Adopting Problem-Based Learning in Criminology and Criminal Justice Education: Challenge and Response

Dae-Young Kim

Abstract
While problem-based learning (PBL) has been successfully used in many disciplines for over 30 years, it has not yet been widely adopted by criminal justice instructors. It is a student-centered curriculum that empowers undergraduate students to decide what they learn and to apply their knowledge and skills while solving real-world problems in relevant and authentic contexts. The present study provides an overview of PBL and empirical evidence for the effectiveness of problem-based instruction in many disciplines. This article offers theoretical foundations for adopting PBL in the study of crime and criminal justice. Finally, for scaffolding instructors striving to implement PBL, this article describes possible formats of implementation and also identifies the challenges new PBL instructors may encounter during application and provides specific recommendations.

Keywords
social science, curriculum, education, social sciences, education theory and practice, criminology, higher education

Introduction
As one of the best exemplars of a student-centered learning environment, problem-based learning (PBL) was developed in medical education in the early 1970s and has expanded into a variety of disciplines (Savery, 2006) at a variety of education levels (Torp & Sage, 2002). PBL is ideally suited for student-centered learning and offers the most advantage in a student-centered classroom (Barrows & Tamblyn, 1980; Driessen & Van Der Vleuten, 2000). This article explores the prospects and possibilities of incorporating PBL into criminology and criminal justice education as a way to promote students’ higher order thinking and problem-solving skills. First, this article discusses a variety of learning theories and many corresponding instructional models. Second, this article provides an overview of PBL and the empirical evidence for the effectiveness of problem-based instruction. Third, this article offers theoretical foundations for adopting PBL in the study of crime and criminal justice. Finally, for scaffolding instructors striving to implement PBL, this article describes possible formats of implementation and also identifies the challenges new PBL instructors may face during application and provides specific suggestions.

Theories of Learning
There have been many scholarly efforts to develop effective teaching and learning environments in many disciplines. There are two main underlying traditional learning theories: the behavioral and cognitive models. The behavioral models of learning have their origins in the research and theories of Pavlov (1927), Thorndike (1898, 1913), and Skinner (1953) on conditioning. Learning is the acquisition of new behavior through a rewarding or reinforcing stimulus. Behavioral psychologists focus on stimuli in the external environment and their impact on changes in human behavior (Driscoll, 2005). The educator’s role is to arrange the environment, so that it produces behavioral changes in the desired direction. Behavioral instruction is appropriate for skill development and training. However, the behavioral models of learning view a learner as a passive recipient of knowledge and overlook the individual’s mental processes (Jonassen & Land, 2000).

However, drawing on the research and theories of Bruner (1960), Ausubel (1968), Atkinson and Shiffrin (1968), and other cognitive psychologists, the cognitive models of learning view a learner as an information processor and focus on the internal mental processes of learning. The learner will attend and respond selectively to external stimuli based on his or her prior knowledge and background. The role of the instructor is to organize the content for the students so that it will be easier for them to learn and to build instruction that enhances their cognitive capacity (Driscoll, 2005). Although
cognitive theories provide detailed descriptions of the cognitive processes for learning, they have had little impact on the practice of education (Jonassen & Land, 2000). Cognitive psychologists relied more on knowledge transmission and reception for cognitive development through lecturing.

Rooted in behavioral and cognitive models, traditional instruction poses several problems for effective teaching and learning (Jonassen & Land, 2000). First, traditional instruction is based on a communication model of instruction (submission/transmission). The assumption is that knowledge is transmitted from instructors to students. What has been overlooked in this model is the importance of active learning on the part of the student. Second, traditional instruction focuses on the individual as the medium of learning and overlooked the social nature of the process of making meaning; students learn through social interaction with other peers and their environment.

The primary format of teaching under traditional instructional models is lecture-based, teacher-centered learning (Birzer, 2004). Instructors decide what information and skills students should learn and deliver them. It is the most efficient method of dispensing content knowledge, especially when instructors can organize difficult subjects into easily understood formats. However, when students are heterogeneous in background, knowledge, or experience, a teacher-centered method may not meet their different educational interests and career needs (Barrows & Tamblyn, 1980). Students, in this situation, tend to become passive recipients of information and less responsible for their own learning. Finally, traditional instruction has been criticized for failing to promote advanced knowledge acquisition while oversimplifying conceptual complexity in many knowledge domains and focusing on memorizing facts and low-level concepts (McCaslin & Good, 1992; Spiro, Feltovich, Jacobson, & Coulson, 1991). These deficiencies in the outcomes of student learning result from biases in the underlying assumptions upon which traditional instruction is based (Spiro et al., 1991).

During the 1990s, constructivist learning theories emerged for new instructional design. There are three fundamental shifts in the underlying assumptions about teaching and learning (Jonassen & Land, 2000; Savery & Duffy, 1995). First, learning is a process of making meaning that is beyond simple knowledge transfer. Students should construct their own knowledge and meaning from their learning and experiences. Second, making meaning is a product of social negotiation with other humans, as well as one of internal negotiation. For example, students should actively interact with their peers to construct their own knowledge, and through making sense of those interactions, they can create or modify their own knowledge. Third, learning takes place in association with any social artifacts in the world, as well as other humans. Students should consider the socio-cultural and sociohistorical settings in which learning occurs.

