).

Chapter II

Literature Review

The integration of adult learning techniques and Problem-Based Learning (PBL) into police training environments is in response to a change in the expectation society has for the role of law enforcement personnel within their communities.

Chapter II will begin with a brief overview of the history of law enforcement in America. This review will highlight the shift that has occurred in the role of police officers within society and outline how this has impacted the philosophy behind police training. This chapter will also include a synopsis of adult learning and PBL literature to provide the reader with a historical view of the movement away from teacher-centered instruction in various educational environments. The chapter will conclude with a review of PBL within police training academies, as the research conducted here examines the use of adult learning principles by police trainers using this educational approach.

History of Law Enforcement in America

While societal structures based on written law have existed for millennia, the history of modern policing is commonly traced back to the Metropolitan Police Act of 1829 and British statesman Sir Robert Peel (Lentz & Chaires, 2007). While historical textbooks vary in the wording and number of policing principles attributed to Peel, most credit him with the creation of a uniformed police force based on crime prevention, public service, and presence within the community (Lentz & Chaires, 2007). Since this time, it has been argued that policing in America has evolved through three distinct “eras”, the Political Era, the Reform Era, and the Community Era (Kelling & Moore,

1988). During each of these eras, the role of the police force changed as well as the expectation community members had of its officers.

According to Kelling and Moore (1988), the Political Era of policing existed between the 1840s and 1920s. During these years, America witnessed the rise of true police agencies. The role of police agencies in society was still developing, however, and as a result these fledgling agencies often became a tool of local politicians looking to strengthen their control and spread their own agendas. Police at this time provided a wide range of social services in the neighborhoods they patrolled by foot from curbing crime to running soup kitchens, but corruption was common and justice not always the primary objective for officers (Kelling & Moore, 1988; Oliver, 2006).

Police officer training during the Political Era was, in many ways, in its infancy. The first formal training school for officers was started in Berkeley, CA in 1908. New York City started a police academy in 1909, Detroit in 1911, and Philadelphia in 1913. In 1916 the University of California, Berkeley began the first training school for policemen at a university and in 1918 the University of California, Los Angeles started the first school for policewomen (Bopp & Schultz, 1972). In general, however, police officers during the Political Era were recruited informally and received only on-the-job training (Chappell, 2008).

The Reform Era began in the 1920s and lasted through the 1970s. Recognizing that a largely unsupervised police force, prone to abuse of power, could not meet the needs of a growing society, reformers such as August Vollmer, O.W. Wilson, and J. Edgar Hoover sought to sever the ties between policing and politics (Kelling & Moore, 1988). Law and professionalism developed as the basis of police authority. Crime

control became the primary focus of agencies. With the advent of patrol vehicles, foot patrols were replaced by officers at a centralized location being dispatched when and where needed (Kelling & Moore, 1988). While the Reform Era was largely successful in reducing political corruption in police agencies, it also created a separation between the public and officers. Instead of the police having a personal connection with members of the public, developed through constant presence in neighborhoods and strengthened by the accessibility of officers patrolling by foot, law enforcement personnel were stationed for the most part in a centralized location and cloistered throughout the day in patrol vehicles. It soon became evident that this distancing between the public and police sentenced agencies to serve effectively only in a reactive, crime control manner (Kelling & Moore, 1988).

Great strides were taken during the Reform Era in regards to the creation of formal training programs for officers. In the 1920s, more college training programs were created with the Bureau of Street Traffic Research being created at Harvard in 1925 and the University of Chicago adding police training to its regular curriculum in 1929. By the end of the 1930s, every state but Wisconsin had a formalized state police force, which led the way in training innovation. Connecticut, Michigan, New Jersey, New York, Oregon, Pennsylvania, Texas, and Washington all had state police schools by 1934. The 1930s also witnessed the establishment of the first complete police major program at San Jose State College in 1931 and the FBI National Academy in 1935 (Bopp & Schultz, 1972).

Training programs for police officers blossomed during the 1940s through the 1960s. Between 1940 and 1949, the idea of police training being held at community colleges started to take hold and many new agency-sponsored training programs were

formalized. In 1959, California created the Peace Officer Standards and Training (POST) Commission. California POST was the first governmental agency created to set statewide police training and recruiting standards. Within a decade, eight other states would follow California's lead and set minimum training standards (Bopp & Schultz, 1972). Police training programs held in conjunction with colleges boomed in the 1970s as a result of the creation of the federally funded Law Enforcement Education Program (LEEP) in 1969. LEEP provided financial assistance to individuals seeking careers in the criminal justice field and who enrolled in college and university programs. By 1970 alone, over 890 colleges had received LEEP funds (Bopp & Schultz, 1972). The 1970s also witnessed field training become the most commonly used method to promote rookies to officers (Alpert & Dunham, 1992).

Although great strides were made in police training during the Reform Era, problems still existed. Training of officers varied greatly from state-to-state and even agency-to-agency during this period, due in part to amount of money each state or agency could spend on training. As a result, most police recruits hit the streets insufficiently prepared for the rigors of police work (Chappell, 2008).

The focus of policing began to change in the 1970s and 1980s, the beginning of the Community Era or Community Problem-Solving Era (Kelling & Moore, 1988; Oliver, 2006; Williams & Murphy, 1990). During these years, the overall strategy in policing began to shift from concentrating on crime control to working with the community to solve the underlying problems allowing crime to manifest. Foot, horse, and bike patrols became more common once again as a way to close the divide between police and citizens, and agencies actively sought input and opportunities to collaborate

with community members (Kelling & Moore, 1988; Oliver, 2006; Wilson & Kelling, 1982). Working more closely with the public, it was thought, would reduce the fear of crime and disorder in a community and increase quality of life. While it does appear that the fear of crime decreased and quality of life increased during the Community Era, there is little evidence that crime control has become more effective during the same period of time. It should be noted, however, that many police agencies never transitioned to an organization model consistent with the philosophy of the Community Era (Oliver, 2006).

In regard to training, in many ways the police field is still transitioning from the Reform Era to the Community Problem-Solving Era. During the Reform Era, training focused primarily on the mechanical aspect of police work, such as driving, shooting, and arrest techniques, while overlooking skills such as human relations, and problem-solving (Birzer, 1999; Chappell, 2008). Many police training facilities focus on the mechanical aspects of police work to this day (Birzer, 1999; Birzer & Tannehill, 2001; Chappell, 2008). In addition to a shift toward teaching non-mechanical aspects of police duties, the Community Problem-Solving Era has also witnessed a push for greater emphasis on non-traditional training models such as Problem-oriented Policing (POP), Community-oriented Policing (COP), and Problem-Based Learning (PBL) (Chappell, 2008; Cleveland & Saville, 2007; Cleveland, 2006; Cordner & Biebel, 2005; Eisenberg & Glasscock; Marenin, 2004; McCoy, 2006).

The impact of police eras on personnel training is not direct, but it is note-worthy. This is the case because, while police administrators do not change their training focus due to the “eras” police historians have identified, when a community changes its expectation for the role the police should play in crime control and prevention, police

agencies often reciprocate by altering the way they themselves function. The policing “model” adopted by an agency is impacted by community expectation and in turn influences both the duties performed by officers and the training these individuals must receive.

Policing Models

According to Jack Greene (2000), a leading police researcher, there are currently four models of policing evident in America today, Traditional Policing, Problem-oriented, Community Policing or Community-oriented Policing, and Zero-tolerance Policing. The overall goal of police agencies under these models remains the same, to serve and protect the community. However, the methods used to achieve this end differ. Thus, while personnel working under one of these four models will perform some of the same functions, each model requires a set of unique police skills that must be learned by new officers.

The Traditional Policing Model developed during the early 20th century and fits well with the goals of the Reform Era (Oliver, 2006). According to this model, the main function of the police is enforcement of laws. Since crimes are dealt with after they occur, the Traditional Policing Model is reactive in nature, seeking to curb and discourage crime through enforcement as opposed to looking for a way to prevent crime from occurring (Oliver, 2006). Officers working under the Traditional Policing Model may appear isolated from social interaction with community members (Greene, 2000), however this model is still used in many agencies to this day (Oliver, 2006).

Training academies based on the Tradition Policing Model place a great deal of weight on the technical and mechanical aspects of an officer’s duties, such as defensive

tactics, arrest techniques, firearms training, proper use of force, traffic enforcement, and other hands-on topics (Birzer, 1999). Often neglected under this training model are skills such as community relations, crime prevention, problem-solving, and decision-making (Birzer, 1999; Bradford & Pynes, 1999; Chappell, 2008; Palmiotto, Birzer, & Unnithan, 2000). Interestingly, police researchers have found that up to 80% of an officer's on-duty time is spent on service-related calls as opposed to calls related to crime control (Goldstein et al., 1977).

The change in policing philosophy during the Community Era fostered the development of two novel policing models, Problem-oriented Policing (POP) and Community-oriented Policing (COP). Problem-oriented policing centers around the idea that by engaging in structured problem-solving to identify and resolve conditions that lead to criminal behavior, police agencies can realize a larger gain in the effectiveness of their law enforcement activities (Greene, 2000; Goldstein & Susmilch, 1981, Goldstein, 1979). The goal then is to focus less on reacting to a crime that has already been committed and applying the appropriate legal statutes, and more on proactively solving community problems.

Proponents of Problem-oriented Policing normally advocate that a structured problem-solving procedure be followed, the most common of which is identified by the acronym SARA (scan, analyze, respond, and assess). Using the SARA model, officers are expected to scan their community for problems, analyze the problem to determine an underlying cause, develop an appropriate response, and assess the effectiveness of the intervention in reducing the original problem (Greene, 2000). Success in POP is measured through the reduction in crime or particular types of crime as opposed to the

Traditional Policing model which is evaluated in relation to response time and/or the number of arrests made. Community members may be involved in problem identification and problem solving under a POP approach, but this can also happen without citizen participation.

Training programs designed to prepare officers to work within a POP guideline have a different focus than that of traditional programs. In POP, officers are asked to look beyond a crime to the root of the problem, find innovative ways to solve persistent problems, reflect on the effectiveness of actions taken, and then make decisions on the best way to proceed in the future (Cordner & Biebel, 2005; Rojek, 2003; Scott, 2000; Toch & Grant, 2005). This is a contrast to the Traditional Policing Model where officers generally serve a reactive, law enforcement role. Ideally, training in POP, “. . . would not be limited to teaching enforcement procedures, investigative methods, or laws and policies, but would cover the nature and known causes of the problem, and proven methods of effective prevention, intervention, and reduction” (Scott, 2000, p. 113). At this time, both the quantity and quality of formal training in Problem-oriented Policing is lacking (Scott, 2000).

Community-oriented Policing also advocates a proactive rather than reactive approach to crime prevention. According to Skogan and Hartnett (1997), the four key aspects of community-oriented policing are: (1) organizational decentralization; (2) commitment to problem-oriented policing; (3) a willingness to take citizens' views into consideration when planning policing practices; and, (4) support for community-based prevention and youth programs. While this operational definition appears to suggest that Community-oriented Policing is a form of Problem-oriented Policing, some scholars

differentiate the two arguing that Problem-oriented Policing does not have the community-building requirement of Community-oriented Policing (problem-solving can occur independently of community involvement) and that POP is more focused on solving problems than community-oriented policing (Cordner & Biebel, 2005; Greene, 2000; Oliver, 2006; Quinet, Nunn, & Kincaid, 2003). The key to COP is relationship building between the police and citizens within the community. Decisions on the part of officers or police agencies must be made with community input and must be transparent, open to review and interpretation by those outside of law enforcement (Greene, 2000). As with Problem-oriented Policing, COP effectiveness is shown by a reduction in crime or fewer reports of a particular problem by citizens.

There is an overlap in some of the training requirements for officers working under a Problem-oriented and Community-oriented Policing model since both advocate for a proactive, problem-solving approach to crime prevention. COP, however, requires police-citizen partnerships to determine the role of police in creating social order as well as identifying what community problems will be addressed and how (Greene, 2000; Palmiotto, Birzer, & Unnithan, 2000; Quinet, Nunn, & Kincaid, 2003). Officers who will work in a Community-oriented policing environment need training that helps build these skills. Sloan, Trajanowicz, and Bucqueroux (1992, p. 7-8) suggest that a basic academy teach students the philosophy of COP, problem-solving skills, how to foster community organization and involvement, “accountable creativity”, mediation and de-escalation skills to resolve emotionally-charged situations, ways to involve citizens in police functions, how to identify the underlying causes of crime, and community sensitivity. Bradford and Pynes (1999) suggest training to build skills including the following:

decision-making, leadership, interpersonal relations, listening, problem-solving, critical-thinking, analytic, and conflict resolution. Palmiotto, Birzer, and Unnithan (2000) stress that under a Community-oriented Policing model, teaching crime fighting is not enough, but that COP philosophy must be integrated into all topics taught at an academy. While these skills represent a departure for what has traditionally been taught to officers, many police training facilities still focus the majority of their attention on building the mechanical skills needed for police work (Birzer, 1999; Birzer & Tannehill, 2001; Bradford & Pynes, 2000; Chappell, 2008).

Zero-tolerance Policing is a relatively new model that is somewhat related to both Problem-Oriented Policing and Traditional Policing. In Zero-tolerance Policing, police agencies attempt to prevent particular crimes by focusing their resources on specific locations where these crimes occur (Greene, 2000; Oliver, 2006). It is hoped that aggressive targeting of a particular crime or crimes will dissuade others from committing the same crime and prevent civil deterioration in the targeted area (Greene, 2000). This model is similar to Traditional Policing in that it has a crime attack focus. In both of these models, police make decisions on what crimes to target and where with little input from the public. Success in both models is measured in terms of arrests made and crime rate reduction through deterrence (Greene, 2006). Zero-tolerance Policing also has components in common with Problem-oriented Policing. Both of these models seek a reduction in crime through a proactive approach where problems that contribute to further deterioration of an area are identified and addressed (Greene, 2006). Examples of this type of approach are stepped up driving under the influence (DUI) patrols on holidays,

prostitution stings, crack-downs on aggressive driving, and party patrols around college campuses.

Educational Philosophies and Learning Theories Impacting Police Training

As mentioned previously, the policing model utilized by a law enforcement agency has an indirect, but note-worthy impact on both the job functions of officers as well as the training required to prepare them for their chosen profession. In reality, few police departments fall completely into one of the four models described by Greene (2000) but instead provide services in their communities that would seem to possibly fit in all four of the models. Perhaps then, it is not surprising that when one examines the underpinning educational philosophy of a police academy, teaching techniques identified with more than one philosophy are evident. The question that must be asked is if the dominant educational philosophy used as the foundation of a police academy's instruction approach appropriately prepares officers for work in their community.

In the United States, traditional police training in many subjects has taken place through passive learning activities such as lecture and by watching video tapes. Under this training viewpoint, the instructor is the focus of the learning environment, determining what information students need to know and how course material will be covered. Support for this traditional training methodology is rooted in the learning theories of behaviorism and cognitivism (Birzer and Tannehill, 2001; Birzer, 2003).

Behaviorism can be traced to research conducted in the early 20th century by Ivan Pavlov and John Watson, but its application to education is most commonly attributed to psychologists such B.F. Skinner and Edward Thorndike (Birzer, 2004; Birzer & Tannehill, 2001; Owens, 2004). According to behaviorist thought, human learning

occurs primarily through positive reinforcement of desired behavior or punishment following undesired responses. As summarized by Birzer (2003), “Behaviorist theories equate humans to machines in that, as with machines, if you introduce an input (stimulus) into a human being and control how that input is processed (operant conditioning), you will get a predetermined output (response)” (p. 31). Purist proponents of this type of learning discount learning processes that are not observable and measurable, such as affective processing and intrinsic motivation. Techniques commonly used in the classroom by behaviorists include cuing, prompting, positive reinforcement, and skill drills (Birzer & Tannehill, 2001). Since learning is defined as a change in behavior, success in a class built upon behaviorist mentality would necessitate some outwardly measurable demonstration of student knowledge (written test, scenario, driving evaluation, etc.).

