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Understanding the Role of Epistemological Beliefs in

Post-Graduate Studies: Motivation and Conceptions of

Learning in First-Year Law Students

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Understanding the Role of Epistemological Beliefs in Post-Graduate Studies: Motivation and Conceptions of Learning in First-Year Law Students

by

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Understanding the Role of Epistemological Beliefs in Post-Graduate Studies:

Motivation and Conceptions of Learning in First-Year Law Students

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The complexity of legal education provides an interesting backdrop for examining students' conceptions about learning, including their epistemological beliefs about learning and instruction. Students typically are categorized as more or less sophisticated in their beliefs about the simplicity and certainty of knowledge, the control and speed of learning, and the source of knowledge. Research has described students' epistemological development either as unidimensional and occurring in sequential stages or as multidimensional and represented as a system of dimensions. In the latter view, beliefs are independent, meaning students can be sophisticated in one belief and less sophisticated in another, and, because of the asynchronous nature of beliefs, can simultaneously hold opposing beliefs of the same dimension. Yet, epistemological beliefs researchers do not often consider how students' asynchronous epistemological beliefs, even their less sophisticated ones, are used in productive ways. This study examined these issues with first-year law students, chosen because they represent learners who have

demonstrated prior academic success and yet are now novices in a complex and highly competitive learning environment.

Fifty-eight first-year law students completed surveys of epistemological beliefs (5 dimensions), motivations (intrinsic and extrinsic goal orientations, self-efficacy, and effort management), approaches to learning (surface, deep, and achievement orientations), and need for cognition (students' preference for engaging in complex cognitive tasks).

Results demonstrated that first-year law students varied within the upper half of the total epistemological beliefs scale and ranged from less relativistic to more relativistic. A cluster analysis was performed and resulted in a three-cluster solution with significant multivariate differences between cluster groups broadly described as less, moderate, and more relativistic. Significant differences between cluster groups in their ratings of extrinsic motivation, surface approaches to learning, achievement motivation, and need for cognition were found.

A more detailed understanding of law students' conceptions of their learning experiences was obtained by interviewing three students, one from each of the cluster groups, near the completion of their final year of law school. Interviews supported the idea that while students varied in their epistemological beliefs, they had all successfully made use of their more and less sophisticated beliefs to accomplish their learning goals.

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Chapter 1: Introduction

When law students start their first day of law school they bring more than just heavy case books and thick reading packets to their first class. As they settle into their seats in the classroom with their fellow students who have the same learning resources and who will have similar learning experiences, it is perhaps a bygone conclusion that these law students will not all achieve the same results. First-year law students come to class, each with their own particular sets of knowledge, beliefs, and goals, and conceptions of learning rooted in educational experiences that occurred long before that first law school class. Students' individual conceptions of law school are comprised of expectations for an intense period of learning, their prior knowledge about previous learning experiences, and perhaps their zest for spirited competition as they begin the study of law.

As they listen to the law professor start to teach, the particular character of each law student's law school experience begins to unfold. How will students' prior knowledge, beliefs, and goals interact with and influence their motivation to learn, their selection and use of learning strategies, and their comprehension and integration of law-related information? These questions in themselves may be of interest to anyone directly involved with instructing law students, with designing experiences for students to practice lawyering skills, or with advising students how to adopt more effective learning strategies in order to succeed in law school. However, because law students and the study of the law offer special circumstances of learning that bear on educational and psychological models of motivation and beliefs as these are purported to influence learning, the questions addressed in this dissertation evolved to the following: do

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descriptions of beliefs about knowledge and learning that portray advanced and more successful undergraduates as more sophisticated apply when these same students become newcomers to the study of a field? Does the study of the law, a time-honored tradition with particular practices that juxtapose seemingly contradictory tensions between competition and collaboration, lecture/transmission and problem-solving/analytic thinking, and amount and depth of information, call upon a different mix of motivational strategies and beliefs about learning than have been attributed to success in undergraduate education? Can we learn from looking at the law school experience how students with different conceptions of learning coordinate their cognitive and affective resources to achieve success? The purpose of this dissertation was to contribute to research and conceptualizations that would address questions like these.