There have been many student-centered learning pedagogies reflecting constructivist learning assumptions, such as PBL (Hmelo-Silver, 2004), anchored instruction (Cognition and Technology Group at Vanderbilt, 1992), cognitive apprenticeships (Collins, 2006; Collins, Brown, & Newman, 1989), reciprocal teaching (Palincsar & Brown, 1984), goal-based scenarios (Schank, 1992), computer-supported collaborative learning (Stahl, Koschmann, & Suthers, 2006), case-based learning (Kolodner, 2006; Kolodner et al., 2003), project-based learning (Krajcik & Blumenfeld, 2006; Krajcik, Blumenfeld, Marx, & Soloway, 1994), constructivist learning environments (Jonassen, 1999), games and simulations (Clark, Nelson, Sengupta, & D’Angelo, 2009), and open learning environments (Hannafin, Land, & Oliver, 1999). As these student-centered learning approaches provide more flexible alternatives to the design of instruction, students are able to make their present learning relevant to their interests and needs and deepen their understanding (Barrows & Tamblyn, 1980; Hannafin & Land, 1997).

The Literature Review for PBL

PBL refers to a student-centered curriculum that empowers students to conduct research and requires them to learn knowledge and skills while solving real work problems in relevant and authentic contexts (Glasgow, 1997; Savery, 2006). Given that PBL has been used in a variety of forms across disciplines and educational levels, it is imperative to identify some of its essential characteristics to reduce possible misapplications and achieve the anticipated learning outcomes (Maudsley, 1999). Barrows (2002) described in detail four key elements of PBL. First, ill-structured problems are presented to students in a way that they produce multiple potential causes and solutions through free inquiry. According to Ge and Land (2004), ill-structured problems are defined as “those that we encounter in everyday life, in which one or several aspects of the situation is not well specified, the goals are unclear, and there is insufficient information to solve them” (p. 5). When a problem is ill-structured, it is difficult to reach an agreement on what specific solution is appropriate, and thus there is a larger individual variability in problem solving (Jonassen, 1997). Second, students have responsibility for their own learning. They decide what to learn and find appropriate information to solve the problems from various resources (libraries, online, experts, and textbooks). Third, instructors act as a class facilitator in the learning process. Instructors assist students in developing problem-solving skills by showing them how to learn rather than simply dispensing information. Fourth, authenticity forms the learning process of PBL. The problem should be relevant to students’ future careers and lives. The skills and activities required of students in PBL should be those valued in real world.

Many scholars have argued that PBL is an appealing instructional strategy that leads to active, self-directed
learning of students and allows students to learn knowledge while solving problems (Birch, 1986; Bransford, Sherwood, Hasselbring, Kinzer, & Williams, 1990; Glasow, 1997; Hiebert et al., 1996; Norman & Schmidt, 1992; Stepien & Gallagher, 1993). There have been a large number of prior studies to examine the effectiveness of PBL. Most studies have been conducted in medical schools, but relatively little research has occurred in other disciplines. For example, using a quasi-experimental research design, Tayyeb (2013) examined the effectiveness of PBL to improve content knowledge and critical thinking among medical students. He found that the PBL curriculum is more effective than the traditional lecture-based curriculum in improving critical thinking and problem-solving skills among medical students. In general, empirical findings in prior studies are more favorable to PBL curriculum over traditional lecture-based curriculum when it comes to student outcomes such as motivation, interest, student satisfaction, clinical performance, deeper understanding, contextual learning, self-directed learning, and/or self-regulated learning at various disciplines and educational levels (e.g., Gallagher, Stepien, & Rosenthal, 1992; Kaufman & Mann, 1996; Klegeris & Hurlen, 2011; Loyens, Magda, & Rikers, 2008; Prosser, 2004; Rideout et al., 2002; Smits et al., 2003; Spinello & Fischbach, 2004; Sungur & Tekkaya, 2006).

Despite the positive evidence of PBL on student learning outcomes, there has been no agreement on the effectiveness of PBL. For example, Sevening and Baron (2002) compared study outcomes between the PBL and the traditional lecture-based classes using a quasi-experimental research design. They found no differences between the two groups in terms of students’ achievement gains and attitudes. In addition, after reviewing 12 prior studies, Berkson (1993) concluded that there is no evidence that the PBL curriculum improved problem solving, knowledge acquisition, motivation, and/or self-directed learning skills compared with the traditional lecture-based curriculum.

A number of meta-analyses were conducted to explain these mixed results and provide a synthesis of the effects of PBL, especially for medical education (Albanese & Mitchell, 1993; Berkson, 1993; Colliver, 2000; Dochy, Segers, Van den Bossche, & Gijbels, 2003; Gijbels, Dochy, Van den Bossche, & Segers, 2005; Kalaian, Mullan, & Kasim, 1999; Newman, 2003; Vernon & Blake, 1993; see Strobel & Barneveld, 2009, for a summary of meta-analyses). However, there were still inconsistent results on the value of the PBL instruction. For example, Vernon and Blake (1993) demonstrated “the superiority of the PBL approach over more traditional methods in several of the outcome domains examined” (p. 557). In contrast, according to Colliver (2000), there was “no convincing evidence for the effectiveness of PBL, at least not the magnitude of effectiveness that would be hoped for with a major curriculum intervention” (p. 264).