Cognitive psychology arose in the 1960s as an opposing view to behaviorism, and is associated with such individuals as Noam Chomsky, Kurt Lewin, Jean Piaget, and Jerome Bruner (Birzer, 2004; Owens, 2004). In contrast to behaviorists, cognitive psychologists recognize that mental processing of information occurs, and learning is defined as a change in the schema used to process incoming stimuli. Learning, according to the cognitive viewpoint, no longer must be observable and measurable, and mental processes such as memory, perception, critical thinking, creativity, and problem-solving are given credence (Birzer, 2004; Owens, 2004). In relation to education, the cognitive viewpoint holds that it is the responsibility of an instructor to present information to students in a logical, understandable manner, and is manifest in such teaching practices as lecture, demonstrations, videos, presentations, and readings (Birzer, 2004; Birzer &

Tannehill, 2001). Evidence of learning in a class based on cognitivism can be obtained using the same techniques described for behaviorism, but because learning is seen as a change in internal cognitive structuring as opposed to a change in behavior, cognitivists would concede that some learning may not be easily observed.

Both behaviorism and cognitivism have a place within police training. Some law enforcement courses attempt to control the way in which incoming information is processed by students and measure learning by a change in their behavior. Examples of such classes would include firearm training, defense tactics, and emergency vehicle operations (Birzer, 2003). Subjects such as criminal law, search and seizure, report writing, geography, patrol methods, sexual harassment, cultural diversity, community awareness, and police-community relations are often structured around the cognitive view of learning (Birzer & Tannehill, 2001). Classes in these subjects are normally taught by subject-matter experts who seek to impart some of their knowledge and wisdom on police recruits.

With the implementation of non-traditional policing models such as Problem-oriented and Community-oriented Policing, however, came the realization that officer training programs needed to be changed. A problem became evident with academies focused entirely on behavioral and cognitive learning approaches. Instead of big, physically strong individuals able to enforce the law as dictated by superiors, what was needed were creative officers with strong communication, decision-making, problem-solving and critical thinking skills (Birzer & Tannehill, 2001; Codish, 1996; Dwyer & Laufersweiler-Dwyer, 2004; Lepinski, 2005; Marenin, 2004). Both cognitive and behavioral teaching philosophies utilize instructor-centered classrooms where the teacher

imparts knowledge on students learning passively. This type of environment is not effective in building non-mechanical competencies such as problem-solving, decision-making, critical thinking, or collaboration skills. Unfortunately, these are the skills that are increasingly important for police officers working in today's society (Birzer, 2003; Birzer & Tannehill, 2001; Marenin, 2004).

Behavioral and cognitive teaching styles also have the drawback of treating all students equally (Birzer, 2004). Research shows that students have different types of intelligences, learning styles, and learning strategies. They also enter a classroom with different motivations for learning and different experiences (Birzer & Tannehill, 2001; Cleveland, 2006; Fellenz & Conti, 1989; Knowles, 1980). Teacher-centered classes based on didactic instructional approaches do not account for these differences and thus do not conform with current research showing that adults approach learning differently (Birzer, 2004; Birzer, 2003)

Humanism, a third learning theory, and teaching techniques which follow humanistic educational principles, has been described as a better framework for police academies than either behaviorism or cognitivism (Birzer, 2004, Birzer & Tannehill, 2001; Cleveland & Saville, 2007; Della, 2004; Dwyer & Laufersweiler-Dwyer, 2004; Marenin, 2004; McCoy, 2006). According to Owens (2004), humanistic psychology is, "An approach to the study of human psychology that focuses on human interests, values, dignity, and worth and recognizes the capacity of human beings to increase self-realization through reason" (p. 427). In education, humanism is embodied in the idea that student learning should be self-directed with the teacher acting as a learning facilitator instead of lecturer. Key individuals associated with the development of humanism and

who impacted the course of police training are Abraham Maslow, Carl Rogers, and Malcolm Knowles (Birzer, 2004; Birzer, 2003; Birzer & Tennehill, 2001; Owens, 2004).

Abraham Maslow believed that individuals have an internal motivation to achieve their fullest potential, what he called self-actualization. Maslow described human motivation as consisting of five distinct levels, which he organized from the most basic to higher-order needs. The five levels of Maslow's Hierarchy of Needs are Basic Physiological Needs, Security and Safety, Social Affiliation, Esteem, and Self-Actualization (Owens, 2004). The first four levels are called deficiency needs as their absence will motivate an individual to seek their fulfillment. Maslow viewed self-actualization as the ultimate goal of human growth, but believed that it cannot be sought until all deficiency needs have been met (Birzer, 2004; Owens, 2004).

The impact of Maslow on police training is evidenced by an increased awareness of the needs of adult learners within a classroom setting. According to Della (2003) and Kennedy (2003), adult learners are different than younger learners in that adult learners have a different self-image, greater life experiences, a fear of failure, the expectation that learning will be of immediate use, diminished speed of retention and learning, a decline in visual clarity, and a decline in auditory acuity. When advocating for teaching practices to address such issues as self-image differences, the fear of failure, a diminished speed of retention and learning, and a decline in visual and auditory acuity, Kennedy and Della seek to help police trainers meet Maslow's "deficiency needs" thus allowing students to learn more effectively (Della, 2004; Kennedy, 2003).

Carl Rogers was very influential in describing the role of the learner and teacher in the educational process. According to Rogers, humans have a natural desire to learn,

an underlying need to fulfill inherent possibilities (Rogers, 1979). Within the learning environment, the teacher was expected to serve as a facilitator, whose responsibility it was to set a positive climate for learning, nurture creativity, clarify the purpose of learning, provide appropriate learning resources, unleash curiosity, and balance the cognitive and affective components of learning (Rogers, 1974a, 1974b, 1977, 1979). In 1957, Rogers gave what has been argued one of his most important statements relating to education (Maharg, 2000). At a conference dealing with classroom approaches, Rogers described 13 personal thoughts on teaching and learning based on his own experiences (Maharg, 2000; Rogers, 1979). These thoughts make it apparent that Roger believed two types of learning exist, learning that does not significantly influence behavior and learning that does. Rogers goes on to claim that the only learning which significantly influences behavior is that which is self-directed and self-appropriated (Rogers, 1957). Other themes found within Roger's 13 personal thoughts include the idea that students are only interested in learning topics that have significance to themselves, and that students can benefit greatly by focusing on their own metacognition processes (Rogers, 1957).

Many police researchers and practitioners advocate for the use of teaching methods that can be attributed to Rogers within training academies. The idea that student officers should play some role in deciding what is learned and how learning takes place is dependent on students having a natural desire to learn. A change in the role of the instructor from that of teacher to learning facilitator is also an idea put forward by Rogers. Both of these ideas are advocated for use in police training by Birzer (2003, 2004), Birzer and Tannehill (2001), Cleveland and Saville (2007), Dwyer and

Laufersweiler-Dwyer (2004), Lepinski (2005), and McCoy (2006). One major component of police Problem-Based Learning is having students complete a learning journal (Cleveland & Saville, 2007). Having student officers focus on their learning strengths and weaknesses is a metacognitive exercise, such as that described by Rogers.

The ideas of Maslow and Rogers are also important to those interested in police training as their views had a great influence on the adult learning principles developed by Malcolm Knowles. According to many police training experts, adult learning principles should be the scaffolding upon which police training is built (Birzer, 2004, Birzer & Tannehill, 2001; Cleveland & Saville, 2007; Della, 2004; Dwyer & Laufersweiler-Dwyer, 2004; Marenin, 2004; McCoy, 2006). A leader in the push for training specifically designed for the needs of older learners, Knowles explains that four main assumptions must be made about learners as they mature: (1) they become increasingly more self-directed; (2) they accumulate experience useful as a learning resource; (3) their motivation to learn becomes more job-oriented; and, (4) they expect education material to have immediate application (Knowles, 1980). Knowles termed his idea of adult education “andragogy”, the science of teaching adults as opposed to pedagogy which is the science of teaching children (Knowles, 1970).

According to Knowles (1980) pedagogy and andragogy differ in important ways in regard to the concept of the learner, role of learner’s experience, readiness to learn, and orientation to learn. In terms of the concept of the learner, society expects the teacher to be responsible for determining the instructional content and methodology when instructing younger students. Adults on the other hand are expected to be self-directed, and thus the instructor should help facilitate the movement toward self-directedness in

students. Regarding experience, Knowles noted that children come into a learning environment with limited experiences related to the subject material while adults often have a great reservoir of experience that should be tapped by the learning facilitator. Readiness to learn deals with the conditions under which a student is primed to assimilate new knowledge. For children, this occurs when the school determines learning should take place. Adults, in comparison, are ready to learn when they discover the need to, or have interest in learning. The role of the facilitator then is to help the adult student discover how learning the subject matter at hand is of benefit to them. Lastly, orientation to learning describes how the learner views education. Children normally see education as a process in which they build a reservoir of subject matter understanding to be used at some point in the future. Adults, in contrast, view education as something that should be immediately applicable in their lives to help them achieve their full potential (Knowles, 1980).

The four differences he saw between adult and child learners led Knowles (1980) to make thirteen suggestions on how to tailor learning to meet the needs of adults:

1. The learning climate should be one where an adult feels at ease.
2. The adult student should be involved in self-diagnosing their own learning needs.
3. The adult student should be involved in planning his/her learning activities.
4. Learning should be viewed as the responsibility of both the facilitator and learner.
5. Adult learners should engage in self-evaluation of their learning.

6. Emphasis should be placed on learning activities that utilize the experience of adult learners.
7. Emphasis should be placed on the practical application of class material.
8. Early activities should be aimed at helping adult students look at themselves more objectively.
9. Curriculum should be designed so that it is in step with adults' developmental tasks.
10. The type of task at hand should determine whether student groups are homogeneous or heterogeneous.
11. Adult educators must be attuned to the orientation of adult learners to the learning process.
12. The curriculum for adult learners should be organized by problem areas instead of subjects since adults are more problem-centered.
13. Learning experiences for adults are best begun with the problems and concerns they have when coming into the learning environment.

As research into the training needs of officers expected to work within a problem or community-oriented framework progressed, and more became known regarding the needs of adult learners in general, police training philosophy moved towards methods consistent with adult learning principles (Birzer, 2003; Birzer & Tennehill, 2001; Della, 2004; Dwyer & Lauferweiler-Dwyer, 2004; Kennedy, 2003; Marenin, 2004). Few in the law enforcement field believe behaviorism and cognitivism have no place in the education of police officers. However, many believe that a more humanistic approach will allow student officers to build proficiency in non-academic competencies (problem-

solving, critical thinking, etc.) as well as subject matter knowledge. A humanistic approach will also more closely mirror the democratic ideals that officers are supposed to embody within society (Marenin, 2004).

Problem-Based Learning

At the same time Knowles was refining his ideas on adult learning, another educator by the name of Howard Barrows was developing a teaching method that years later would also impact police training, Problem-Based Learning (PBL). Designed originally for use in medical schools, Barrows summarized the technique as, “. . . a distinct educational method aimed at giving the learner effective skills in problem solving, self-directed learning as a life-time habit and team work, all while acquiring an integrated body of knowledge from many different subject areas or disciplines” (Barrows, 2002, p. 119). In theory, PBL is congruent with adult learning theory in that it advocates for the use of real-world problem to facilitate the learning process, encourages students to use their past experiences whenever applicable to solve the problem at hand, requires students to be self-directed learners, and focuses on presenting information in a way that knowledge gained is immediately applicable (Barrows, 2002; Cleveland, 2006).

Problem-Based Learning also occurs in a collaborative environment where communication skills can be practiced (Barrows, 2002).

Proponents of PBL list many advantages of this training methodology. Cleveland (2006) states that PBL incorporates elements of the Adult Learning Model, Multiple Intelligence Theory, and Bloom’s Taxonomy. Hmelo-Silver (2004) found PBL to build flexible knowledge, problem-solving skills, self-directed learning, collaborative skills, and intrinsic motivation. Research by Sungur and Tekkaya (2006) found an increase in

the ability of students to make hypotheses, analyze data, and develop and justify solutions when taught in a PBL environment as well as a greater sense of personal responsibility for learning. An increased ability to solve problems is often purported as a benefit of PBL training (Cleveland, 2006; Hmelo-Silver, 2004; Lepinski, 2005; Weiss, 2003; White, 2001). PBL has the further benefit of being student-centered rather than instructor-centered (Driessen & van Der Vleuten, 2000).

Although potential benefits of PBL are abundant in literature, consensus on the effectiveness of PBL training in practice is more difficult to find. Research teams have found PBL to be a more effective teaching tool than traditional methods. Banta, Black and Kline (2001), in reviewing literature, found that PBL training increases student satisfaction, attendance, self-directed learning, and long-term memory while decreasing student distress. Sungur and Tekkaya (2006) indicate that with PBL, students had higher levels of intrinsic goal orientation, task value, and use of elaboration learning strategies, critical thinking, metacognitive self-regulation, effort regulation, and peer learning. McParland, Noble, and Livingston (2004) studied second year clinical medical students taught using PBL curriculum versus traditional curriculum. These researchers found that students who were exposed to a PBL curriculum had significantly higher written exam and practical scores than students exposed to traditional curriculum. Paralleling these findings, Hoffman et al. (2006) report that 10 cohorts of students taught using PBL at the University of Missouri-Columbia School of Medicine from 1993-2006 scored significantly higher over this period on the United States Medical Licensing Examination (USMLE) Step 1 and Step 2 exams compared to first time examinees nationally. Medical

research conducted by Docherty et al. (2005), Koh et al. (2008), and Nagoshi et al. (2008) also suggests that the use of PBL methodology had a positive impact on student learning.

While the reports referenced above show a benefit to PBL methodology, Colliver (2000) reviewed literature on PBL training from 1992-1998 and found few significant gains in student knowledge base or practical expertise when effect size is considered. Norman and Schmidt report similar findings in their 2000 review, but warn that discounting PBL on these grounds is difficult given the complex, multi-variable environment in which it is used. Albanese (2000) also published a review regarding the impact of PBL on medical student knowledge and skill acquisition. While his empirical findings generally concur with Colliver in regard to the impact of PBL in light of effect size, Albanese argues that the level of effect size utilized by Colliver is unreasonable and that true benefits to PBL methodology can be found in literature. In contrast to the findings of Nagoshi et al. (2008), Enarson and Cariaga-Lo (2001) found no statistically significant difference in mean score on the USMLE Step 1 or Step 2 examinations when comparing students who experienced a PBL versus traditional curriculum at Wake Forest University School of Medicine over a seven year period.

Part of the problem with proving the value of PBL exists because it is difficult to measure change in student ability that is not related to a specific subject area, such as problem-solving aptitude, critical thinking, and self-directed learning (Driessen & van Der Vlueten, 2000). Rather than relying on easily constructed and quantified multiple-choice tests that educators are accustomed to writing, PBL training requires the use of alternative assessment tools such as portfolios, questionnaires, constructed responses, essays, writing samples, oral presentations, exhibitions, experiments, specially designed

tests, or instructor/peer/self-assessments (Banta et al., 2001; Driessen & van Der Vlueten, 2000; Elizondo-Montemayor, 2004; Major & Palmer, 2001). Ideally, different techniques would be used to examine student growth within a PBL curriculum, thus providing a way to triangulate results (Banta et al., 2001).