In her descriptions of the knowledge and thinking processes associated with various fields of study, Donald (2002) noted that students' intellectual development is disadvantaged by obstacles with which they must deal during their postsecondary study. For one thing, the growing amount of knowledge in various fields strains students' abilities to investigate and to organize thoroughly all the knowledge they are asked to acquire. Also, as students specialize in various sub-areas of a field, they risk developing a fragmented knowledge base that leaves them unable to converse with others even in their own field. In addition, increased participation in higher education means students with more diverse educational backgrounds and varying commitment to learning goals are to be found in today's post-secondary classroom. Students often do not have the opportunity to receive individual attention from instructors. According to Donald, these conditions

lead to "an increased emphasis on content to the detriment of the development of thinking processes. In consequence, many students approach their studies in a superficial manner. . ." (2002, p. xii).

Even students entering law school may have arrived there without having developed a very nuanced or sophisticated understanding of what it means to learn. Thus the areas of the literature that informed my work were the sometimes dissentious field describing learners as representing different epistemological beliefs (Pintrich, 2002), the prolific work on learner motivations (Pintrich, Smith, Garcia, & McKeachie, 1991), and the contributions from international research on approaches to learning (Marton & Säljö, 1984). However, first I will describe the learning environment that provides the backdrop for law students' conceptions of learning.

Legal Education and Student Cognition and Learning

In her book describing how students and professors of various disciplines view the learning processes in their own field, Donald (2002) listed some of the characteristics of the learning context for law students. She noted that law is one of the fields (like engineering) in which the learning context is influenced more "by the discipline in its professional stance rather than by the university" (p. 173). Consequently, she noted that although law professors are mindful of their obligation to direct students to the implicit and explicit skills that inform later practice, for the most part, law schools tend to emphasize case study content over skill in the education of lawyers. As Donald stated, "…the context for law students consists of a discipline that is highly influenced by professional concerns, in which abstraction and pragmatism vie for dominance" (p. 173).

The legal profession has time-honored instructional conventions for educating law students who not only must accumulate a great deal of legal knowledge and understanding but who also must develop the judgment to analyze and apply that knowledge to the ever-changing complexities of the modern judicial process. Interestingly, although there is a long tradition of legal education, there has been a recent surge of interest in improving both the teaching efforts of law professors and the learning efforts of law students. Contributions to these reform efforts would seem to depend on an examination of law students' conceptual experience of law school and the impact that this extraordinary environment has on their decisions and actions for learning. Legal education is an interesting context to examine for many reasons, but those most relevant to this study are (1) the type of learning experience a law school environment engenders in law students, (2) the complex nature of the knowledge that is to be acquired, and (3) the importance of students' conceptions of learning, instruction, and motivation to the achievement of their learning goals.

The learning environment of the classroom and the broader social environment of the law school community is one aspect of the learning context that can have an impact on law students' learning efforts. In current thought about education, good learning is promoted as occurring in socio-constructivist environments wherein students are actively involved in learning processes that allow them to exercise choices in their own interests for learning, be maximally involved in creating meaning related to their own prior knowledge, and work cooperatively in social interactions with other learners in a knowledge building process (Berry & Sahlberg, 1996). However, law students are not

often able to interact in this optimum type of learning environment. For example, typically, many first-year law courses are dominated by traditional professor-delivered lectures that are saturated with case studies. As Donald (2002) noted, many law professors view their educational task as helping students become familiar enough with the substantive rules of law that they can make use of the knowledge in future study or practice. In large first-year classes, students have little opportunity to process purposefully and independently the information during class. Nor do professors often have the opportunity to explore the depths of individual students' prior knowledge, misconceptions, or current understandings. Except for the times when students either choose to interact or are called upon to answer questions, students usually have little direct impact on what is taught in their first-year courses. These kinds of classroom learning conditions would not be featured as exemplary socio-constructivist learning experiences for students.