Using a qualitative meta-synthesis of the existing meta-analyses, Strobel and Barneveld (2009) concluded that “PBL was superior when it comes to long-term retention, skill development, and satisfaction of students and teachers, while traditional approaches were more effective for short-term retention as measured by standardized board exams” (p. 44). Although the traditional learning curriculum has an advantage over the PBL curriculum when it comes to short-term acquisition and retention for the standardized board exams (multiple-choice and true/false items), knowledge acquisition through the traditional methods is not transferred into long-term memory and lasts for a very limited amount of time. Most importantly, as PBL was designed to promote students’ application of knowledge within an authentic context, change their attitudes toward active learning, and promote their positive social interaction skills, the focus on short-term knowledge gain as the learning outcome of PBL is inappropriate (Barrows, 2002). Finally, by conducting a meta-analysis, Walker and Leary (2009) examined differences in PBL outcomes across disciplines such as allied health, business, engineering, medical education, science, social science, teacher education, and others (aviation, kinesiology, and textiles). Overall, PBL was found to be a more effective instructional method in the last three disciplines than traditional lecture-based learning.

PBL has been used in criminal justice practice and education. For example, as part of efforts to support problem-oriented policing (POP), many law enforcement agencies have adopted PBL at their police training academies. Although anecdotal evidence of the effectiveness of PBL in police training exists, there was no empirical evidence. Werth (2009) examined learners’ perceptions of their PBL experiences at the Idaho Peace Officer Standards and Training (POST) Academy. PBL was effective in the development of decision-making, problem-solving, and collaboration skills as well as providing subject-matter knowledge.

Although there have been scholarly efforts to incorporate active learning techniques into criminal justice courses so as to promote higher order thinking and relevant knowledge (Birzer, 2004; Payne, Sumter, & Sun, 2003; Rockell, 2009; Sims, 2006; Smith, Meade, & Koons-Witt, 2009), PBL is a relatively new learning pedagogy. Within my knowledge, there are only a few articles that introduce PBL in the criminal justice courses. For example, as one of the four active learning pedagogies such as collaborative learning, PBL, service learning, and engaging undergraduate students in research, Sims (2006) provided an overview of PBL (i.e., origins, activities, advantages, and disadvantages) for the use of PBL in criminal justice courses. Burke and Owen (2011) briefly discussed four PBL activities that can be incorporated into criminal justice courses such as discussion scenarios, tabletop simulations, role-playing activities, and case method. Finally, this article will expand existing literature by providing theoretical frameworks to incorporate PBL into criminology and criminal justice education. Also, this article identifies several challenges and proposes recommendations for successful implementation of PBL in criminology and criminal justice classrooms.
Theoretical Framework for Incorporating PBL Into Criminology and Criminal Justice

Cognitive Flexibility Theory

Cognitive flexibility theory provides a conceptual model for designing learning environments in which students can develop their cognitive flexibility; that is, the ability to assemble and use diverse knowledge sources to promote their understanding and decision-making in a given situation (Spiro, Coulson, Feltovich, & Anderson, 1988). Cognitive flexibility is very important for advanced knowledge acquisition in ill-structured disciplines. There are seven theoretical rationales: (a) avoidance of oversimplification and overregularization of knowledge, (b) the use of multiple mental and pedagogical representations of knowledge, (c) the centrality of case application, (d) conceptual knowledge as knowledge-in-use, (e) schema assembly from rigidity to flexibility, (f) non-compartmentalization of concepts and cases, and (g) active participation, tutorial guidance, and adjunct support for the management of complexity.

In a nutshell, in ill-structured disciplines such as history, medicine, law, and literary interpretation, many concepts from various disciplines are pertinent and interact contextually in the typical case of knowledge application. Instructors should demonstrate the complexities and irregularities of advanced knowledge acquisition, while emphasizing the interactions among diverse sources of knowledge (Spiro et al., 1988). It is difficult to count on general principles to aid an understanding of the dynamics of particular cases because there is great deal of variability across cases regarding which concepts are relevant, and what patterns and combinations of knowledge are necessary to understand a case. Thus, students should be able to use various aspects of cross-disciplinary knowledge and apply them flexibly in diverse contexts.

In this regard, knowledge acquisition in ill-structured disciplines cannot be achieved simply by listening to instructors’ lectures and/or reading textbooks (Land, Hannafin, & Oliver, 2012). Instead, it requires active participation from students, and instructors must provide adequate guidance and support to promote students’ active learning.

Cognitive flexibility is the foundation of PBL. The PBL curriculum allows learners to focus on a problem and encourages them to take multidisciplinary and integrated perspectives to understand all factors involved in finding causes and solutions. It also produces more active student participation, interaction, and collaboration in classrooms by involving the students in the solving of problems. Through PBL, students develop cognitive flexibility by learning how to use various knowledge sources for problem solving in new contexts.

Problem-solving skills are very important for human existence, especially in a constantly changing social environment that requires people to continually engage in social problems. Traditionally, literacy refers to the ability to read and write, but in contemporary society literacy refers more to the functional ability to solve problems in cooperation with colleagues (Glasgow, 1997). According to Postman and Weingartner (1969), a new education should set out to cultivate experts in “crap detecting,” rather than promoting dutiful citizens who simply follow conventional assumptions, standard practices, and cultural uniformity (p. 3). PBL is an important pedagogical tool helping students develop their problem-solving abilities and educate them to become individuals who can creatively respond to challenges within their profession. Most importantly, PBL is made congruent with the natural learning processes of humans and the progressive mechanism of our civilizations through challenge and response.