PBL in Police Training Academies

Although Problem-Based Learning has been used in the field of medical education for decades, it has only recently been implemented for police training. Several characteristics of the law enforcement culture may explain why moving to police training based on adult learning principles such as PBL has been slow. First, these new educational practices require trainers with both subject matter expertise and the ability to effectively facilitate learning processes (Birzer, 2003). Retraining an entire cadre of instructors on how to facilitate student learning as opposed to lecture from the front of the classroom requires a significant investment of time and money on the part of any agency. Humanistic training methods are also a break from the traditional police academy instructional practices rooted in behaviorism and cognitivism. As stated by Sparrow (1988), “Having a strong personal commitment to the values with which they have grown up, police officers will find any hint of proposed changed in the police culture extremely threatening” (p. 1). Other barriers include the impression that the change is just in vogue and will soon be replaced by something else, lack of support by middle and upper management, unwillingness of officers to accept change, the need for the support of change to filter through many layers of rank, and resistance from those whose jobs may change (Sparrow, 1988).

Gerard Cleveland and Gregory Saville are responsible for creating a police PBL educational model. Cleveland and Saville (2007) conducted survey research on training personnel who had first-hand experience with police PBL. This research helped identify technical reasons and taboos which negatively impacted PBL integration within a police training environment. According to these researchers, two main technical obstructions exist; that group work is flawed in that many individuals do not like group work or only a few individuals dominate within groups, and that there is not enough time to conduct PBL training in the same period that lecture was once done. The main taboos identified by Cleveland and Saville (2007) centered around PBL misconceptions, including that it is unnecessary to implement PBL fully, that police training evaluations must include numerically scored tests, and that trainers skilled in using adult learning methods naturally use PBL without a coordinated effort (Cleveland & Saville, 2007).

While these barriers help explain the reason that teaching methods identifiable with humanistic teaching philosophy have not been widely implemented in police training, its influence is starting to become evident. There is no published information related to the number of police training academies utilizing adult learning techniques, be the use partial or wide-spread. Perhaps because it represents such a departure from tradition law enforcement training, more information is available on the spread of PBL. Problem-Based Learning has been the primary instructional method used to train officers at the Royal Canadian Mounted Police (RCMP) training center in Regina, Saskatchewan for over 12 years. While quantitative data supporting PBL has not been collected, anecdotal evidence suggest that PBL is positively affecting officer development. According to Scott Burko, Training Supervisor at the RCMP training center, prior to the

adoption of PBL, many Canadian agencies felt that students came out of the RCMP academy acting like “drones”. These officers retained little of the information taught via lecture and were often unable to perform as their supervisors expected in the field. Since training was changed to PBL, agency heads have noted that officers graduate from the academy and can perform as though they had two years of on-the-job experience (S. Burko, personal communication, March 1, 2007). Problem-Based Learning has now become part of the training culture at the RCMP.

In part because of the success of PBL at the RCMP, and because they also recognized a gap between student knowledge on written exams and their ability to transfer this knowledge into practice, staff and administrators at the Kentucky Department of Criminal Justice Training (Kentucky DOCJT) decided in the Summer of 2005 to adopt PBL philosophy for police basic training. The first fully integrated PBL academy was held at Kentucky DOCJT in January, 2007 (S. Saltsman, personal communication, February 21, 2007).

In addition to the RCMP and Kentucky DOCJT, PBL is also beginning to replace traditional police training methodology at agencies in California, Colorado, Kansas, Maine, Michigan, Minnesota, South Dakota, and Wisconsin and is being investigated by staff in Idaho and North Carolina (Featured Agencies, 2007; T. Dischinger, personal communication, March 2, 2007). In these instances, PBL is normally used more in individual agency training facilities as opposed to being the statewide training method. As a result of conversations with those at the RCMP and Kentucky DOCJT, Washington State’s Criminal Justice Training Center (WSCJTC) is converting their curriculum to Problem-Based Learning. WSCJTC started the first pilot PBL academy in February,

2008 and begin training using only this methodology in September, 2008 (S. Grant, personal communication, May 23, 2008).

Empirical research aimed at demonstrating the effectiveness of police PBL has begun, but is limited in scope. Using student self-reported data, Vander Kooi (2006) found that students taught using PBL at a college academy scored higher on survey items related to problem-solving skills, critical thinking ability, satisfaction with their training, and belief that their training prepared them for work as a police officer, compared to students in several other police academies throughout the state. Cleveland and Saville, the progenitors of police PBL have conducted some survey research into barriers to PBL implementation, but when it comes to evidence of PBL success, they refer readers to studies in other fields (Cleveland & Saville, 2007).

Those who encourage the continued spread of PBL in police training state that one of this training method's benefits is that it conforms to current theory and research into the needs of adult learners by utilizing their previous knowledge, requiring practical application of knowledge, and teaching through solving real-world problems (Cleveland, 2006). However, to date no research has been conducted to determine what adult learning principles are used by those training within a PBL environment. If instructors at a police training academy utilizing PBL methodology were found not to use techniques discussed in adult learning literature, this would suggest a deficiency in the training of these instructors on how to facilitate learning in a PBL environment, a failure in the ability of problem-based education to meet one of its published benefits, namely that it conforms to the needs of adult learners (Cleveland, 2006), or that the success of PBL in police training is not related to the use of adult learning principles by instructors.

Without a clearer understanding of what adult learning principles are actually practiced in a PBL environment, future research cannot assess the importance of these principles to PBL success. Considering that a great number of researchers advocate for the integration of adult learning principles into police training academies, a close match between techniques identified with adult learning and the practices of instructors at PBL academies would provide validation for those switching to Problem-Based Learning.

Chapter III

Methodology

Introduction

The purpose of this study was to describe the adult learning principles practiced by police academy instructors at the Kentucky Department of Criminal Justice Training (Kentucky DOCJT) and Washington State Department of Criminal Justice Training Commission (WSCJTC). Specifically, the instructors' use of the following adult learning techniques was examined: (1) Learner-Centered Activities; (2) Personalizing Instruction; (3) Relating to Experience; (4) Assessing Student Needs; (5) Climate Building; (6) Participation in the Learning Process; and, (7) Flexibility for Personal Development. The purpose of this section is to elucidate the research methods used in gathering and analyzing data regarding the use of teaching practices by police academy instructors which are associated with the theory of adult learning.

Research Framework

In the 1970s and 1980s, the focus of policing began to change from simply the control of crime to working with the community to solve the underlying problems allowing crime to occur (Kelling & Moore, 1988; Oliver, 2006; Williams & Murphy, 1990). During this time, non-traditional policing models such as Problem-oriented and Community-oriented Policing were developed, and with them came the realization that officer training programs needed to be changed. Instead of individuals able to enforce the law as dictated by superiors, what was needed were officers with strong

communication, decision-making, problem-solving and critical thinking skills (Birzer & Tannehill, 2001; Codish, 1996; Dwyer & Laufersweiler-Dwyer, 2004; Lepinski, 2005; Marenin, 2004). As research into the training needs of officers expected to work within a problem or community-oriented framework progressed, and more became known regarding the needs of adult learners in general, police training philosophy moved towards methods consistent with adult learning principles (Birzer, 2003; Birzer & Tannehill, 2001; Della, 2004; Dwyer & Lauferweiler-Dwyer, 2004; Kennedy, 2003; Marenin, 2004).

In the mid-1970s a new teaching technique was developed by medical educator Howard Barrows. Problem-Based Learning (PBL), as it came to be known, was aimed at helping students become proficient in problem-solving, build collaboration skills, and become more self-directed in their learning, all while acquiring knowledge relevant to their chosen career (Barrows, 2002). Although Problem-Based Learning has been used in the field of medical education for decades, it has only recently been implemented for police training. While there is no published information related to the number of police training academies utilizing adult learning techniques, three multi-jurisdictional training facilities in North America have transitioned to PBL; the Royal Canadian Mounted Police (RCMP) in the late 1990s, the Kentucky Department of Criminal Justice Training (Kentucky DOCTJ) in early 2007, and the Washington State Criminal Justice Training Commission (WSCJTC) in early 2008. PBL is also beginning to replace traditional police training methodology at agencies in California, Colorado, Kansas, Maine, Michigan, Minnesota, South Dakota, and Wisconsin and is being investigated by staff in

Idaho and North Carolina (Featured Agencies, 2007; T. Dischinger, personal communication, March 2, 2007).

One of the purported benefits of police PBL is that it conforms to current theory and research into the needs of adult learners by utilizing their previous knowledge, requiring practical application of knowledge, and teaching through solving real-world problems (Cleveland, 2006). However, to date no research has been conducted to determine what adult learning principles are used by those training within a PBL environment.

The research described here seeks to answer three questions:

- (1) Research Question 1: To what extent do police academy instructors trained in PBL facilitation implement various principles identified as important to adult learning?

McCoy (2006) studied the use of adult learning principles by police academy trainers in a Midwestern multi-jurisdictional academy not using PBL with the Principles of Adult Learning Scale (PALS). McCoy found that instructors at this academy had a strong preference for teacher-centered as opposed to student-centered approaches. Instructors at the academy also scored below the norm for the following adult learning principles measured by PALS: Personalizing Instruction, Relating to Experience, Assessing Student Needs, Climate Building, Participation in the Learning Process, and Flexibility for Personal Development (McCoy, 2006). To date no reports have been published examining the use of adult learning principles by police academy trainers using PBL.

(2) Research Question 2: Does length of time since adoption of PBL methodology increase use of adult learning principles by academy instructors?

Instructors at police academies work both independently and as a team to make improvements to training. This includes modifying curriculum, policies, and instructor training programs. Training coordinators at the sites selected for this study have reported challenges when PBL was first implemented (S. Saltsman, personal communication, February 21, 2007; S. Grant, personal communication, May 23, 2008). Changes made to curriculum and instruction over time by academy staff may impact the adult learning profile of instructors working within these training environments.

(3) Research Question 3: Is there a difference in the use of adult learning principles among police instructors at academies that have adopted PBL and instructors at an academy that has not adopted PBL?

Since Problem-Based Learning is purported to conform to current theory and research into the needs of adult learners by utilizing their previous knowledge, requiring practical application of knowledge, and teaching through solving real-world problems (Cleveland, 2006), police instructors working in a PBL academy would be expected to utilize more adult learning techniques more often than police instructors working in a non PBL academy. As mentioned earlier, McCoy (2006) studied the use of adult learning principles by police academy trainers in a Midwestern multi-jurisdictional academy *not* using PBL. However, to date no

reports have been published examining the use of adult learning principles by police academy trainers using PBL.

Data Collection Procedure and Sample

The study presented here describes the adult learning principles practiced by instructors at police academies utilizing PBL. All three research questions were investigated using descriptive research methodology utilizing a nationally normed, cross-sectional internet questionnaire. Survey methodology is appropriate to examine the use of adult learning principles by police instructors for several reasons. First, a self-administered questionnaire gives an instructor the opportunity to describe the teaching practices he/she uses in class. Second, survey methodology is commonly used in educational research to assess instructor use of adult learning principles. Finally, a nationally normed, self-administered, cross-sectional questionnaire has been used before to describe the adult learning principles practiced by police academy instructors (Conti, 1990; McCoy, 2000; McCoy, 2006).

In the fall of 2008, an electronic version of the Principles of Adult Learning Scale, including an introduction letter and demographic questionnaire (Appendix 2 and 3), was sent to instructors at the Kentucky Department of Criminal Justice Training (Kentucky DOCJT) and Washington State Department of Criminal Justice Training Commission (WSCJTC) facilities using the online survey tool Survey Monkey. A web-based approach was used in this study as online surveys have several advantages over standard paper and pencil forms. Ramos et al. (1998) report that online surveys help reduce the amount of time spent entering data, reduce cost, and reduce error when compared to

paper surveys. Hancock and Flowers (2001) found that response rates on attitudinal surveys online had comparable response rates to paper-and-pencil survey, regardless of whether the survey was anonymous or identified with the respondent. Implementing the suggestions found in Hancock and Flowers, Barrett (2004) used online survey methodology in her study of online professors, and achieved a response rate of 41%. Using paper-based PALS, McCoy's (2006) response rate was 50%, only 9 percentage points higher.

Online surveys have a further advantage to paper-based equivalents in that they can be designed so that each question requires a response, eliminating the problem of missing data (Litwin, 1995; Solomon, 2001). The questionnaire used in this study was designed so that no question could intentionally or accidentally be skipped. Participants were informed that this was the case since skipping questions would make scoring PALS more difficult, but that at any time they could choose not to participate in the study (Appendix 3). The demographic questionnaire and PALS included a place where instructors could leave their name and contact email. If a name was included, the respondent was provided with his/her PALS scores individually. Otherwise, the only data available to participants was descriptive statistics for the group. Following the advice of Hancock and Flower (2001), respondents were informed that data would only be reported in aggregate form and that individual's scores would not be able to be identified.

To maximize response rate, two email reminders were sent to instructors regarding the questionnaire. One reminder was sent one week after the first questionnaire, and another reminder was sent three weeks after the first questionnaire.

The demographic questionnaire (Appendix 4) asked information relating to the instructor and his/her educational experience, including: gender, age, formal education received, years of law enforcement experience, years of teaching experience, length of time spent teaching in a PBL environment, areas of training specialization, amount of training in PBL facilitation, amount of training received in how to teach adult learners, and the percent of each of the trainers classes taught through PBL. A space was also provided where the instructor could comment further on anything they felt needed clarification.

Several sets of data were collected using the PALS questionnaire (Appendix 1). The overall PALS score was used to determine whether an instructor favored student-centered or instructor-centered training. Subsections of PALS measured instructor use of seven adult learning principles: (1) Learner-Centered Activities; (2) Personalizing Instruction; (3) Relating to Experience; (4) Assessing Student Needs; (5) Climate Building; (6) Participation in the Learning Process; and, (7) Flexibility for Personal Development.

All data generated through the course of this study was stored online with the survey platform Survey Monkey and imported into Microsoft Excel for statistical analysis using the program Mega Stat. Resulting data was presented in tabular format. Both demographic and PALS information will be kept for a period of five years following completion of the study at which time participant questionnaire and PALS responses will be erased. This five year window is intended to allow the primary investigator to reanalyze all of the raw data collected if needed to answer questions on the part of participating agencies or for publication purposes. Erasing the raw data after five years will ensure that individual participant responses will not be unintentionally released at a later date.

The sample subjects studied for this dissertation are from the Kentucky Department of Criminal Justice Training (Kentucky DOCJT) and Washington State Department of Criminal Justice Training Commission (WSCJTC). These agencies are the best to evaluate adult learning principles used by PBL instructors because they are the only state-run training facilities actively transitioning to Problem-Based Learning. PBL was integrated into the Kentucky DOCJT's curriculum in January of 2007 and was started at WSCJTC in February of 2008. To increase the number of questionnaire responses included in the analysis, all instructors from the Kentucky DOCJT and WSCJTC who have taught in a PBL environment were recruited for inclusion in the study. Since all of the instructors who teach at United States state-run police academies were recruited for inclusion, this study researched the population of such instructors. At the time this study was completed, Kentucky DOCJT had approximately 61 instructors and WSCJTC nine instructors with PBL teaching experience (S. Grant, personal communication, May 21, 2008; S. Saltsman, personal communication, July 13, 2007).

Operationalization of Variables

As a result of the complex environment teaching occurs in, most educational research, including that dealing with police officer training, cannot address all of the variables that could impact study results. Characteristics of the students, instructors, and agency leadership likely impact the milieu in which police PBL occurs. The study described here examined the use of adult learning principles by instructors at two multi-jurisdictional, state-run police academies. The purpose of this research was to describe the adult learning principles utilized by police instructors in a PBL-based academy,

determine if the length of time the agency has been using PBL impacts the use of adult learning principles by its instructors, and establish if instructors at PBL-based academies use more adult learning principles than instructors at non-PBL based academies.