There are other contextual factors that are part of law students' learning context that may uniquely contribute to their learning endeavors. For example, in many law schools, first-year law students take semester-long or year-long courses that have a single opportunity for assessment, the final examination grade or score. Many law schools rank order their students by these grades and students' experiences are immediately influenced by their performances (e.g., interviews for summer employment are often granted according to a student's grade point average or class ranking). Consequently, students are involved in a learning situation that is filled with external pressures to perform in a highly competitive environment. It is interesting to note that at the same time law students

compete with each other for grades, rankings, and employment, they must often engage in collaborative learning interactions with each other in order to share the work load of generating study notes, analyzing case law, or studying for examinations. While they may need to cooperate with other students to digest quickly the enormous amount of information that they are expected to know and emotionally support each other in the learning context, law students are mindful of the fact that they still must strive to achieve better than their peers in order to obtain desired objectives. These types of divergent contextual issues may seem to be at odds with each other, but in actuality they provide the substantive grist for the priorities students must set and the choices students must make during law school.

The complexity of the legal field also provides an interesting backdrop for examining law students' conceptions about learning. Whatever the various disciplines of first-year law students' previous education, law school requires them to learn to think like a lawyer, solve puzzles, investigate facts, and perform legal analyses using syllogism and analogy. Legal thought is validated by intellectual processes that use human authority, ever-changing tradition (legal precedent), legal evidence, logic, and persuasion (Donald, 2002). To facilitate the understanding and assimilation of the complexity of legal skills, law professors often rely on specific examples or cases that encapsulate the more abstract principles and legal issues that they want to examine. Students can then take advantage of the framework that is in place to structure their learning of knowledge that has largely been codified in statutes and precedents. First-year law students' abilities to be aware of their own thinking processes, learning needs, and the requirements of the law school

educational environment largely influence their ability successfully to navigate and manage the various learning tasks of law school.

Finally, there are several characteristics that make first-year law students an especially interesting group to examine for learning conceptions. For one thing, these students have already had several (if not many) successful learning experiences that have enabled them to complete their undergraduate education and then to be admitted into a selective law school program. Therefore, it may be assumed that as students who have experienced academic success, first-year law students have some ability to be self-directed in their own learning pursuits (e.g., Pintrich, 1989). This self-directedness includes their metacognitive capability to select, plan, and manage their learning activities in ways that are appropriate to the task. Additionally, many successful students are also known to use strategies, such as elaboration or self-monitoring (Pintrich, 1989), that allow for deeper processing of information in ways that expand their understanding. First-year law students may be expected to be almost ideal students: self-motivated, self-directed, and focused on learning activities that allow for the development of meaningful understanding. However, even these experienced students may find that they have to acquire new strategies to cope with their learning environment and accomplish their learning tasks in ways that allow them to achieve their goals for attending law school. An examination of this group of students may help educators understand how their conceptions of learning contribute to or detract from their law school learning experiences. Data from such an interesting group of students learning in a time-honored and prescribed instructional context may inform a theoretical understanding of constructs

that relate to epistemological beliefs and motivation. The sections that follow introduce the research on epistemological beliefs about learning and instruction and the work on assumptions about studying and motivations for learning.

Epistemological Beliefs

One body of work has posited that students' beliefs about the nature of knowledge and learning influences what actions they take as they learn. This area of epistemological development originated from Perry's (1970) research on the intellectual development of male college students. Perry described sequential stages of students' changes in their views of knowledge. These and other developmental models of epistemological growth (Belenky et al, 1986; Baxter Magdola, 1992, Kitchener & King, 1981) expanded to cognitive models of epistemological beliefs. More recently, attention and research has been directed toward the study of students' epistemological beliefs as multidimensional constructs of beliefs about the structure, certainty, source, speed, and control of knowledge (Hofer & Pintrich, 1997; Schommer, 1994b). Such research has found that epistemological beliefs help explain how, and how effectively students process information, interpret knowledge, and monitor their learning. Students with more mature beliefs are said to be more sophisticated about knowledge acquisition and learning. Epistemologically more sophisticated students comprehend information better, are more able to handle complex problems, and are more likely to use strategies that lead to higher academic achievement than less sophisticated students (Schommer, 1994).