Criminology and Criminal Justice: Interdisciplinary Studies

According to recent Gallup Polls, crime and the fear of crime rank as the most important issues in the United States (Jones, 2010; Saad, 2000). Concern over crime has been prevalent and is an important issue in determining public policy. American society has higher crime rates than other industrialized countries, especially in terms of violent crimes. The disparity is greatest for homicide. In 2008, the homicide rate in American society was 5.2 per 100,000; however, it was much lower in western European nations, such as Italy (1.2), France (1.4), Germany (0.8), and England and Wales (1.2; United Nations Office on Drugs and Crime, 2008). Despite recent declines, Americans are still sensing an increase in crime rates in their communities as well as in the whole nation (Jones, 2010).

In response to high violent crime rates and the growing fear of crime, American society has responded punitively by relying on the use of incarceration. In 2007, there were nearly 2.3 million inmates incarcerated in jails and prisons. The incarceration rate was 756 per 100,000 U.S. residents (West & Sabol, 2008). This rate is significantly higher than that of countries such as Canada (116), England and Wales (153), Germany (89), and Italy (92; Walmsley, 2008). High incarceration rates become one of the most serious criminal justice problems in the United States because there are many collateral consequences of the prison boom, such as overcrowding, the disproportionate presence of racial minorities, disruption of family structure and relations, inequality, and lost social opportunity costs for other social services (e.g., education, medical services, and other social welfare programs; Austin & Irwin, 2001; Merlo, 2006). In addition, there are numerous other crime and justice problems in the United States including gangs, drugs/alcohol abuse, guns, high recidivism rates, racial disparities in crime and punishment, the war on drugs, racial profiling, and mental ill offenders.
According to Rusche and Kirchheimer (1939/2003), crime and punishment are causally independent of one another and more likely to be determined by the same kinds of socioeconomic factors. The sources of crime and punishment are mostly invisible, and politicians and the public are not easily able to discern them. It is thus important to examine the socioeconomic factors associated with crime and criminal justice problems.

In consequence, criminology and criminal justice are an archetype of an advanced knowledge acquisition setting. Various disciplines, such as sociology, psychology, biology, history, and law, serve as a foundation for the crime and criminal justice studies. In ill-structured criminology and criminal justice disciplines, instructors should emphasize the complexities and irregularities of crime and justice problems because the knowledge from such diverse fields is pertinent and interacts contextually in typical cases of problem solving. For example, there is a significant variation in crime rates over time across states or local communities in the United States. It is difficult to count on general principles to aid an understanding of the dynamics of crimes in each state or local community. This is because there is a great deal of variation across cities and states regarding which causes are relevant and what combinations of knowledge are necessary to solve crimes. Crimes should be understood in the context of each unique application. It is, therefore, imperative to create a new instructional model and a corresponding learning environment, so that students learn to integrate various bodies of knowledge from a range of disciplines and apply them with flexibility in new contexts.

Spiro’s cognitive flexibility theories provide a theoretical background that supports the use of PBL in criminology and criminal justice education. In the United States, there are many crime and criminal justice problems to which public policymakers, criminal justice (CJ) professionals, and the public need to respond. Through PBL, students learn to identify the most important problems within the field, think of ways to practically approach them, and propose realistic solutions to address the problems. Students should integrate knowledge from a range of disciplines toward finding solutions because the causes of crime, and hence criminal justice problems, originate within a range of other socioeconomic factors. Due to the nature of ill-structured crime and criminal justice problems, finally, students are required to develop cognitive flexibility for problem solving.

Interdisciplinary Integration Through PBL

In Interdisciplinary Integration: Building Criminology by Stealing From Our Friends, Osgood (1998) emphasized the importance of interdisciplinary approach to the study of crime and justice as follows:

For every type of variable considered a potential source of crime—whether it be family, community, brain chemistry, organizational structure, or labor market—there is some other group of scholars who take that topic as their primary focus. For every aspect of the criminal justice system that we find of interest, there are scholars who study comparable problems in other settings. I believe that one of the best ways to find new insights that will help build our field is for criminologists to steal ideas from these fields and bring them back to the rest of us.

He provides several suggestions to introduce knowledge from other disciplines to criminology: collaborating with scholars in other disciplines, keeping track of journals in other disciplines, attending conferences in other disciplines, recruiting graduate students from other disciplines, publishing papers in other disciplinary journals, and using textbooks from other disciplines relevant to crime and criminal justice.

In addition to his suggestions, incorporating the PBL curriculum into crime and justice studies is another way to cross boundaries and build bridges between criminology and criminal justice and other disciplines. According to Barrows and Tamblyn (1980), PBL fits exceptionally well in interdisciplinary disciplines. In PBL, students focus on a problem and take multidisciplinary and integrated perspectives to understand all factors involved in finding causes and solutions. A worksheet for group projects is included in the appendix. To meet this interdisciplinary goal, group projects can be used as the stimulus for discussion and collaboration among students who have different majors. While working as a group, students can use experience and knowledge from their own discipline to enhance their understanding of the problem and contribute to the development of solutions. Through PBL, students can also develop cognitive flexibility by learning how to use various knowledge sources for problem solving in new contexts. In this regard, PBL is ideally suited for crime and justice issues that need to be approached from an interdisciplinary perspective.