Use of Adult Learning Principles

Use of adult learning principles is the degree to which police academy instructors use Principles of Adult Learning and will be measured using the Principles of Adult Learning Scale (PALS) developed by Gary Conti in 1978. PALS is a self-administered, 44-question questionnaire which asks instructors to reflect on how often they practice certain behaviors associated with adult learning (Conti, 1979) (Appendix 1). The behaviors measured are broken into the following seven subsections: (1) Learner-Centered Activities; (2) Personalizing Instruction; (3) Relating to Experience; (4) Assessing Student Needs; (5) Climate Building; (6) Participation in the Learning Process; and, (7) Flexibility for Personal Development. The overall PALS score determines if an instructor uses a student-centered or instructor-centered teaching style (Conti, 1979). All 44-questions within these seven subsections can be completed in less than 15 minutes (Conti, 1990). Responses to all questions are collected on a six point Likert scale where an instructor can respond that they engage in a particular behavior, “Always”, “Almost Always”, “Often”, “Seldom”, “Almost Never”, and “Never” (Conti, 1990; McCoy, 2006). PALS was originally developed for use in an adult basic education setting, but scores have been shown to be both valid and reliable over a wide range of training environments including adult basic literacy classes, health professional college courses, a prison inmate moral development program, and a tribal community college on a Native

American reservation in Montana (Conti, 1985, 1990). PALS has also been used in scores of research studies in the business, medical, and criminal justice fields.

Implementation Time for PBL Methodologies

Implementation Time for PBL Methodologies is a nominal variable that was measured by assigning each academy in the study into a time frame of either “recent adoption” of PBL methodology or “earlier adoption” of PBL methodology. This variable was used in answering research question 2, and is possible because the Kentucky DOCJT began training using PBL in early 2007 and WSCJTC in early 2008.

Implementation versus Non-Implementation of PBL Methodologies

Implementation versus Non-Implementation of PBL Methodologies is a nominal variable that was measured by assigning the Kentucky DOCJT and WSCJTC to one category as police academies using PBL methodology. The adult learning principles used by these agencies was compared to the adult learning principles used by instructors at a Midwestern United States multi-jurisdictional police training academy as recorded by McCoy (2000, 2006).

Validity and Reliability

In order to be useful in answering the research questions posed in this study, the PALS questionnaire needed to have both validity and reliability. Validity refers to the degree to which a data collection instrument measures what it is designed to measure (Ary, Jacobs, Asghar, & Sorensen, 2006). Validity can be broken down into construct,

criterion, and content validity. Construct validity refers to the ability of a test to measure the intended theoretical construct (Ary et al., 2006). Construct validity was originally established for PALS by review of the questionnaire by 10 adult education professors from across the United States. For each of the 44 PALS questions, over three-quarters of the experts agreed that the question measured the intended theoretical construct (Conti, 1978). Construct validity was later confirmed through factor analysis where seven discernable factors were identified within the PALS questionnaire: (1) Learner-Centered Activities; (2) Personalizing Instruction; (3) Relating to Experience; (4) Assessing Student Needs; (5) Climate Building; (6) Participation in the Learning Process; and, (7) Flexibility for Personal Development (Conti, 1983).

Criterion validity refers to the results of the measurement tool in question matching the results of another measurement tool previously shown to be valid (Ary et al., 2006). In the case of PALS, criterion validity was shown by comparing this questionnaire to the Flanders Interaction Analysis Categories (FIAC) which measures the same constructs as PALS but through observation of practitioners in the field (Conti, 1985). The PALS scores of 12 adult learning instructors were compared to their FIAC Teacher Response Ratio (TRR), Teacher Question Ratio (TQR), and Pupil Interaction Ratio (PIR) scores using Pearson Product Correlation. Correlations of 0.85 for TRR, 0.79 for TQR, and 0.82 for PIR were found between FIAC and PALS, all of which represent statistically significant correlations at the 0.01 level (Conti, 1978).

Content validity refers to the ability of a data collection tool to measure the intended content area (Ary et al., 2006). Content validity for PALS was established through field testing of the instrument with 57 adult education practitioners and

correlating each item in the questionnaire to the criterion measure of the total score (Conti, 1985). Pearson Product Correlation was used to determine the correlation coefficients and evaluate content validity for each PALS question. Of the 44 PALS questions, 25 were found to be significant at the 0.001 level, eight at the 0.01 level, seven at the 0.05 level, and four at the 0.10 level. The minimum level set for acceptance of PALS questions was 0.10 (Conti, 1978).

Reliability refers to the ability of a measurement tool to give consistent results when utilized (Ary et al., 2006). The test-retest method was used to examine the reliability of PALS for 57 respondents, and resulted in a reliability coefficient of 0.92 (Conti, 1978). Reliability of PALS was also established through analysis of variance which demonstrated that PALS gave consistent results when used in a variety of program areas (Conti, 1985). Here, the original sample of 57 PALS scores was compared, using ANOVA, to the PALS scores of 721 adult educators from five subsequent studies. Analysis of variance returned a p-value of 0.28, indicating that no significant difference existed between the six groups of scores (Conti, 1983). This led the creator of PALS to conclude, “. . . even though the wording of some items may not be specifically appealing to some areas of the field, PALS can be used by adult educators in a wide variety of settings to measure support of the collaborative mode.” (Conti, 1983, p. 7)

Data Analysis Techniques

PALS data from the Kentucky DOCJT and WSCJTC were analyzed to answer research question #1. Descriptive statistics were generated using Mega Stat related to the instructors' overall and subsection PALS scores. Both the overall PALS score, as well as

PALS subsection scores for instructors from the two study sites, are presented in tabular format (see Tables 3 and 4). Table 4 depicts the number of instructors from each agency whose scores fall within one, two, or three standard deviations on either side of the PALS national average. Data is presented in this manner for several reasons. First, an instructor's overall PALS score indicates if he/she favors a student-centered or instructor-centered teaching style. A score within one standard deviation of the national average indicates a propensity towards one teaching style. A PALS score within two standards deviations indicates a very strong and consistent support for that teaching style. A score in the third standard deviation indicates an extreme commitment to one teaching style (Conti, 1990). Second, presenting both the overall PALS score as well as PALS subsection scores in this manner allows readers to easily compare the entire instructional profile of each participating agency. As a whole, scores on the PALS questionnaire range from 0 to 220. The national average on PALS is 146 with a standard deviation of 20. Scores below 146 represent a teacher-centered instructional style while scores above 146 represent a student-centered instructional style (Conti, 1990). The national means for the seven subsections of PALS are: 38 for Learner-Centered Activities, 31 for Personalized Instruction, 21 for Relating to Experience, 14 for Assessing Student Needs, 16 for Climate Building, 13 for Participation in the Learning Process, and 13 for Flexibility for Personal Development (Conti, 1990; McCoy, 2006).

For each of the two agencies surveyed, an agency average was generated for the PALS overall and subsections scores. A two-tailed t-test was performed using Mega Stat, comparing the average PALS scores from each agency to that of the nationally

reported means for the PALS questionnaire. Resulting t-test p-values are reported in tabular format (see Table 5). p-values below 0.05 were considered significant.

A two-tailed t-test was used to compare the overall and subsection PALS data from the Kentucky DOCJT and the WSCJTC to answer research question #2. Comparing the use of adult learning principles by instructors at the Kentucky DOCJT and the WSCJTC helped answer the question, “Does length of time since adoption of PBL methodology increase use of adult learning principles by academy instructors?” because PBL has been used at the Kentucky DOCJT since January of 2007 and at the WSCJTC since February of 2008. A t-test was completed using Mega Stat, and resulting p-values presented in tabular format (see Table 6). A p-value below 0.05 was considered significant in research related to question #2.

To answer research question #3, PALS scores collected from the Kentucky DOCJT and the WSCJTC were compared to the PALS scores published by McCoy (2006). In the McCoy study, PALS was used to assess trainers at a Midwestern United States state police academy based on non-PBL methodology. According to McCoy (2006) the average PALS score at the police academy studied was 128.6. Subsection scores were 40.1 for “Learner-centered activities”, 21.1 for “Personalized instruction”, 19.3 for “Relating to experience”, 10.9 for “Assessing student needs”, 15.7 for “Climate building”, 9.5 for “Participation in the learning process”, and 11.8 for “Flexibility for personal development” (McCoy, 2006). Two-tailed t-tests were performed using Mega Stat and used to compare the overall mean PALS score as well as the mean of the seven PALS subsections scores reported by McCoy (2006) to mean PALS scores from the Kentucky DOCJT and the WSCJTC. Resulting p-values for these statistical tests are

presented in tabular format for easy analysis by readers (see Table 7). A p-value below 0.05 was considered significant for t-tests related to research question #3.

Chapter IV

Findings

Introduction

This study is a report of the adult learning principles utilized by police instructors at two state-run, multi-jurisdictional training facilities utilizing Problem-Based Learning (PBL). The research was based on data obtained using the Principles of Adult Learning Scale (PALS) created by Gary Conti (1990) and sought to answer three questions:

- (1) To what extent do police academy instructors trained in PBL facilitation implement various principles identified as important to adult learning?
- (2) Does length of time since adoption of PBL methodology increase use of adult learning principles by academy instructors?
- (3) Is there a difference in the use of adult learning principles among police instructors at academies that have adopted PBL and instructors at an academy that has not adopted PBL?

To answer these research questions, PALS questionnaire data was collected from instructors at the Kentucky Department of Criminal Justice Training (DOCJT) facility in Richmond, KY and the Washington State Criminal Justice Training Commission (WSCJTC) in Burien, WA in the fall of 2008. Data obtained from these instructors was compared to nationally reported PALS norms, each other, and the research results published by McCoy (2006).

Overview of the PALS Questionnaire

To determine the extent to which police academy instructors trained in PBL facilitation implement various principles identified as important to adult learning, the adult learning principals used by instructors at the Kentucky DOCJT and WSCJTC were identified using the Principles of Adult Learning Scale (PALS) created by Gary Conti (1990). PALS is a self-administered, 44-item questionnaire which asks instructors to reflect on how often they practice certain behaviors associated with adult learning (Conti, 1979). The overall PALS score determines if an instructor uses a student-centered or instructor-centered teaching style (Conti, 1979). The average PALS score is 146 with a standard deviation of 20. Scores above 146 indicate the instructor favors a more student-centered approach to teaching while scores below this suggest the instructor utilizes instructor-centered techniques more frequently (Conti, 1990).

How far a score is from the national average indicates the strength and commitment to that particular teaching style. Scores within one standard deviation of the mean indicate an increased commitment to a student-centered or instructor-centered teaching style. Scores in the second standard deviation from the mean indicate a “very strong and consistent support of a definite teaching style” (Conti, 1990, p. 83). Scores that fall within the third standard deviation from the mean indicate the instructor has an extreme commitment to a student-centered or instructor centered teaching style (Conti, 1990).

In addition to determining the overall teaching tendencies of an instructor, PALS can be used to assess the frequency with which an instructor utilizes teaching practices associated with seven adult learning principles: (1) Learner-Centered Activities; (2)

Personalizing Instruction; (3) Relating to Experience; (4) Assessing Student Needs; (5) Climate Building; (6) Participation in the Learning Process; and, (7) Flexibility for Personal Development (see Table 1) (Conti, 1990).

Table 1.

Description of PALS Categories

<u>PALS Category</u>	<u>Category Label</u>
Factor 1	Learner-Centered Activities
Factor 2	Personalizing Instruction
Factor 3	Relating to Experience
Factor 4	Assessing Student Needs
Factor 5	Climate Building
Factor 6	Participating in the Learning Process
Factor 7	Flexibility for Personal Development

“Learner-Centered Activities” is Factor 1 of the PALS questionnaire and refers to how much emphasis an instructor places on evaluating students through formal testing and by comparing student results to outside standards (Conti, 1990). The average score nationally for Learner-centered Activities is 38 with a standard deviation of 8.3. An instructor who scores high on this section favors collaborative teaching methods where students assume responsibility for their own learning. A low score on this section indicates the instructor relies more heavily on teacher-centered approaches such as the use of standardized tests to evaluate learning, determining the learning objectives students must master, and using disciplinary actions to control a class (Conti, 1990).

PALS Factor 2 is “Personalizing Instruction”. Personalizing Instruction indicates the frequency with which an instructor uses techniques that allow a class to meet the unique needs of learners (Conti, 1990). Instructors who score high on this factor more frequently use teaching methods and materials that meet the needs of a wide range of learners. Lecture is minimized while cooperation in the learning environment is emphasized. A low score on Factor 2 indicates the instructor less frequently allows instruction to be tailored to the needs of students. The national average for this factor is 31 with a standard deviation of 6.8 (Conti, 1990).

“Relating to Experience”, Factor 3 of PALS, refers to the frequency with which an instructor evaluates the previous knowledge of students entering a class, uses this information when planning course activities, and encourages students to make the connection between new material being learned and their own previous experiences (Conti, 1990). Higher scores indicate instructors do this frequently, as well as ask students to reflect on how their learning helps them understand the nature of the society in which they live. The national mean for Factor 3 is 21 with a standard deviation of 4.9 (Conti, 1990).

The fourth factor of PALS is called “Assessing Student Needs”. Assessing Student Needs refers to how often an instructor works with a student to determine his/her individual needs as well as the reason he/she is seeking education or training. Factor 4 also relates to how frequently this information is used to help students plan steps to reduce the gap between their goals and their current skills. A higher score on this section implies that an instructor participates in these actions more frequently while a lower score suggests the instructor places less of an emphasis on assessing the needs of individual

students when planning training sessions (Conti, 1990). The national mean for Factor 4 is 14 with a standard deviation of 3.6.

Factor 5 of the PALS questionnaire is entitled “Climate Building”. An instructor who scores high on this portion of PALS frequently conducts his/her class in a way that removes barriers to student learning. Instructor behaviors associated with a high score on Factor 5 include the creation of a non-threatening learning environment, encouraging students to take risks in their educational exercises, and viewing errors as a normal and acceptable part of how an individual learns (Conti, 1990). For Factor 5, the national average is 16 with a standard deviation of 3.0 (Conti, 1990).

“Participation in the Learning Process” is Factor 6 of PALS and relates to the extent to which an instructor allows his/her students to play a role in determining what is learned in class and how this is accomplished. A high score on Factor 6 indicates that the instructor frequently permits students to identify problems to be solved and the direction to take in resolving the problem. Lower scores suggest that instructors more commonly determine what is to be learned in class as well as how this is accomplished for their students. The national average for Factor 6 is 13 with a standard deviation of 3.5 (Conti, 1990).

The seventh and final factor of PALS is “Flexibility for Personal Development”. An instructor who scores low on Factor 7 is likely to practice teaching behaviors such as relying solely on pre-determined course objectives for teaching even if student needs suggest otherwise, viewing discipline as a motivation for student learning, and avoiding controversial subjects. A high score on Factor 7 suggests that the instructor will change

course content or delivery as needed depending on the needs of students in his/her class (Conti, 1990). The national average for Factor 7 is 13 with a standard deviation of 3.9.

Description of the Sample.

Of the 61 instructors at the Kentucky Department of Criminal Justice Training (DOCJT) facility in Richmond, KY, 40 individuals responded to the Principles of Adult Learning Scale (PALS) questionnaire which represents a response rate of 65.6%. Two individuals chose to answer the PALS questionnaire but did not complete the demographic questions. Of those who completed the demographic section of the questionnaire, 72.5% were male and 22.5% female. The average Kentucky DOCJT respondent was 47.6 years of age, had 18.2 years of law enforcement experience, and had taught in a law enforcement environment for 10.5 years. Seventeen and one-half percent of responding individuals had some college education, 2.5% held an Associates Degree, 35% had earned a Bachelors Degree, 32.5% had received a Masters Degree, and 7.5% held Doctorates. The average amount of PBL training received by Kentucky DOCJT instructors was 63.2 hours, ranging from on-the-job training alone to over 160 hours of formal training. Respondents to the questionnaire had received an average of 97.2 hours of education on how to teach adults, ranging from an individual who had received no additional training in adult learning to one with over 400 hours of such experience (see Table 2).