Researchers often present epistemological beliefs results in ways that emphasize classifying students as either sophisticated or naïve. An assumption can be made based on

terms such as *sophisticated* and *naïve* that only the students on the sophisticated end of the beliefs scales are acting in ways that are valued educationally. Those who study epistemological beliefs, however, have rarely considered how students who have less sophisticated beliefs successfully navigate their learning environment. This is related to one of the major issues of epistemological beliefs research that has to do with the independent nature of belief systems. Schommer's (1990; 1994) early work confirmed that students may be sophisticated in some beliefs and still be naïve (less sophisticated) in other beliefs. However, as Schommer-Aikins (2002) recently asserted, epistemological beliefs are better represented as degrees of beliefs about knowledge and instruction that students hold within the *same* dimension. Schommer-Aikins explained that "...among epistemological belief researchers, epistemological maturity was presumed to be indicated by learners' propensity to believe that knowledge is tentative and complex and that learning is gradual and controllable.... As an example of asynchrony, at some point in time an individual may strongly believe in complex knowledge (considered a more mature belief) and simultaneously strongly believe in unchanging knowledge (considered a less mature belief)" (Schommer-Aikins, 2002, p. 106). Schommer cautioned against assuming that learners' beliefs will mature in synchrony and instead urged that students' development should be considered on an individual basis.

Additionally, by using the term less sophisticated, researchers may be overlooking some processes of beliefs that are truly important, propagating a view of these students as needing remediation in order to progress along the beliefs continuum and adopt more productive academic beliefs. As Schommer-Aikins (2002) noted, if students' beliefs

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about learning and instruction are independent and do not necessarily develop at the same rate, then even the less sophisticated epistemological beliefs may serve a useful purpose for students. For example, the ability simultaneously to hold opposing beliefs may be especially useful in new learning contexts in which students are very dependent upon the guidance and explanations of content that come from professors, textbooks, and other professional sources. Students who believe that experts and teachers are the font of knowledge and at the same time believe that knowledge can be constructed in a collaborative manner through discussions may have the ability strategically to apply their epistemological beliefs in response to their learning situation in ways that allow them to use familiar processes to achieve their learning goals. Their beliefs might lead students to build meaningful understandings from attending carefully to information from a professor and at the same time garner the collective resources of other students by studying together. Along with understanding how students are able to draw on different aspects of their belief system to meet the demands of a learning situation or need, it also is important to examine how students who are in various degrees of epistemological beliefs synchrony respond to different learning environments. For example, are asynchronous students at more or less advantage in an ill-structured learning environment than students who are characterized as clearly sophisticated or naive in their epistemological beliefs?

Epistemological beliefs researchers have also been concerned with whether students' epistemological beliefs generalize across learning situations and subjects or whether epistemological beliefs are specific to a particular discipline or field of study. Much of the early research in epistemological beliefs was based upon the assumption that if

epistemological beliefs are domain general, then students can be expected to hold the same beliefs across learning situations and disciplines (Schommer-Aikins, Duell, & Baker, 2003). Research about students' epistemological beliefs has been conducted in various disciplines including science, mathematics, social studies, and engineering (Schommer & Walker, 1995). Comparative studies of students' epistemological beliefs in different fields have yielded a general understanding that students in different disciplines differ in their epistemological beliefs. For example, Jehng, Johnson, and Anderson (1993) found that college humanities, arts, and science majors had more sophisticated beliefs than engineering and business students. Paulsen and Wells (1998) attempted to narrow the essential quality of the domain differences so that accurate comparisons could be made. They found differences among students' epistemological beliefs in hard or soft disciplines and pure or applied disciplines. According to Schommer-Aikins, Duell, and Barker (2003), the ill-structured nature of the domain is an important distinction that needs to be made when comparing epistemological beliefs across disciplines. Their research indicated that epistemological beliefs are domain general, but students have difficulty applying their usual strategies and epistemological beliefs in fields that are ill-structured.