Challenge and Response in Adopting PBL in Criminology and Criminal Justice Classroom

To reiterate, PBL instructors should adopt the four key elements of PBL in their course curriculums such as presenting ill-structured crime and criminal justice problems, promoting student responsibility for learning, acting as a class facilitator in the learning process, and encouraging students to use real and authentic problems that are relevant to their careers and lives. Given that PBL is an open-ended, ill-structured teaching strategy, instructors are likely to experience difficulties in all aspects of PBL instruction: planning, implementing, and assessing (Ertmer & Simons, 2006, n.d.). For scaffolding criminal justice instructors’ effort to adopt PBL, this article identifies several challenges instructors may face when implementing PBL and provides specific suggestions. To clarify our recommendations, this article incorporates evidence and anecdotes not only from the
literature but also from the author’s experiences over the past many years in implementing PBL classes (i.e., Introduction to Criminal Justice, Corrections, Criminology, Drugs and Crime, and Research Methods).

**Challenge 1: Creating a Collaborative Classroom Culture of PBL**

Collaboration is essential in PBL curriculums. According to Vygotsky (1978), students learn best when they interact with their peers rather than when they work alone. To promote a cooperative classroom culture, various forms of peer learning were included in my classes: group projects, mini-PBL units, and writing assignments/discussions. First, group projects are utilized as the stimulus for collaboration among students. Students participate in a group that will be responsible for a group essay and presentation. Students work together to identify problems at the local, state, and national levels and to develop relevant solutions. Through the processes of setting a mutual goal and dividing roles and work, students recognize that their grade is dependent on the performance of others in the group, feel a responsibility to help others learn, and finally, build interdependence among them (Ertmer & Simons, n.d.; Kolodner et al., 2003).

The second strategy is to use mini-PBL units. According to Stepien and Gallagher (1993), the use of “posthole” units is important in creating a cooperative environment for discussion. The term “postholes” refers to small problems that can be used as practice for mini-PBL units (Ertmer & Simons, 2006). Prior to working on a semester-long PBL project, students have opportunities to work on 1- to 3-day class projects regarding controversial topics such as mentally ill prisoners, police corruption, racial profiling, the death penalty, and overcrowding. While experiencing these mini-PBL units, students have the opportunity to practice the collaborative skills that are needed for the semester group project. In addition, students draw on each other’s perspectives and skills and take interdisciplinary approaches to understand all factors involved in finding causes and solutions. For example, being a psychology minor, one student involved in the group who is interested in the treatment of mentally ill prisoners introduced the Diagnostic and Statistical Manual on Mental Disorders to the group and brought helpful insight on how to diagnose individuals with mental disorders.

Classroom debates are also good strategies to help students learn to work cooperatively (e.g., brainstorming ideas or conducting research to support an opinion). For example, there are often controversies among students in the determination of group project topics. Through the class debates, students reach agreement on what are important topics that are worthy of attention for their projects, determine what they believe are the main causes for the problems, and finally decide on feasible solutions.

Third, for individual PBL writing assignments, students are required to identify a crime or criminal justice problem they think is worthy of discussion from their readings and develop solutions that address the problem. In addition, they present their assignments in class and lead a class discussion. PBL writing and discussions are driven by free inquiry with an instructor’s guidance and assist students in developing their problem-solving skills. While sharing their views and discussing them with their peers, students also get the opportunity to find others who have similar interests and recruit their partners for the group project. Most importantly, students become familiar with the cooperative environment and develop collaborative skills.

At the beginning of a semester, informal group meetings with students are helpful in promoting collaborative learning. These meetings allow an instructor to learn students’ career interests and expectations for the course. Students also learn not only the instructor’s expectations but other students’ backgrounds and interests. It is also useful to have meetings with students in the middle of the semester to determine how much progress they are making toward their group projects. Instructors can assess student perceptions and acceptance toward PBL implementation and if necessary modify curriculums reflecting their current needs and capacities. Finally, these informal meetings promote positive social interaction among students and contribute to the creation of a collaborative learning environment in which students share their experiences and skills.

**Challenge 2: Adjusting to Changing Roles**

In a collaborative culture, instructors should change both how and what they teach (Grant & Hill, 2006). Successful PBL implementation depends on the capacity of instructors to change the way they teach students and manage the class (Krajcik et al., 1994). In PBL curricula, instructors play the role of a class facilitator rather than assuming the role of a director (Savery & Duffy, 1995). By developing authentic group projects, PBL instructors create students’ motivation for learning and engage them actively in class. Instructors teach students how to learn and how to solve problems, rather than simply conveying the information and requiring them to memorize it.

There are several strategies to help instructors adjust to their changing roles as class facilitators. First, the use of rituals (classroom scripts for specific activities) helps instructors make the transition to becoming effective class facilitators (Kolodner et al., 2003). Rituals make instructors feel more comfortable in their roles as facilitators by keeping them apprised of what practices are scheduled and what project outcomes are expected at different times in PBL processes (e.g., brainstorming ideas, designing research, defining a problem, locating information, identifying causes, developing solutions, and preparing a presentation). Second, running mini-PBL units provides instructors with opportunities to practice facilitating roles and skills (Ertmer & Simons, 2006). While experiencing these mini-PBL units, instructors...
become more comfortable in their facilitating roles in the PBL process. Students also can adjust to the PBL approach and adopt their new roles as an active learner (Stepien & Gallagher, 1993). Third, instructors increase the understanding of their facilitative roles in PBL classrooms by observing how experienced PBL instructors manage their classes (Ertmer & Simons, 2006). It is important to develop social networks with other PBL-using instructors who can support one another in their efforts toward successfully implementing PBL classes (Ertmer, 2005).