Six of nine instructors at the Washington State Criminal Justice Training Commission (WSCJTC) in Burien, WA responded to the Principles of Adult Learning Scale (PALS) questionnaire, a response rate of 66.7%. At this study location, 83.3%

were male and 16.7% female. The average WSCJTC respondent was 40.6 years old, had 17.3 years of law enforcement experience, and 7.3 years of teaching in law enforcement. Fifty percent of WSCJTC instructors had some college education but no earned degrees, 33.3% had earned an Associates Degree, and 16.7% held a Bachelors Degree. The average number of hours of formal PBL training received by WSCJTC instructors was 56.7 hours, ranging from 40 hours to 100 hours. Respondents to the questionnaire had received an average of 47.2 hours of education on how to teach adults, ranging from an individual who had received no addition training in adult learning to one with 100 hours of such education (see Table 2).

Table 2.

Study Agency Demographic Data

<u>Demographic Data</u>		<u>Kentucky DOCJT^a</u>	<u>WSCJTC</u>
Response Rate		65.6%	66.7%
Sex	Male	72.5%	83.3%
	Female	22.5%	16.7%
Average Age (yrs)		47.6	40.6
Formal Education	Some College (no degree)	17.5%	50.0%
	Associates Degree	2.5%	33.3%
	Bachelors Degree	35%	16.7%
	Masters Degree	32.5%	0.0%
	Doctoral Degree	7.5%	0.0%
Average Years of Law Enforcement Experience		18.2	17.3

Average Years of Law Enforcement Teaching Experience	10.5	7.3
Average Hours of PBL Training	63.2	56.7
Average Hours of Education in Adult Learning	97.2	47.2

^a Percentages do not equal 100% because two individuals elected not to answer the demographic questions

Research Question #1

The extent to which Kentucky DOCJT and WSCJTC police academy instructors implement various principles identified as important to adult learning was assessed using the Principles of Adult Learning Scale (PALS) created by Gary Conti (1990).

Participants from the Kentucky DOCJT had an overall PALS average score of 126.6 which is 0.97 standard deviations below the nationally reported mean of 146.

Participants from the WSCJTC had an overall PALS average score of 124 which is 1.1 standard deviations below the nationally reported mean (see Table 3). This indicates that instructors at both of these training facilities as a whole have a strong commitment to instructor-centered teaching approaches (Conti, 1990).

Of the 40 Kentucky DOCJT respondents, only 17.4% had a score equal to or higher than the national average with 40% scoring within one standard deviation and two standard deviations below the mean and 12.5% of respondents scoring more than two standard deviations below the mean (see Table 4). The individuals who did score above

the national average have a more student-centered approach to training than their counterparts who scored below the mean established nationally.

In comparison, zero of the six WSCJTC respondents scored above the PALS national average. In relation to the overall PALS score, 50% of WSCJTC instructors scored within -1 standard deviation of the national mean and 50% of instructors scored between -1 standard deviation and -2 standard deviations from the nation mean (see Table 4). The individuals who scored lower than one standard deviation below the established national mean have a strong and consistent predilection to teacher-centered instruction (Conti, 1990).

Table 3.

PALS Descriptive Statistics for National and Study Groups

<u>PALS Category</u>		<u>National</u>	<u>Kentucky DOCTJ</u>	<u>WSCJTC</u>
<u>Overall</u>	Mean	146.0	126.6	124.0
	Median	Not Reported	126.5	124.0
	S.D.	20.0	17.5	8.4
<u>Factor 1</u>	Mean	38.0	36.1	37.5
	Median	Not Reported	36.0	37.5
	S.D.	8.3	5.5	5.0
<u>Factor 2</u>	Mean	31.0	20.7	15.8
	Median	Not Reported	20.0	15.0
	S.D.	6.8	6.4	5.7
<u>Factor 3</u>	Mean	21.0	20.6	19.7
	Median	Not Reported	21.5	19.0

	S.D.	4.9	5.8	3.1
<u>Factor 4</u>	Mean	14.0	12.2	10.8
	Median	Not Reported	12.5	11.5
	S.D.	3.6	4.0	1.9
<u>Factor 5</u>	Mean	16.0	16.8	15.5
	Median	Not Reported	17.5	15.5
	S.D.	3.0	2.5	2.4
<u>Factor 6</u>	Mean	13.0	9.4	10.8
	Median	Not Reported	9.0	11.0
	S.D.	3.5	2.9	1.7
<u>Factor 7</u>	Mean	13.0	10.9	13.8
	Median	Not Reported	11.0	12.5
	S.D.	3.9	3.0	2.5

On Factor 1, “Learner-Centered Activities”, Kentucky DOCJT instructors had a mean score of 36.1 (see Table 3). This is 0.23 standard deviations below the nationally reported PALS average for this factor and indicates an increased commitment to a teacher-centered as opposed to a collaborative approach to training on the part of this instructional cadre (Conti, 1990). WSCJTC instructors had a mean score of 37.5 on this factor which is 0.06 standard deviations below the nationally reported PALS average (see Table 3). This suggests that the WSCJTC instructor cadre uses learner-centered activities at about the same frequency as instructors whose scores are included in the national norm (Conti, 1990).

Thirty seven and one-half percent of Kentucky DOCJT instructors scored above the national PALS average for Factor 1, with 27.5% scoring within +1 and +2 standard deviations from the mean. These individuals favor a learner-centered approach to training. One instructor scored over one standard deviation above the national PALS average, indicating a strong commitment to student-centered instruction. In contrast, 62.5% of respondents scored under the national mean of 38 with 55% being between -1 and -2 standard deviations and 7.5% being between -2 and -3 standard deviations from the mean (see Table 4).

Fifty percent of WSCJTC instructors scored at or above the national average of 38 for Factor 1 with two of six individuals scoring within one standard deviation above the mean. These individuals favor a learner-centered and collaborative approach to training (Conti, 1990). All of the individuals who scored below the national average for PALS Factor 1 were within one standard deviation of the mean (see Table 4). These scores indicate that the instructors are more likely to rely on standardized tests to evaluate student performance and exercise control over the class than their counterparts (Conti, 1990).

In relation to “Personalizing Instruction”, Factor 2 of PALS, participants from the Kentucky DOCJT had an average score of 20.7 (see Table 3). This is 1.5 standard deviations below the national mean of 31 for Factor 2. Of the 40 individuals responding to the PALS questionnaire, only 10% scored above the nationally reported mean on this section. In contrast, 10% scored between 0 and -1 standard deviations from the mean, 47.5% scored between -1 and -2 standard deviations from the mean, and 30% scored more than -2 standard deviations from the mean. These results indicate a strong

preference for instructor-centered instructional approaches, such as lecture, where teaching is not tailored to the specific needs of learners within the classroom (Conti, 1990).

WSCJTC instructors had an average score of 15.8 on Factor 2 (see Table 3). This is 2.2 standard deviations below the national mean indicates a strong and consistent preference for instructor-centered instructional approaches such as lecture, where teaching is not tailored to the specific needs of learners within the classroom (Conti, 1990). All of the WSCJTC instructors responding to the PALS questionnaire scored below the national average for Factor 2. Of these, 16.7% scored within -1 standard deviation of the national mean, 16.7% scored between -1 and -2 standard deviations, and 66.7% scored more than two standard deviations below the national mean.

Table 4.

Number of Instructors Who Scored at Various Locations from the National Norms

<u>PALS Category</u>		<u>Standard Deviations from the National Mean</u>						
		<u>Over -2</u>	<u>-2</u>	<u>-1</u>	<u>0</u>	<u>+1</u>	<u>+2</u>	<u>Over +2</u>
<u>Overall</u>	KY	5	16	13	1	5	0	0
	WA	0	3	3	0	0	0	0
<u>Factor 1</u>	KY	0	3	22	3	11	1	0
	WA	0	0	3	1	2	0	0
<u>Factor 2</u>	KY	12	19	4	1	4	0	0
	WA	4	1	1	0	0	0	0
<u>Factor 3</u>	KY	4	8	2	7	11	8	0
	WA	0	1	3	0	2	0	0

<u>Factor 4</u>	KY	4	8	9	6	12	0	1
	WA	0	2	4	0	0	0	0
<u>Factor 5</u>	KY	0	3	9	4	21	3	0
	WA	0	1	2	1	3	0	0
<u>Factor 6</u>	KY	4	21	9	1	5	0	0
	WA	0	2	3	1	0	0	0
<u>Factor 7</u>	KY	2	11	15	3	9	0	0
	WA	0	0	3	1	0	2	0

The third PALS factor is “Relating to Experience.” Nationally, instructors score an average of 21 on this section. Kentucky DOCJT instructors had a mean of 20.6 on Factor 3 which is only 0.08 standard deviations below the national average. WSCJTC instructors had a mean of 19.7 on Factor 3, 0.27 standard deviations below the national mean (see Table 3). Sixty-five percent of responding Kentucky DOCJT instructors scored at or above the national mean while 35% scored below the PALS mean. In contrast, 33.3% of the WSCJTC instructors scored above the national mean and 66.7% below the mean. This indicates that Kentucky DOCJT and WSCJTC instructors are split in how frequently they practice teaching techniques such as evaluating the previous knowledge of students entering a class, using this information when planning course activities, and encouraging students to make the connection between material being learned and their own previous experiences (Conti, 1990). Those instructors who scored above the mean on Factor 3 do this more frequently while the others do so less frequently.

The national average for PALS Factor 4, “Assessing Student Needs,” is 14. Instructors at Kentucky DOCJT scored an average of 12.2 on this section, placing the cadre 0.5 standard deviations below the national mean. This is slightly higher than instructors at WSCJTC, who scored an average of 10.8, 0.89 standard deviations below the national mean (see Table 3). Of the 40 Kentucky DOCJT respondents, 47.5% scored 14 or higher, with 15% scoring within +1 standard deviation above the mean, 30% scoring between +1 and +2 standard deviations from the mean, and one individual scoring more than two standard deviations above the mean (see Table 4). Instructors in this portion of the teaching cadre are more likely to assess student needs and use this information to help students plan steps to achieve their educational goals than the 52.5% of Kentucky DOCJT instructors who scored below the national mean (Conti, 1990).

All of the responding WSCJTC instructors scored beneath the nationally reported mean for PALS Factor 4. Of these, 66.7% scored within one standard deviation of the mean and 33.3% scored between one standard deviation and two standard deviations of the mean (see Table 4). These results indicate that WSCJTC instructors have an increased tendency to use teaching methods that do not involve assessing student needs and using this information to help students plan steps to achieve their educational goals (Conti, 1990).

Factor 5 of the PALS questionnaire is entitled “Climate Building.” The national PALS mean for Factor 5 is 16. Participants from the Kentucky DOCJT scored an average of 16.8 (see Table 3) on this section which represents an increase of 0.27 standard deviations in comparison to nationally reported mean. A full 70% of the Kentucky instructors scored 16 or higher for this section of PALS indicating that the

group as a whole frequently uses educational practices to create non-threatening environments where students feel at ease taking risks and making errors (Conti, 1990).

WSCJTC respondents scored an average of 15.5 on Factor 5, 0.17 standard deviations below the nationally reported average (see Table 3). The small difference between the average Factor 5 score for the WSCJTC cadre and the national average indicates that as a group the WSCJTC instructors use educational practices to create non-threatening environments where students feel at ease taking risks and making errors at about the same frequency as other adult educators (Conti, 1990). Four WSCJTC instructors scored at or above the mean for Factor 5, while two individuals scored within -1 standard deviation of the national mean. One WSCJTC instructor scored between one and two standard deviations below the national average (see Table 4). This individual is less likely to encourage students in his/her class to take risks and accept errors as a natural part of learning than the other responding WSCJTC instructors.

“Participation in the Learning Process” is Factor 6 of PALS and relates to the extent to which an instructor allows his/her students to play a role in determining what is learned in class and how this is accomplished (Conti, 1990). Nationally, instructors completing PALS score an average of 13 on this section. In contrast, Kentucky DOCJT instructors Factor 6 mean was 9.4, 1.0 standard deviations below the national average while that of WSCJTC was 10.8, 0.63 standard deviations below the national average (see Table 3). This score indicates that the 85% of Kentucky DOCJT and 83.3% of WSCJTC instructors scoring below the national mean on this section would not frequently allow their students to play a role in determining what problems are chosen to solve in class or what content is covered within a course. The 15% of Kentucky DOCJT

instructors and 16.7% of WSCJTC instructors who did score above 13 are more likely to allow this type of student participation in class (Conti, 1990).

The seventh and final factor of PALS is “Flexibility for Personal Development”. As with Factor 6, the national average for Factor 7 is 13. Kentucky DOCJT instructors scored an average of 10.9 on Factor 7, below the national mean by 0.54 standard deviations. On this PALS section, 70% of the Kentucky instructional cadre scored below 13, with 37.5% scoring within one standard deviations from the mean, 27.5% scoring between one and two standard deviations from the mean, and 5% scoring more than two standard deviations from the mean (see Table 4). All of these individuals are less likely to alter course content or delivery depending on the needs of students in their class than the 30% of Kentucky DOCJT instructors who did score above the national average on this PALS section (Conti, 1990).

WSCJTC instructors scored an average of 13.8 on Factor 7. This is 0.21 standard deviations above the national average and is the only PALS factor where WSCJTC instructors scored higher than the national mean. This indicates that as a group, WSCJTC instructors favor teaching practices that allow the individual needs of students to be assessed and course delivery or content to be altered to meet these needs (Conti, 1990). Taking a closer look, however, 50% of WSCJTC instructors scored below the nation mean for Factor 7. These individuals are less likely to alter course content or delivery depending on the needs of students in their class than the 50% of WSCJTC instructors who did score above the national mean on this PALS section (Conti, 1990).

To determine if the scores obtained from Kentucky DOCJT and WSCJTC instructors on the PALS questionnaire are significantly different than the national means

reported for both the overall and subsection PALS scores, two-tailed t-tests were run using the Excel statistical program MegaStat. For the purpose of statistical comparison, p-values below 0.05 were considered significant. The results for these tests can be found in Table 5. Kentucky DOCJT instructors scored below the nationally reported means for the overall PALS score as well as for all PALS sections except Factor 5 where the national average was 16 and Kentucky DOCJT instructors scored an average of 16.8 (see Table 3). These differences were significant at the $p=0.05$ level for the overall PALS score, as well as Factors 1, 2, 4, 6, and 7, although the statistical significance for the difference in Factor 1 was marginal with $p=0.03$ (see Table 5). The difference between Kentucky DOCJT instructors and nationally reported PALS norms was not significant at the $p=0.05$ level for Factors 3 and 5 (see Table 5).

In comparison, WSCJTC instructors scored below the nationally reported means for the overall PALS score as well as for all PALS sections except for Factor 7 where the national average was 13 and WSCJTC instructors scored an average of 13.8 (see Table 3). These differences were significant at the $p=0.05$ level for the overall PALS overall score, as well as for Factors 2, 4, and 6. The difference between WSCJTC instructors and nationally reported PALS norms was not significant at the $p=0.05$ level for Factors 1, 3, 5, and 7 (see Table 5).

Table 5.