In PBL curriculums, however, students also need to adopt new roles as active learners. Students are not just passive recipients of knowledge from instructors. As active learners, they instead must learn to decide what they learn, which resources they use, and how they communicate their solutions. To promote students’ active learning, it is imperative to acknowledge their interests and skills and to reflect them in class development (e.g., developing rubrics, inviting guest lecturers, having peer evaluations, and so on; Glasgow, 1997). Students become more responsible for their own learning by becoming involved in planning, implementing, and evaluating the class curriculum (Land et al., 2012).

Shifting learning responsibility to the students can produce positive learning outcomes. First, students become more motivated to learn on their own. For example, they can relate their learning to their career goals and personal experiences. Students are willing to share their personal experiences involving crime and criminal justice systems as CJ practitioners and ex-offenders in classrooms. In addition, many students in prior classes volunteered to invite guest lecturers (e.g., judges, probation officers, drug counselors, domestic violence case managers, inmates, and the like) to incorporate real-world problems into classroom discussions. For example, one student involved in the group project (Drugs and Crime) helped other students understand the problem of drug abuse and the recovery process based on his or her firsthand experiences as a drug abuse counselor and ex-drug addict.

Second, by assuming active roles in learning, students enhance their skills for self-directed and self-regulated learning (Brush & Saye, 2001; Grant & Hill, 2006; Sungur & Tekkaya, 2006). By having choices for exploration, students are motivated to initiate research projects, set goals, and develop planning guidelines to achieve their goals. By analytically reflecting their needs for learning and learning how to meet those needs, students develop the capacity to manage resources, evaluate their progress, and adjust their goals. Finally, these self-directed or self-regulated students are more likely to develop critical thinking and problem-solving abilities by constantly engaging themselves in CJ problems, thinking of ways to practically approach them, and proposing realistic solutions (Brush & Saye, 2001).

Due to their shifting learning responsibilities, however, students easily become frustrated or disoriented (Ertmer & Simons, 2006). For example, when students identify topics for their PBL projects and assignments, they often encounter difficulties in deciding what is important, interesting, and relevant and in locating resources for learning. Those confusing frustrations are very intensive to students who are not motivated for learning and who are accustomed to a more structured classroom environment where the instructor assigns topics for them to explore.

According to Glasgow (1997), frustration is part of problem solving, and solutions rarely come without frustration. He calls this process creative confusion. In PBL curriculums, the process of dealing with frustrations and difficulties toward completing a group project is as important as the actual outcome. The important thing is learning how to deal with frustrations. If they successfully handle these frustration situations, students become more motivated to learn and also attain desirable outcomes for group projects. Instructors should encourage students to research what previous research has done or engage in brainstorming with group members. Instructors can also share previous students’ projects to help students understand how to formulate a problem and how possible topics can be transformed into strong projects.

In addition, many students in prior classes attempted to find solutions by visiting the CJ field and interviewing practitioners for their group projects and assignments. For the group project in the institutional corrections course, for example, one group (Women and Drug) was interested in crime and women’s issues in the initial stage but had difficulty narrowing down the research topic and making it more manageable. To overcome this difficulty, the group contacted many governmental and non-governmental agencies in the community and asked former instructors. The group exchanged many emails with them over the semester. Finally, the members visited the Nebraska Women’s Correctional Center (NWCC) to find out the problems women had inside the prison. In collaboration with correctional staff, they were able to identify drug use among female inmates and attempted treatment in a women’s prison in York, Nebraska. Also, they invited correctional officers and female inmates as guest speakers to present correctional issues in class.

**Challenge 3: Identifying the Real-World Problem**

PBL classes revolve around authentic problems (Mergendoller & Thomas, 2005). To successfully implement a PBL class, it is thus imperative for both students and instructors to identify good driving questions that are relevant to students’ career interests, allow students to develop their own investigations, and promote students’ collaboration toward problem solving (Lehman, Ertmer, Keck, & Steele, n.d). In addition, students should be able to learn significant course materials while working on these problems (Checkley, 1997; Murray & Savin-Baden, 2000; Stephien, 1997).

There are several good sources that can be used to identify good driving questions, for example, newspaper mass media,
CJ agencies, ex-offenders and inmates, and field trips. First, instructors and students should pay close attention to local crime and justice issues that have appeared in the local newspaper and/or on television and capitalize on them for PBL projects and discussion. For example, the author used local crime problems for a criminology class titled “Why does Fort Smith in Arkansas have higher violent and property crime rates than the national average and other cities?”

According to the Uniform Crime Report (UCR) data, in 2009, the violent and property crime rates in Fort Smith were 835 and 5,860 per 100,000 residents. These rates significantly exceed the national averages (for violent crime, 429 per 1,000 residents; for property crime, 3,036 per 1,000 residents). Another question at issue is “Why does Fort Smith have different historical crime trends compared with U.S. national crime trends?” Violent and property crime rates in Fort Smith dramatically increased during the 1990s and reached the highest peak during the mid-2000s, while national crime rates substantially decreased and have since remained fairly stable.

Students were required to discuss as many local socioeconomic factors as possible causes and develop solutions that originate from the social and economic conditions rather than simply enacting laws and punishing violators. Therefore, students investigated various statistical indicators, such as poverty, inequality, unemployment, immigration, population, divorce rates, drug problems, mental health problems, and CJ policies (incarceration rates), and discussed their possible effects on changes in crime problems in Fort Smith using various bodies of knowledge from a range of disciplines.

Second, to identify crime and justice problems, instructors and students can observe, interview, and/or correspond with CJ practitioners and other key informants (e.g., ex-offenders, drug users, and inmates). For example, the author contacted the director of the Nebraska Department of Correctional Services and invited its collaboration for students’ group projects. The director suggested several topics for group projects and also provided an initial contact with whom students could correspond to have questions answered or to obtain information. CJ practitioners provided information and many resources to help students in every aspect of their group projects. After the semester, the director invited the instructor and students to a meeting of his agency staff to discuss students’ findings and to listen to recommendations. During these corporative processes, CJ agencies can gain new insights and trends in corrections from students’ research.

Finally, field visitations can be incorporated into PBL curriculums. For example, early on in the semester, students were required to participate in institutional tours. Using critical and analytical skills, they should observe the correctional facility and interview inmates and practitioners. To supplement these tours and observations, students are required to write about the institutional tour through the lens of the PBL model. According to Rockell (2009), it is important to reinforce these occasional activities with various individual and group assignments to enhance criminal justice students’ critical thinking. Through these processes, each student can identify actual criminal justice problems as a stimulus for his or her learning experience and link these experiences to group projects.

**Challenge 4: Locating/Collecting Resources**

According to Ertmer and Simons (n.d.), research problems should be feasible and thus must be developed with a consideration of both available resources and students’ current abilities. If resources are limited or unavailable, no matter how authentic and relevant the problem is, students cannot successfully complete their projects (Ward & Lee, 2002). Implementing PBL classes is more successful when there is a wide range of resources available to students with their group projects and assignments.

Accordingly, instructors should be able to identify the basic resources students will need at each stage of the PBL process, and thus, it is imperative for instructors to take sufficient time and effort for collaboration with external resource people (e.g., librarians, other faculty, and CJ practitioners). First, instructors can communicate these needs to their school media specialist and local librarians, inviting them to their class as guest speakers. They can provide students with information on how to search for their projects from various resources (e.g., Internet, library, journal articles, newspapers, magazines, etc.). Second, given the interdisciplinary nature of CJ, it is a good idea for instructors to coordinate with other faculty, especially in other disciplines. Also, instructors can provide students with reading materials (journal articles and/or textbooks) from other disciplines. Finally, it is imperative that instructors make a range of community resources available to students for their group projects. With the sponsorship of their professor, students can interact with CJ practitioners and/or community members for their projects when they get frustrated trying to identify a problem, locate resources, or develop solutions.

**Challenge 5: Developing Assessment Methods and Instruments**

In PBL learning environments emphasizing the importance of group work, it is imperative to design appropriate learning-assessment methods that address both individual and group accountability (Ertmer & Simons, n.d.). Involving students in evaluating their learning is important rather than merely relying on instructor assessment. It is also valuable to incorporate critique from criminal justice agencies if group projects are designed in cooperation with them. Including various audiences (peer, self, and outsider) can be a strong motivator for students to set higher personal standards for their projects and improve their work (Glasgow, 1997). Through critiques from various audiences, students can appreciate the diversity of one another’s perspectives,
develop communication skills, and build positive social interactions among themselves.

Students can serve as evaluators in several ways. Students watch other groups’ presentations and evaluate others’ performances. There are also confidential peer reviews on the performance of group members in the students’ own group (including self-evaluation). Each group member evaluates how well his or her group worked together and whether the workload was fairly shared. To facilitate these evaluation processes, it is important to provide a rubric for peer- and/or self-evaluation. According to Mergendoller and Thomas (2005), experienced PBL instructors often develop rubrics or rating scales in collaboration with students, so that students can promote understanding of their projects and establish standards for quality outcomes.

In addition to these product assessments, it is important to establish process assessment in PBL curriculums. According to Delisle (1997), “Assessment of student performance begins the first day a PBL problem is introduced and lasts until the final product is reviewed” (p. 37). Assessment for learning is an ongoing process and thus needed at all stages of the PBL process. An individual portfolio can be used as a process-assessment method. A portfolio refers to the student’s collection of documents that illustrate his or her works and contributions over the course of his or her group project (Glasgow, 1997). Individual portfolios serve as a great resource for instructors when evaluating students’ performances and contributions to their group projects during each stage of the PBL process, which is not always apparent in the final product.

However, individual portfolios also provide students with opportunities for self-reflection and assessment. Students reflect on their own experiences and evaluate their own performance and contributions toward the completion of the group project. In addition, the portfolio plays a role as a self-built structure of guidelines and methods for getting things done in an orderly and logical fashion (Glasgow, 1997). While building their individual portfolios, students remind themselves of what the next step is and evaluate their progress toward completing the group project. In PBL curriculums, it is important for students to develop self-directed learning skills (e.g., set their goals, monitor their progress, identify resources, and assess their performance; Brush & Saye, 2001; Grant & Hill, 2006).