T-test Results for Study Groups versus National Norms

<u>PALS Category</u>		<u>Kentucky DOCJT</u>	<u>WSCJTC</u>
<u>Overall</u>	p-value	2.22 E ⁻⁸	1.30 E ⁻³
	Significant at $p=0.05$	Yes	Yes

<u>Factor 1</u>	p-value	0.03	0.82
	Significant at p=0.05	Yes	No
<u>Factor 2</u>	p-value	1.99 E ⁻¹²	1.20 E ⁻³
	Significant at p=0.05	Yes	Yes
<u>Factor 3</u>	p-value	0.67	0.34
	Significant at p=0.05	No	No
<u>Factor 4</u>	p-value	0.01	0.01
	Significant at p=0.05	Yes	Yes
<u>Factor 5</u>	p-value	0.06	0.64
	Significant at p=0.05	No	No
<u>Factor 6</u>	p-value	8.45 E ⁻¹⁰	0.03
	Significant at p=0.05	Yes	Yes
<u>Factor 7</u>	p-value	1.00 E ⁻⁴	0.45
	Significant at p=0.05	Yes	No

Research Question #2

The second research question addressed in this study was whether or not length of time since adoption of Problem-Based Learning (PBL) methodology increases the use of adult learning principles by academy instructors. Instructors at police academies work both independently and as a team to make improvements to training. This includes modifying curriculum, policies, and instructor training programs. Training coordinators at the sites selected for this study have reported challenges when PBL was first implemented (S. Saltsman, personal communication, February 21, 2007; S. Grant,

personal communication, May 23, 2008). Changes made to curriculum and instruction over time by academy staff may impact the adult learning profile of instructors working within these training environments. PBL was integrated into the Kentucky Department of Criminal Justice Training (DOCJT) curriculum in January of 2007 and was started at the Washington State Criminal Justice Training Commission (WSCJTC) in February of 2008.

To answer research question #2, two-tailed t-tests were run with the Excel statistical program MegaStat and resulting p-values used to compare the overall and subsection PALS data from Kentucky DOCJT and WSCJTC. For the purpose of statistical comparison, p-values below 0.05 were considered significant. Results for these tests are in Table 6. In terms of raw scores, the instructors at Kentucky DOCJT scored higher than instructors at WSCJTC on the overall PALS score as well as Factors 2, 3, 4, and 5. Instructors at WSCJTC scored higher than instructors at Kentucky DOCJT on PALS Factors 1, 6 and 7. However, as Table 6 depicts, only one score was significantly different at the $p=0.05$ level where WSCJTC instructors scored higher on Factor 7 (Flexibility for Personal Development) than their counterparts at the Kentucky DOCJT ($p=0.03$).

Table 6.

T-test Results- Kentucky DOCJT Compared to WSCJTC

<u>PALS Category</u>	<u>p-value</u>	<u>Significant at $p=0.05$</u>
Overall	0.72	No
Factor 1	0.54	No

Factor 2	0.09	No
Factor 3	0.70	No
Factor 4	0.41	No
Factor 5	0.25	No
Factor 6	0.23	No
Factor 7	0.03	Yes

Research Question #3

The third research question addressed in this study was whether there is a difference in the use of adult learning principles among police instructors at academies that have adopted PBL and instructors at an academy that has not adopted PBL. To answer this question, PALS data from instructors at the Kentucky Department of Criminal Justice Training (DOCJT) and the Washington State Criminal Justice Training Commission (WSCJTC) was compared to PALS data published by McCoy (2006) where the author studied the use of adult learning principles by police academy trainers in a Midwestern multi-jurisdictional academy not using PBL. Two-tailed t-tests were run with the Excel statistical program MegaStat on the overall PALS score and the seven PALS subsection scores. This was done to compare scores from the McCoy study, Kentucky DOCJT, and WSCJTC. For the purpose of statistical comparison, p-values below 0.05 were considered significant. Results for these tests can be found in Table 7.

The Kentucky DOCJT instructor cadre scored above the instructors studied by McCoy (2006) in relation to Factor 3 (Relating to Experience), Factor 4 (Assessing Student Needs), and Factor 5 (Climate Building). Kentucky DOCJT instructors scored

below the data reported by McCoy (2006) for the overall PALS score, Factor 1 (Learner-Centered Activities), Factor 2 (Personalizing Instruction), Factor 6 (Participating in the Learning Process), and Factor 7 (Flexibility for Personal Development). The resulting p-values for t-tests run to compare the data from McCoy (2006) and Kentucky DOCJT can be found in Table 7. Kentucky DOCJT instructor scores were significantly different at the $p=0.05$ level for PALS Factors 1 (2.76×10^{-5}), 4 ($p=0.04$), and 5 ($p=0.01$). Kentucky DOCJT instructor scores were not significantly different than those reported by McCoy (2006) on any other PALS sections although results were marginal for Factor 7 where $p=0.06$.

Instructors at the WSCJTC scored above the scores reported by McCoy (2006) in relation to Factor 3 (Relating to Experience), Factor 6 (Participating in the Learning Process), and Factor 7 (Flexibility for Personal Development). WSCJTC instructors scored below the data reported by McCoy (2006) for the overall PALS score, Factor 1 (Learner-Centered Activities), Factor 2 (Personalizing Instruction), Factor 4 (Assessing Student Needs), and Factor 5 (Climate Building). The resulting p-values for t-tests run to compare the data from McCoy (2006) and the WSCJTC can be found in Table 7. WSCJTC instructor scores were not found to be significantly different at the $p=0.05$ level for the overall PALS score or any of the PALS subsection scores, although results were marginal for Factor 2 where $p=0.07$.

Table 7.

T-test Results- Study Groups Compared to McCoy (2006)

<u>Agency</u>	<u>PALS Category</u>	<u>p-value</u>	<u>Significant at p=0.05</u>
<u>Kentucky DOCJT</u>	Overall	0.48	No
	Factor 1	2.76 E ⁻⁵	Yes
	Factor 2	0.71	No
	Factor 3	0.17	No
	Factor 4	0.04	Yes
	Factor 5	0.01	Yes
	Factor 6	0.78	No
	Factor 7	0.06	No
<u>WSCJTC</u>	Overall	0.24	No
	Factor 1	0.26	No
	Factor 2	0.07	No
	Factor 3	0.78	No
	Factor 4	0.94	No
	Factor 5	0.85	No
	Factor 6	0.12	No
	Factor 7	0.10	No

Summary

This chapter has presented the research findings regarding the adult learning principles used by police academy instructors at Kentucky DOCJT and WSCJTC as measured by the Principles of Adult Learning Scale. For each training center, the adult

learning profile of the instructor cadre was described. These profiles were compared to PALS national averages, each other, and the adult learning profile of instructors at a Midwestern multi-jurisdictional police training academy not using PBL previously described in the literature (McCoy, 2006). The final chapter of this study will discuss the significance of these findings to the training staffs studied as well as to police PBL practitioners in general. How this study adds to the professional literature based regarding PBL will also be described. The study will conclude with suggestions for future research.

Chapter V

Summary and Discussion

Introduction

This research study is an exploration of the adult learning principles utilized by police instructors at two state-run, multi-jurisdictional training facilities utilizing Problem-Based Learning (PBL). The study was based on data obtained using the Principles of Adult Learning Scale (PALS) created by Gary Conti (1990). The final chapter of this dissertation will present the background of the study, outline the research questions which were investigated and their significance, and summarize research findings. The chapter will continue with a discussion of the significance of the research findings, both for police agencies using or considering using PBL, as well as PBL practitioners in general, and conclude with suggestions for future research.

Background

During the 1970s, the focus of police work began to shift from a reactionary role of enforcing laws to a more proactive stance of working to prevent crime from occurring (Greene, 2000). Although it is reasonable to assume that police training philosophy would change along with police practice, it has been noted that this has not generally been the case (Bradford & Pynes, 1999). In fact, it could be argued that police academy training has changed little in the past several decades to keep pace with the new expectations placed on officers (Bradford & Pynes, 1999).

Recently, more attention has been given to evaluating the training needs of officers expected to work in non-traditional policing models. The result has been a growing body of literature supporting an active, student-centered, andragogical approach to police training (Birzer, 2004, Birzer & Tannehill, 2001; Cleveland & Saville, 2007; Della, 2004; Dwyer & Laufersweiler-Dwyer, 2004; Marenin, 2004; McCoy, 2006).

One training method that has gathered support within the field of police officer training is Problem-Based Learning (hereinafter referred to as PBL). PBL aims to help students develop problem-solving, critical thinking, interpersonal, and self-directed learning skills while gaining knowledge in a variety of subject matter areas (Barrows, 2002).

Although anecdotal evidence by those using PBL to train police officers suggests this training strategy is better for building problem-solving, critical thinking, decision-making, and collaborative skills than traditional lecture-based methodology, much remains unknown about the effectiveness of PBL within a police training environment. One gap in the professional literature is an exploration of what adult learning principles are utilized by instructors at police academies following PBL methodology.

This study adds to the professional knowledge base regarding Problem-Based Learning by examining PBL use from the instructors' perspective. A study exploring the adult learning principles practiced by a sample of police PBL instructors benefits law enforcement agencies contemplating the use of Problem-Based Learning in several ways. As discussed earlier, many police educators believe that training based on adult learning principles better prepares officers for police work by helping them more effectively learn classroom material as well as develop decision-making, problem-solving, and critical

thinking skills (Birzer, 2004, Birzer & Tannehill, 2001; Della, 2004; Dwyer & Laufersweiler-Dwyer, 2004; Marenin, 2004; McCoy, 2006). If PBL instructors do not utilize many adult learning principles, this may impact an agency's decision to convert their curriculum to PBL. An understanding of which adult learning principles are important when using PBL would also allow agencies to design the most effective training program for instructors in preparation for a change to PBL. A study exploring the adult learning principles utilized by PBL instructors helps the staff at academies using PBL identify ways instruction could be altered to integrate more teaching techniques identified as beneficial to adult learners, thus making limited training time more efficient.

The general consensus among PBL practitioners is that this educational method is more effective at producing individuals prepared for the rigors of real-world work than traditional lecture-based methodology, although the reason for this is not known (Norman, 2008). It is possible that the educational benefits present in PBL exist because PBL integrates one or more principles identified as important to adult learning such as including learner-centered activities, personalizing instruction, relating to the past experience of learners, assessing student needs, building an appropriate climate for learning, allowing students to participate in the learning process, and allowing self-directed learning. Without a clearer understanding of what adult learning principles are actually practiced in a PBL environment, future research cannot assess the importance of these principles to PBL success.

Research Questions

The research described here investigated three questions related to the adult learning principles used by police trainers at PBL academies:

- (1) Research Question 1: To what extent do police academy instructors trained in PBL facilitation implement various principles identified as important to adult learning?
- (2) Research Question 2: Does length of time since adoption of PBL methodology increase use of adult learning principles by academy instructors?
- (3) Research Question 3: Is there a difference in the use of adult learning principles among police instructors at academies that have adopted PBL and instructors at an academy that has not adopted PBL?

Methodology

The study described here was exploratory in nature, making use of limited descriptive statistics. All three research questions were explored by means of descriptive research methodology utilizing a nationally normed, cross-sectional internet questionnaire, the Principles of Adult Learning Scale (PALS) (Conti, 1990).

An electronic version of the Principles of Adult Learning Scale, including an introduction letter and demographic questionnaire was sent to instructors at the Kentucky Department of Criminal Justice Training (Kentucky DOCJT) and Washington State Department of Criminal Justice Training Commission (WSCJTC) facilities. PBL was integrated into the Kentucky DOCJT's curriculum in January of 2007 and was started at

WSCJTC in February of 2008 (S. Grant, personal communication, May 21, 2008; S. Saltsman, personal communication, July 13, 2007).

The PALS questionnaire allowed data to be examined in relation to both the overall teaching style of the instructor (student versus instructor-centered) as well as by seven separate adult learning principles. The overall PALS score was used to determine whether an instructor favored student-centered or instructor-centered training.

Subsections of PALS measured instructor use of seven adult learning principles: (1) Learner-Centered Activities; (2) Personalizing Instruction; (3) Relating to Experience; (4) Assessing Student Needs; (5) Climate Building; (6) Participation in the Learning Process; and, (7) Flexibility for Personal Development (Conti, 1990).

A more detailed description of the methodology can be found in Chapter 3.

Summary of Research Findings

Research Question #1

Kentucky DOCJT instructors scored below the nationally reported means for the overall PALS score as well as for all PALS sections except for Factor 5 (Climate Building). In comparison, WSCJTC instructors scored below the nationally reported means for the overall PALS score as well as for all PALS sections except for Factor 6 (Participation in the Learning Process) (see Table 1, p. 54). These results indicate that instructors as a whole at Kentucky DOCJT and WSCJTC favor an instructor-centered as opposed to student-centered approach to training (Conti, 1990).

Two-tailed t-tests were used to determine if the scores obtained from Kentucky DOCJT and WSCJTC instructors on the PALS questionnaire were significantly different

than the national means reported for the overall and subsection PALS scores. Kentucky DOCJT score differences were found to be significant at the $p=0.05$ level for the PALS overall score, Factor 1, Factor 2, Factor 4, Factor 6, and Factor 7. The difference between Kentucky DOCJT instructors and nationally reported PALS norms was not significant for Factors 3 and 5 (see Table 3, p. 60). WSCJTC instructors scores were significant at the $p=0.05$ level for the PALS overall score, Factor 2 (Personalizing Instruction), Factor 4 (Assessing Student Needs), and Factor 6 (Participation in the Learning Process). The difference between WSCJTC instructors and nationally reported PALS norms was not significant for Factors 1, 3, 5, and 7 (see Table 3, p. 60).

Research Question #2

The p-values obtained from two-tailed t-tests were used to compare the overall and subsection PALS data from Kentucky DOCJT and WSCJTC. Results for these tests can be found in Table 4 (p. 63). The instructors at Kentucky DOCJT scored higher than instructors at WSCJTC on the overall PALS score as well as Factors 2, 3, 4, 5, and 6. Instructors at WSCJTC scored higher than instructors at Kentucky DOCJT on PALS Factors 1 and 7. As Table 4 depicts, only one score was significantly different at the $p=0.05$ level where WSCJTC instructors scored significantly higher on Factor 7 (Flexibility for Personal Development) than their counterparts at the Kentucky DOCJT ($p=0.03$).

Research Question #3

PALS data from instructors at the Kentucky DOCJT and the WSCJTC were compared to PALS data published by McCoy (2006) where the author studied the use of adult learning principles by police academy trainers in a Midwestern multi-jurisdictional academy not using PBL. T-tests were run to compare the data from McCoy (2006) to that of Kentucky DOCJT and WSCJTC instructors to determine if PALS scores were significantly different. The resulting p-values for these t-tests can be found in Table 7 (p. 73). Kentucky DOCJT instructor scores were significantly different at the $p=0.05$ level for PALS Factor 1, Factor 4 and Factor 5. Kentucky DOCJT instructor scores were not significantly different than those reported by McCoy (2006) on any other PALS sections. WSCJTC instructor scores were not significantly different at the $p=0.05$ level than the overall PALS score or any of the PALS subsection scores (see Table 7, p. 73).

Discussion of Research Findings

According to many police training experts, adult learning principles should be the scaffolding upon which police training is built (Birzer, 2004; Birzer & Tannehill, 2001; Cleveland & Saville, 2007; Della, 2004; Dwyer & Laufersweiler-Dwyer, 2004; Marenin, 2004; McCoy, 2006). In theory, PBL is congruent with adult learning theory in that it advocates for the use of real-world problems to facilitate the learning process, uses the instructor as a learning “facilitator” instead of “teacher”, encourages students to use their past experiences whenever applicable to solve the problem at hand, requires students to be self-directed learners, and focuses on presenting information in a way that knowledge gained is immediately applicable (Barrows, 2002; Bradford & Pynes, 1999; Cleveland,

2006). Problem-Based Learning also theoretically occurs in a collaborative environment where communication skills can be practiced (Barrows, 2002).

The study described here examined the use of adult learning principles utilized by instructors at two multi-jurisdictional police training academies, the Kentucky DOCJT and WSCJTC. The use of adult learning techniques was assessed with the Principles of Adult Learning Scale (PALS) which can be used to determine whether an instructor favors student-centered or instructor-centered training, as well as outlining the use of seven specific adult learning principles.