**Conclusion**

This article attempts to introduce PBL methods into criminology and criminal justice classrooms for more advanced knowledge acquisition. In introductory classes, the goal is often more exposure to content and the establishment of a general knowledge of crime and criminal justice. Students are exposed to many of the subject areas of criminology and are expected to memorize and recall the pre-defined content, but they are not likely to learn critical thinking and application skills. In upper-level classes, therefore, the goals and methods of education must change for more advanced knowledge acquisition. Students must recognize conceptual complexity in important aspects of crime and justice problems and apply the knowledge obtained from introductory classes to application situations. As reflected in the findings of prior studies, while teaching through traditional methods is suited for the acquisition of knowledge in introductory classes, PBL is an effective instructional method to foster higher level thinking and problem-solving skills in upper-level classes.

In criminology and criminal justice education, PBL can offer many advantages over traditional teaching methods. First, students take on a research problem as a stimulus for their learning, identify causes of the problem, and finally develop solutions. Given multiple sources of problems, students consider multiple perspectives and take an interdisciplinary approach to the studies of crime and criminal justice. They can develop their cognitive flexibility to think holistically to see the relevant factors related to the problem of interest and discuss meaningful solutions. Through PBL processes, students learn to think of how to approach and propose realistic solutions practically to address crime and justice problems.

Second, by having choices and options for exploration, students learn to decide what they study, which resources they use, and how they communicate their solutions. They can also make their present learning relevant to future educational and/or career needs. This self-determination leads students to take responsibility for their learning and can develop the capacity to reflect their needs and learn to meet those needs. Students become more interested, motivated, and self-directed to learn and actively engage in class activities and discussions.

Third, due to the interdisciplinary nature of the subject, criminal justice studies work better through discussion and debate while requiring cooperative learning. For example, problem-based group projects facilitate collaborations and interactions among students as well as between students and the instructor. Students learn how to set short- and long-term goals and to work cooperatively toward addressing the problem. Through collaboration, they can also build positive interactions between individuals and develop communication and interaction skills, which are essential for criminal justice professionals. According to Dewey (1930), education in a democratic society should promote criticism, self-education, and constant growth. PBL helps students build many democratic characters in them, such as responsibility for learning, teamwork, communication skills, and respect for others. Finally, although the theoretical argument for the adoption of PBL in criminal justice classroom is compelling, implementing PBL is still challenging for instructors. Future studies need to explore various possible formats of PBL in criminology and criminal justice classroom. It is also imperative to empirically examine the effectiveness of PBL in criminology education.
Appendix

Worksheet for Group Projects

1. Defining a crime/criminal justice problem in the United States which you think is worthy of government attention.
   a. Write a paragraph on the crime/criminal justice problem that your group plans to study.
   b. What is the specific geopolitical location of the crime/criminal justice problem? It could be local, state, or national issue.
   c. Gathering evidence of the problem.
      • Present evidence to support the existence of your problem. Be as specific as possible and cite at least one source of data (e.g., survey, statistics, and articles).
      d. List at least three undesirable social conditions or social harms that result from this problem.

2. Identifying the causes of the problem.
   a. Identify what you think are the main causes for this crime/criminal justice problem.
   b. If available, use theories from the textbook in this course and demonstrate how a theory (or theories) fits the problem that you select for your project.

3. Developing solutions
   a. Develop at least two solutions could be implemented as local, state, and national levels to deal with the problem you selected.
   • Be sure that all of your policy alternatives are at the same geographical level as your crime/criminal justice problem.
   • Explain the connections between your solutions and your causes. Use theories to explain why each solution will work.

Notes

1. On the website for the problem-based learning (PBL) Initiative (http://www.pbli.org/pbl/generic_pbl.htm), Barrows identifies additional characteristics of PBL and provide in detail explanation for them.
2. Problem-oriented policing (POP) is designed to solve underlying problems that give rise to crime while emphasizing the importance of collaboration with many stakeholders (e.g., judges, prosecutors, defense attorneys, community members). POP recommends the use of the Scanning, Analysis, Response and Assessment (SARA) model as an analytic approach to problem solving in place of an overreliance on the criminal law. The SARA model entails four steps: Scanning, Analysis, Response, and Assessment. Police should proactively scan their areas of responsibility and identify a crime problem by drawing on various data sources. Next, they analyze the problem to determine its scope, nature, and underlying causes. Following the analysis, the police should develop the most promising responses that might solve the problem, after considering a wide range of alternatives. After implementing these responses, the police should assess them and decide whether the current policy should be replaced, strengthened, or improved. For more information, refer to the website for the Center for Problem-Oriented Policing (http://www.popcenter.org/).
3. In A Study of History (1946), Toynbee analyzes the geneses, growths, breakdowns, and disintegrations of every known human civilization. He explains how civilizations emerged from primitive societies and why some flourished and still survive while others failed. Toynbee discovers a recurring pattern of “Challenge and Response” in the rise and fall of civilizations, which is a law of history. The rise and fall of civilizations were determined by the responses of human beings to difficult challenges rather than biological (race) and environmental factors (i.e., military attack and natural disasters). If civilizations responded in a creative manner to challenges, they rose to power and dominance; if not, their civilizations broke down and disintegrated. He emphasizes the importance of creative people who have the abilities to find innovative solutions to social challenges.

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**Author Biography**

Dae-Young Kim is an assistant professor in the Department of Criminal Justice at the State University of New York–Buffalo State. His current research interests include political economy of crime and punishment, policy analysis and program evaluation, and evaluating problem-based learning. His work has appeared in journals such as *Criminal Justice and Behavior, International Journal of Police Science and Management, Race and Justice,* and *The Prison Journal.*