Research Question #1

Overall PALS scores from instructors at the Kentucky DOCJT and WSCJTC police academies trained in PBL were analyzed to determine the extent to which these individuals use a student-centered as opposed to an instructor-centered teaching style. Kentucky DOCJT instructors, as a group, scored 0.97 standard deviations below the nation PALS mean with only 17.4% of respondents scoring at or above the national average. WSCJTC instructors, in comparison, scored 1.1 standard deviations below the nationally reported average with none of the six respondents scoring above the national average (see Table 4, p. 63). Kentucky DOCJT and WSCJTC composite PALS scores were approximately one standard deviation below the national average which indicates that the instructor cadres at these academies exhibit a strong commitment for instructor-centered teaching (Conti, 1990). This result is supported by the small number of individual respondents, representing both training facilities, who scored above the national mean.

For each of the training centers examined in this study, the composite PALS score was also divided into seven separate subsections, each measuring the use of a specific adult learning principle described in the professional literature. A summary of these factors can be found in Table 1 (p. 54) (Conti, 1990). In general, PALS subsection scores also indicate a predilection for instructor-centered teaching on the part of both the Kentucky DOCJT and WSCJTC instructor cadres. Kentucky DOCJT instructors scored below the national PALS averages for Factors 1, 2, 3, 4, 6, and 7. This group of instructors, as a whole, did score above the nation average on Factor 5, Climate Building. WSCJTC instructors scored below the nation mean for PALS Factors 1, 2, 3, 4, 5, and 6. As in Kentucky, WSCJTC instructors did score above the nation average on one PALS factor. However, instead of Factor 5, WSCJTC instructors exceeded the national PALS average on Factor 7, Flexibility for Personal Development. Had both the Kentucky DOCJT and WSCJTC instructors scored above the national averages on the same PALS section, this would suggest a particular adult learning principle utilized more by PBL instructors to a greater extent than adult educators in general. The results presented here do not support such as conclusion.

Two-tailed t-tests were used to compare the PALS scores obtained in this study to those reported nationally to determine if test results were statistically significant at the $p=0.05$ level. Resultant p-values indicate that the PALS scores obtained from the Kentucky DOCJT were significantly different than those reported nationally for the overall PALS score as well as for Factors 1, 2, 4, 6, and 7. These results suggest that, in general, the training cadre in Kentucky used skills the PALS questionnaire identifies as associated with the adult learning principles “Learner-Centered Activities”,

“Personalizing Instruction”, “Assessing Student Needs”, “Participation in the Learning Process”, and “Flexibility for Personal Development” less than the adult learning practitioners whose scores are included in the national PALS average. While Kentucky DOCJT instructors did score above the national mean for PALS Factor 5, this difference was not statistically significant, although marginal with $p=0.06$.

WSCJTC PALS subsection score differences were found to be statistically different for the overall PALS score as well as for Factors 2, 4, and 6. These results indicate that the WSCJTC instructor cadre use techniques identified by the questionnaire as associated with “Personalizing Instruction”, “Assessing Student Needs” and “Participating in the Learning Process” to a lesser extent than the adult learning practitioners whose scores are included in the PALS average. WSCJTC instructors scored above the national average for PALS factor 7, but this difference was not significant.

While there were no similarities in the PALS profiles between the Kentucky DOCJT and WSCJTC in relation to the PBL academies being higher on certain sections than the national average, there were some PALS sections where both of these academy cadres scored far below the nation means. Both Kentucky DOCJT and WSCJTC instructors scored significantly below the national PALS mean for PALS Factors 2, 4, and 6. This result is somewhat surprising considering that two of the Police PBL “Principles” described by Cleveland and Saville (2007) are the use of a 5-step learning process and self-directed learning. The 5-step learning process involves: 1) students getting into cohort groups and generating a list of ideas on how a proposed problem could be solved, 2) discussion of the known facts, 3) creation of a list of learning issues

including what they as a group know, what they need to know to solve the problem, and where needed material can be found, 4) development of an action plan to address the problem at hand, and 5) evaluation of the learning process that occurred. In self-directed learning, the instructor learns to let go of control over the classroom as students become responsible for their own training (Cleveland & Saville, 2007). It seems as though following these two principles would lead to higher scores on PALS factors 2, 4, and 6. This result may indicate that PBL, when used in an academy training environment or as an educational method in general, may not involve the personalizing of instruction to the needs of students, assessing the individual needs of students in class, or allowing students to participate in determining how learning takes place.

There are several possible explanations for the low scores, in general, received by Kentucky DOCJT and WSCJTC instructors on the PALS questionnaire, particularly on Factors 2, 4, and 6. First, while the titles of Factors 2, 4, and 6 indicate that these sections measure personalizing instruction, assessing student needs, and allowing students to participate in the learning process, a closer look shows why police academy instructors may have difficulty scoring high on these sections. According to Conti (1990), Factor 2 deals in part with how often instructors base objectives on the individual needs of students and allow for self-paced instruction, Factor 4 if an instructor determines the needs of individual learners, and Factor 6 how often an instructor allows students to identify what will be covered, how, and methods by which learning will be evaluated. Both Kentucky DOCJT and WSCJTC do have PBL problems written ahead of time for students to solve (S. Saltzman, personal communication, July 13, 2007; S. Grant, personal communication, May 23, 2008). Thus, in this academy structure instructors have less

ability to tailor instruction to individual student needs and while student could follow many paths to the solution of a problem, they do not have the ability to participate in determining what problem will be solved. A lack of flexibility on the part of instructors was evident in this study, as two PBL instructor noted, “PBL is difficult when there is only a set amount of time, and specific objectives, for each class”, and “I think PBL is very beneficial in the classroom, in a modified version. I would love to have as much time as necessary to teach PBL but often, time restraints do not allow me to do the full PBL session.”

A second possibility for the Kentucky DOCJT and WSCJTC scores is related to the amount of time since each agency implemented PBL and the resistance to change common in the policing field. The first fully integrated PBL academy was held at the Kentucky DOCJT in January, 2007 while WSCJTC began PBL in February of 2008 (S. Saltsman, personal communication, February 21, 2007; S. Grant, personal communication, May 23, 2008). Training coordinators at both sites reported that changes were made to curriculum and instruction as instructors and administrators became more experienced in implementing PBL (S. Saltsman, personal communication, February 21, 2007; S. Grant, personal communication, May 23, 2008). While impossible to measure, it is plausible that when PBL was first integrated into academy training instructors used even fewer adult learning principles, and that as they have become more experienced in PBL facilitation their use of techniques measured by PALS has increased to the point reported in this study. If evaluated again after several more years of experience with PBL techniques, the adult learning profile of each agency may be different.

There is evidence in literature which suggests that a change in training methodology to one police educators are not accustomed to is a slow and difficult process. This may explain why PALS scores at the two study locations were low. The subculture of policing, sometimes referred to as the “Blue Wall” has been credited in the past as a source of resistance to change in the status quo (Cleveland & Saville, 2007). PBL is certainly different from what the majority of police academy instructors would have experienced in their own careers, likely a behavioralistic approach to training which relied heavily on lecture and teacher-centered techniques (Birzer, 2003; Birzer and Tannehill, 2001). Other authors have noted that police training has been slow to keep pace with police practice and that it takes a proactive approach to examine current training practices and move in new directions (Bradford & Pynes, 1999; Kennedy, 2003). Instructors at the Kentucky DOCJT and WSCJTC may be in the process of breaking through the Blue Wall, which may take longer than they were given before this assessment was completed.

Several narrative responses provided by participants further indicate the process of change may just have begun for police PBL practitioners at the Kentucky DOCJT and WSCJTC. One respondent noted,

PBL could be a successful educational method here. Many of my fellow instructors refuse to embrace the positives of this form of education by allowing a student to embrace their own learning. Many of my fellow instructors just love lecture because of the command and control of the classroom.

This statement suggests that members of this instructor’s cadre do not understand or have not come to accept key principles of PBL such as allowing the students to be self-directed

or embracing a role as facilitator instead of teacher (Cleveland & Saville, 2007). Another respondent wrote,

We are using PBL and other adult learning to teach (and I'm seeing some good things) but we are evaluating in the tradition testing method and I'm seeing problems with that . . . it's hard to teach in the abstract and then expect the students to test in the specific and concrete answer world . . . struggling with how to change this in a bureaucracy where many of my colleagues are skeptical of PBL and rubrics and insist on traditional testing . . . also, I'm not positive how I would change the tests and have them be appropriate to evaluate if the recruits are getting what they need to know at the level we need to certify them at.

Again, this response shows evidence that the instructional cadre is in the transitional phase of PBL implementation with some instructors struggling to adapt to the new educational method and others remaining skeptical. This quote also indicates difficulty reconciling how students are evaluated in PBL versus the previous training methodology utilized at the training academy, another implementation obstacle identified by Cleveland and Saville (2007).

A final line of evidence that indicates low PALS scores may be related to the fact that the agencies included in this study are still in the process of transitioning to PBL lies in the percentage of their classes that instructors feel are taught using PBL methodology. At the time Cleveland and Saville published their report on PBL implementation in police training in 2007, the Kentucky DOCJT indicated that 40% of their police academy has been transitioned to PBL (Cleveland & Saville, 2007). However, the average percent of their classes taught using PBL according to Kentucky DOCJT instructors was 24%.

While this measurement is just the impression each instructor has of his or her class, it does suggest that some instructors either are not using PBL to a great extent with their students or do not understand that the class they teach was designed to follow PBL methodology. In comparison to the Kentucky DOCJT, the average percent of classes WSCJTC instructors believe are taught by PBL is 43%. Again, this suggests that instructors are still learning how to implement PBL themselves.

Another plausible explanation for the PALS scores received by Kentucky DOCJT and WSCJTC instructors is that PBL, as conducted at these training academies, does not utilize many of the adult learning principles measured by the PALS questionnaire. One of the objectives of this study was to describe the various adult learning principles used by police instructors at academies using PBL. Although the low PALS scores may be attributed in part to PBL not being implemented as effectively as possible, it could be that this training method in a police setting does not rely on the utilization of many adult learning principles for its effectiveness.

Research Question #2

To determine if the length of time since adoption of PBL methodology increase the use of adult learning principles by police academy instructors, PALS scores from Kentucky DOCJT and WSCJTC were compared. PBL was implemented at the Kentucky DOCJT in January, 2007 while WSCJTC began PBL in February of 2008 (S. Saltsman, personal communication, February 21, 2007; S. Grant, personal communication, May 23, 2008). Training coordinators at the sites selected for this study have reported challenges when PBL was first implemented (S. Saltsman, personal communication, February 21,

2007; S. Grant, personal communication, May 23, 2008). Changes made to curriculum and instruction over time by academy staff may impact the adult learning profile of instructors working within these training environments.

Instructors at the Kentucky DOCJT did score higher, on average, than instructors from the WSCJTC on several parts of the PALS questionnaire, the overall PALS score (2.5 points), Factor 2 (4.9 points), Factor 3 (0.9 points), Factor 4 (1.4 points), and Factor 5 (1.3 points). Instructors at the WSCJTC, on the other hand, scored higher than Kentucky DOCJT instructors on PALS Factor 1 (1.4 points), Factor 6 (1.4 points), and Factor 7 (2.9 points). T-tests run on these scores indicate that the only statistically significant difference ($p \leq 0.05$) was Factor 7 ($p = 0.03$) where WSCJTC instructors scored higher than their Kentucky DOCJT counterparts. Although not significant at the $p = 0.05$ level, Kentucky DOCJT instructors did score higher than their WSCJTC counterparts on Factor 2. With a p-value of 0.09, this result was nearly significant. These results indicate that having implemented PBL for a greater length of time did not lead to greater use of adult learning principles by Kentucky DOCJT instructors as measured by PALS.

As with the first research question investigated, there is more than one possible explanation for this result. While instructors and administrators at the Kentucky DOCJT had more opportunity to refine PBL methodology than their counterparts at the WSCJTC, the time may not have been long enough to be evident using PALS. Had more time elapsed between PBL implementation at the Kentucky DOCJT and the WSCJTC, PALS survey results may have been different. Another possibility for the lack of difference between Kentucky DOCJT and WSCJTC scores is that changes made to the academy by Kentucky DOCJT staff were to areas that would not impact the adult learning profile of

the instructional cadre. Modification to academy schedules, the problems used in PBL, and traditional student assessment techniques, for example, could improve the academy as a whole but not result in higher PALS scores.

Interestingly, the only statistically significant difference between Kentucky DOCJT and WSCJTC PALS scores was for Factor 7, Flexibility for Personal Development, where the WSCJTC instructional cadre outscored that of the Kentucky DOCJT. In some ways, this result is surprising as Kentucky DOCJT instructors on average have more formal education, law enforcement teaching experience, PBL teaching experience, PBL training, and education in adult learning than WSCJTC instructors (see Table 2 p. 58). In this case, however, the greater length of time since implementation of PBL may have contributed to the lower score by Kentucky DOCJT instructors on Factor 7. Flexibility for Personal Development relates to how often an instructor makes adjustments in class to meet the changing needs of students (Conti, 1990). Having practiced and modified PBL since 2007, Kentucky DOCJT instructors may have reached a point where fewer student accommodations were being made during an academy. Implementing PBL very recently, instructors at the WSCJTC may be more willing to alter classes to mitigate the inevitable growing pains of switching training methods. In support of this hypothesis, one WSCJTC program coordinator did note that throughout their first PBL academy, many changes were made to the written lesson plans to adjust to the realities of PBL in action (S. Grant, personal communication, May 23, 2008).

Research Question #3

The final research question addressed whether or not there was a difference in the use of adult learning principles among police instructors at academies that had adopted PBL and instructors at an academy that had not adopted PBL. To answer this question, PALS results from the Kentucky DOCJT and WSCJTC were compared to PALS scores reported by McCoy (2006). In the McCoy study, PALS was given to instructors at a Peace Officer Standards and Training (POST) organization in the Midwestern United States. This police academy was also a multi-jurisdictional training facility, like the Kentucky DOCJT and WSCJTC. According to McCoy (2006) instructors at this POST academy had all attended a 40-hour instructor development course focusing on presentation skills, but including only one hour of training in adult learning principles. McCoy (2006) found that instructors at this academy had a strong commitment to teacher-centered training approaches, used lecture extensively, and felt as though organizational constraints made implementing adult learning techniques difficult.

In relation to PALS, Kentucky DOCJT instructors did score higher than the instructors studied by McCoy in relation to Factors 3, 4, and 5. Of these, Factors 4 and 5 were shown to be statistically significant at the $p=0.05$ level (see Table 7, p. 73). On the other hand, Kentucky DOCJT instructors scored below the data reported by McCoy (2006) on PALS Factors 1, 2, 6, 7 as well as the PALS composite score. Of these, the only difference that was statistically significant was Factor 1, although Factor 7 was marginally significant at $p=0.06$. WSCJTC instructors outscored the instructors studied by McCoy (2006) on PALS Factors 3, 6, and 7, but scored lower than this cadre in relation to Factors 1, 2, 4, and 5 as well the PALS composite score. However, t-tests

indicate than none of these differences were significant at the $p=0.05$ level. One of these differences was marginally significant, Factor 2, with a p-value of 0.07

Of all of the comparisons completed in this study, the greatest difference was expected between the PALS scores of Kentucky DOCJT, WSCJTC and the data reported by McCoy (2006). Whereas McCoy found that instructors only had one hour of instruction in adult learning principles and used lecture as the primary training method, instructors at the two sites examined here reported much more training in both PBL and adult learning principles (see Table 2, p. 58). In addition, PBL itself aims to move away from an environment where the instructor serves as a provider of information to one where the student takes responsibility for his/her own education and the instructor acts as a facilitator (Cleveland and Saville, 2007). Kentucky DOCJT instructors did outscore those reported by McCoy (2006) in the adult learning principles referred to in PALS as Relating to Experience, Assessing Student Needs, and Climate Building although only the latter two differences were statistically significant. Interestingly, Kentucky DOCJT instructors scored below the data reported by McCoy (2006) in PALS Factors such as Learner-Centered Activities, Personalized Instruction, and Participation in the Learning Process. While most of these differences were not shown to be statistically significant, Learner-Centered Activities was significant. These differences may be due to the fact that while students work collaboratively in groups to solve real-world problems, they do not participate in determining what problems are to be solved or what objectives are to be accomplished through this task.

Like the Kentucky DOCJT, WSCJTC instructors outscored those studied by McCoy (2006) in three PALS sections, Factors 3, 6, and 7 (none of these differences

were shown to be statistically significant). Had both Kentucky DOCJT and WSCJTC instructors scored higher on the same three PALS Factors compared to police academy instructors who predominately use lecture, one could have interpreted this as data suggesting particular adult learning principles present in PBL instruction but absent in traditional academy training methods. However, the Kentucky DOCJT and WSCJTC cadres only shared one PALS Factor in common where they scored higher than the data reported by McCoy (2006), Factor 3 (Relating to Experience). This empirical result matches the theoretical framework of PBL, as PBL encourage students to utilize their previous experience and relate this to newly gained knowledge when participating in problem solving (Cleveland, 2006; Cleveland & Saville, 2007).

Study Implications

Police Training

Many police educators have called for a change in training to close the gap between what is understood about adult learning and what is currently practiced, and that by doing so training will be more effective and better prepare officers for the job of serving and protecting (Birzer, 2004, Birzer & Tannehill, 2001; Cleveland & Saville, 2007; Della, 2004; Dwyer & Laufersweiler-Dwyer, 2004; Marenin, 2004; McCoy, 2006). PBL as a police training method has been gaining momentum, and those who have used PBL believe it results in better quality officers than when more traditional training techniques are used (S. Burko, personal communication, March 1, 2007; S. Saltsman, personal communication, February 21, 2007). This study sought to shed light on the

adult learning principles used by police instructors at training academies that have transitioned to Problem-Based Learning (PBL).

The results presented here suggest that PBL as practiced by instructors at the Kentucky DOCJT and WSCJTC does not involve the use of a large number of adult learning principles. This is not to say that training at these locations is not effective or that it does not achieve PBL goals such as increasing the retention of information and the transfer of knowledge, as well as building problem-solving and critical-thinking skills (Cleveland, 2006). However, PBL training may be even more effective if instructors and administrators at these and other academies using PBL assess what adult learning principles are practiced in class and which are not, and work to include as many of adult learning principles into training as possible. In this way, the benefits of an androgological approach to training as described in police training literature could be achieved in addition to the success already witnessed using PBL methodology.

Study results also underscore the importance of continued training, both in the use of adult learning principles and PBL specifically for agencies transitioning to this new training method. Instructors at both the Kentucky DOCJT and WSCJTC report having received training in the principles of teaching adults as well as in PBL. Nevertheless, PALS scores indicate that instructors infrequently use techniques identified in the literature as being effective for adult learners. Individual responses also suggest that the Kentucky DOCJT and WSCJTC instructor cadres struggle with implementing concepts important in PBL. In fact, several Kentucky DOCJT instructors noted that they did not feel as though the Kentucky DOCJT was currently implementing PBL at their academy.

This disconnect may indicate a lack of PBL understanding in general or a lack of knowledge of how to overcome barriers to PBL implementation. In either case, the resources and time required to provide additional training could be the key to mitigating these issues. Training for those who have transitioned to PBL or for agencies considering such a change should focus on how to apply adult learning principles in academy instruction within a PBL framework. Results from this study indicate that education in adult learning principles, prior to implementation of PBL, does not guarantee that these principles will be applied once training methods have been changed.

Training provided to instructors should also be attended by academy administrators. In this way, communication lines could be opened and implementation issues addressed collaboratively. Sparrow (1998) described several barriers present in police culture that impact the ability for change to occur at many agencies. These barriers include the impression that the PBL approach is just “in vogue” and will soon be replaced by something else, lack of support by middle and upper management, unwillingness of officers to accept change, the need for the support of change to filter through many layers of rank, and resistance from those whose jobs may change (Sparrow, 1988). Many or all of these problems could be addressed in joint training sessions including both instructors and administrators.

Additional training alone may not be sufficient to ensure adult learning principles are utilized to a great extent in training academies using PBL or considering switching to this training method. As Birzer (2003) noted, one of the impediments to adopting an androgogical approach in police education are training mandates issued at the state or federal level, or through training commissions. This barrier to the use of adult learning

principles was confirmed in the McCoy (2006) study, as many instructors indicated that they lectured not because they thought it was the most effective training method but because the academy's lesson outlines, structure, and time allotments made the use of any other instructional method difficult or impossible. Academies currently using PBL or considering a change to this method, and who wish to include adult learning principles in their training, should consider modifying their policies, as needed, to facilitate this effort. Creating a training environment where there is more flexibility in how students learn and how they are evaluated would help instructors modify class to better meet the needs of adult students.

PBL in General

While there has been discussion among PBL educators as a whole concerning the true benefit of this training method over more traditional educational methods, the general consensus in literature is that PBL is effective (Albanese, 2000). What remains unknown is why PBL works at all, be it in the training of police officers, doctors, or others (Norman, 2008). According to Norman (2008), determining why PBL is effective is important so that these characteristics can be integrated into the training programs at locations world-wide. Norman (2008) postulates that the better outcomes for graduates of PBL may be due to small group work building better communication and interpersonal skills, more input from professionals, or the use of objectives that better prepare students for real-world situations.

Another possibility for the success of PBL is that it utilizes adult learning principles to a greater extent than more traditional training methods such as lecture. The study described here examined the use of adult learning principles by instructors at two

police academies which have converted training to PBL. While these PBL practitioners did use techniques associated with assessing student needs and climate building to a greater extent than their counterparts at a police academy not using PBL, in general they used fewer adult learning principles and less frequently than other adult educators from across the country in various fields. Thus, the results of this study do not by themselves support the argument that greater inclusion of adult learning principles may explain the success of PBL graduates when compared to students trained using other methods.

Limitations

This study was limited to full-time and part-time instructors at Kentucky Department of Criminal Justice Training (Kentucky DOCJT) and Washington State Criminal Justice Training Commission (WSCJTC) who had experience instructing within a Problem-Based Learning environment. It is unknown how applicable results are to other police agencies or educational institutions using PBL. The data used in examining the adult learning principles practiced by these instructors was gathered using a self-administered, 44-question questionnaire, the Principles of Adult Learning Scale. This study did not investigate whether other methods used to assess the adult learning practices of police instructors give different results. Kentucky DOCJT and WSCJTC instructors were assessed using PALS at one point during the time PBL was being integrated into the curriculum of these police academies. As a result, it is unknown if the adult learning profiles of instructors are relatively consistent over time or change during the PBL integration process.

Recommendations for Future Research

Currently, much remains unknown about PBL, both in police training and as an educational method in general. The results of this study highlight the need for additional research to determine how PBL can be used more effectively in police training academies as well as to determine the means by which PBL positively impacts students. This research examined the use of adult learning principles by police academy instructors using the Principles of Adult Learning Scale (PALS) created by Gary Conti (1990). While this instrument has been shown to be both valid and reliable, important in-depth information related to what adult learning principles police PBL instructors use and why could be obtained if a qualitative study were conducted at these agencies. This information would be valuable if efforts are made to increase the frequency with which instructors use adult learning principles.

Research should also be conducted where PALS is used to assess the adult learning principles used by instructors at other training facilities using PBL. The study described here only examined instructors at two police academies. A larger study of PBL trainers at other locations and in other fields would provide a good adult learning profile for PBL in general. It is possible that when other locations are taken into account, adult learning principles present in PBL instruction but absent in more traditional training methods would emerge. This could be an important step toward answering the question described by Norman (2008), “Why does PBL work?”

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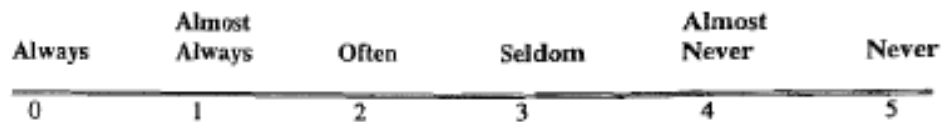
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Appendix 1

Principles of Adult Learning Scale

Adopted from: Conti, G. J. (1990)

Directions: The following questionnaire contains several things that a teacher of adults might do in a classroom. You may personally find some of them desirable and find others undesirable. For each item please respond to the way you most frequently practice the action described in the item. Your choices are Always, Almost Always, Often, Seldom, Almost Never, and Never. Mark 0 if you always do the event; circle number 1 if you almost always do the event; circle number 2 if you often do the event; circle number 3 if you seldom do the event; circle number 4 if you almost never do the event; and circle number 5 if you never do the event. If the item **does not apply** to you, circle number 5 for never.



1. I allow students to participate in developing the criteria for evaluating their performance in class.
2. I use disciplinary action when it is needed.
3. I allow older students more time to complete assignments when they need it.
4. I encourage students to adopt middle-class values.
5. I help students diagnose the gaps between their goals and their present level of performance.
6. I provide knowledge rather than serve as a resource person.
7. I stick to the instructional objectives that I write at the beginning of a program.
8. I participate in the informal counseling of students.
9. I use lecturing as the best method for presenting my subject material to adult students.
10. I arrange the classroom so that it is easy for students to interact.

11. I determine the educational objectives for each of my students.
12. I plan units which differ as widely as possible from my students' socio-economic backgrounds.
13. I get a student to motivate himself/herself by confronting him/her in the presence of classmates during group discussions.
14. I plan learning episodes to take into account my students' prior experiences.
15. I allow students to participate in making decisions about the topics that will be covered in class.
16. I use one basic teaching method because I have found that most adults have a similar style of learning.
17. I use different techniques depending on the students being taught.
18. I encourage dialogue among my students.
19. I use written tests to assess the degree of academic growth in learning rather than to indicate new directions for learning.
20. I utilize the many competencies that most adults already possess to achieve educational objectives.
21. I use what history has proven that adults need to learn as my chief criteria for planning learning episodes.
22. I accept errors as a natural part of the learning process.
23. I have individual conferences to help students identify their educational needs.
24. I let each student work at his/her own rate regardless of the amount of time it takes him/her to learn a new concept.
25. I help my students develop short-range as well as long-range objectives.
26. I maintain a well-disciplined classroom to reduce interferences to learning.
27. I avoid discussion of controversial subjects that involve value judgments.
28. I allow my students to take periodic breaks during the class.
29. I use methods that foster quiet, productive, deskwork.

30. I use tests as my chief method of evaluating students.
31. I plan activities that will encourage each student's growth from dependence on others to greater independence.
32. I gear my instructional objectives to match the individual abilities and needs of the students.
33. I avoid issues that relate to the student's concept of himself/herself.
34. I encourage my students to ask questions about the nature of their society.
35. I allow a student's motives for participating in continuing education to be a major determinant in the planning of learning objectives.
36. I have my students identify their own problems that need to be solved.
37. I give all students in my class the same assignment on a given topic.
38. I use materials that were originally designed for students in elementary and secondary schools.
39. I organize adult learning episodes according to the problems that my students encounter in everyday life.
40. I measure a student's long-term educational growth by comparing his/her total achievement in class to his/her expected performance as measured by national norms from standardized tests.
41. I encourage competition among my students.
42. I use different materials with different students.
43. I help students relate new learning to their prior experiences.
44. I teach units about problems of everyday living.

Appendix 2

PALS Use Information

OKLAHOMA STATE UNIVERSITY



School of Educational Studies

College of Education
 204 Wilford
 Stillwater, Oklahoma 74068-4045
 405-744-6275; fax 405-744-7758

September 26, 2003

Karinda Barrett
 6835 Chisholm Court East
 Tallahassee, FL 32311

Dear Karinda:

It is always exciting to hear of new ways that researchers have found to use the Principles of Adult Learning Scale (PALS). PALS has been published in ERIC, in several journals, and in *Adult Learning Methods* by Michael Galbraith so that researchers like you can use it at no cost. Therefore, feel free to use it in the ways you believe are most appropriate; since I am the copyright holder for PALS, you may consider this letter as your formal permission to reproduce PALS. Let me know what you find. Good luck.

Sincerely yours,

A handwritten signature in cursive script that reads "Gary J. Conti".

Gary J. Conti
 Professor of
 Adult Education

Adult Education
 Aviation and Space
 Education
 Higher Education
 Human Resource
 Development
 Organization and
 Leadership
 Research and
 Evaluation
 Social Foundations
 Student Personnel
 Technology

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Appendix 3

Letter to Agency Instructional Staff

Dear _____ (agency),

Thank you in advance for your participation in this study to examine the impact Problem-Based Learning (PBL) has on students and training staff within a law enforcement training environment. My name is Eric Werth and I am the Curriculum Programs Coordinator for Peace Officer Standards and Training (POST) in Idaho and a doctoral student in the Department of Education at Liberty University. I will also be the primary contact for this research project. Participation in any part of this study is voluntary, but your experience in training within a PBL environment will be valuable in helping trainers and administrators considering a similar change in other locations. The administration at _____ (agency) has been briefed on this research project and supports your participation completely.

All instructors at _____ (agency) will be asked to complete the following demographic questionnaire and Principles of Adult Learning Scale (PALS). The Principles of Adult Learning Scale is a questionnaire that has been used in dozens of research projects around the world to examine the teaching style of instructors and the types of adult learning activities used by instructors. While PALS was not specifically designed for law enforcement trainers, it has been used with these instructors in the past. The purpose for having trainers complete this questionnaire is to determine what adult learning techniques are present in a police training academy using PBL.

A name and email contact is not required to complete the following questionnaire. However, if you include your name and email address I will send you the results of your PALS. Please note that no individual scores will be given to the _____ (agency) administration, only averages from all instructors combined. The questionnaire is designed so that questions cannot be skipped, since missing data will make scoring the questionnaire difficult. If you feel uncomfortable answering questions in the PALS questionnaire, you may close the internet window and your information will not be used in this research.

Thank-you again for your support. Your experiences will be of great help to instructors in other agencies who are transitioning to PBL. Please contact me at any time if you have questions or concerns.

Best wishes,

Eric Werth, EdD(c), MS
Doctoral Candidate, Liberty University
208.884.7350 (office)
208.573.0266 (cell)

Appendix 4

Demographic Questionnaire

1. Name (optional):
2. Email address (optional):
3. Agency (Kentucky DOCJT or WSCJTC):
4. Gender:
☐ Male
☐ Female
5. Age: _____
6. Highest level of formal education completed:
☐ High school graduate
☐ Some college work, but no degree
☐ Associate Degree
☐ Bachelor's Degree
☐ Master's Degree
☐ Doctoral Degree
7. Years of law enforcement experience: _____
8. Years of teaching experience: _____
9. How long have you been teaching in a PBL environment? _____
10. Area(s) of training specialization:
11. Amount of PBL training you have received from your agency:
☐ No training
☐ 1-week (40-hours)
☐ 2-weeks (80-hours)
☐ Other (please specify)
12. Aside from the PBL training offered by your agency, have you received any addition training in how to teach adult learners?
☐ Yes
☐ No

If yes, how many hours of training have you completed? _____
13. Percentage of each of your classes that you believe is taught through PBL:
14. Comments:

Appendix 5

IRB Approval



Center for Counseling and Family Studies



IRB Approval 630.090108: Eric Werth

Problem-based Learning in Police Academies: Adult Learning Principles Utilized
by Police Trainers

September 26, 2008

Dear Eric,

We are pleased to inform you that your above study has been approved by the Liberty IRB. This approval is extended to you for one year. If data collection proceeds past one year, or if you make changes in the methodology as it pertains to human subjects, you must resubmit the study to the IRB. See the IRB website for appropriate forms in these cases.

Thank you for your cooperation with the IRB and we wish you well with your research project.

Sincerely,

A handwritten signature in black ink, appearing to read "Fernando Garzon".

Fernando Garzon, Psy.D.
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Center for Counseling and Family Studies
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Lynchburg, VA 24502-2269
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