Examinations of epistemological beliefs across disciplines invariably led to discussions of whether the disciplines themselves either attract students who hold similar epistemological stances or whether they nurture a specific epistemological viewpoint in students due to the cognitive requirements, proofs, or questions that compose the typical problems in the field. Although research is needed to examine students across various

disciplines, even more information is needed about how students within a single discipline cope with a learning environment that does not necessarily favor the epistemological beliefs about learning and instruction that are usually championed in the literature.

One of the most pervasive messages of research in epistemological beliefs literature is that instructional remedies should be used to identify and help students with less mature beliefs change these beliefs. These issues (the independent nature of beliefs and the domain generality of beliefs) highlight the importance of understanding how epistemological beliefs change over time and how epistemological change processes work within students in a particular learning context. Although research indicates that epistemological belief change is a developmentally gradual process (Perry, 1970; Kitchener & King, 1981), other research supports the idea that epistemological beliefs are reflections of students' exposure to the ideas and concepts of the whole course of their education, a more contextual perspective of epistemological beliefs (Pintrich, 2002). Students' epistemological beliefs are related to, among other things, their previous school learning experiences and are influenced by interactions with others in the learning environment (Jehng, Johnson, & Anderson 1993; Paulsen & Wells, 1998). Beliefs do not change just because of logical necessity, and, as previously noted, it is possible for two logically unrelated beliefs to be held at the same time (Nespor, 1987). To a small extent this is evidenced by the difficulty some experienced students have relinquishing cherished study or learning habits. Allegiance to accepted, well-used methods of learning based on old assumptions may persist because it is easier to use procedures tried out over

many hours of classroom experience than to trust a new approach. It is also more difficult

to implement procedures based on newer, less stable, beliefs (Pajares, 1992), such as

those law students must develop when they encounter, for instance, the realization that it

takes more time than they anticipated to learn when and how to apply the concepts and

principles advanced in their courses.

Having presented these admittedly major issues in the field of epistemological beliefs,

I must now delimit considerably the scope of the present study as it represents only the

beginning of investigating these issues. This study extends knowledge about the

epistemological beliefs of academically successful students who are yet novices in an ill-

structured learning environment. Furthermore, this study of first-year law students

provides a description of students' conceptions and explores how students with different

epistemological beliefs in this environment respond in appreciably detectable ways. The

overarching goal is to determine if epistemological beliefs truly make a difference in

what law school students are able to achieve academically or practically in preparation

for their profession.

Motivation and Approaches to Learning

Other educational research has examined relationships between students'

motivational beliefs and their achievement (Pintrich, 1989) and students' approaches to

their learning tasks (Marton & Säljö, 1984). Students' reasons for engaging in learning

tasks and their decisions during learning tasks are influenced by their beliefs about their

actions for acquiring knowledge and organizing information in useful ways.

Epistemological beliefs can augment or limit the knowledge, motivational beliefs, and

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learning strategies that students have ready access to in any given learning situation (Paulsen & Wells, 1998). For indeed, the cognitive learning strategies that first-year law students select may depend on their unique patterns of learner characteristics (e.g., expectations for success, personal preferences for thinking deeply), their personal beliefs about the nature of knowledge and learning (e.g., that teachers are the sole authority, that learning should happen quickly), and their approaches to learning (e.g., using simple memorization strategies or strategies that facilitate deeper learning).

Academic motivation is often viewed as a complex construct that integrates components such as students' goals for learning, efforts, intentions, and self-perceptions for their ability to achieve with their cognitive processes for learning (Pintrich & Garcia, 1993). Students vary in their reasons for engaging in academic tasks, in their expectations for learning, and in their management of effort to persist with difficult or mundane learning tasks. This is true even of high-achieving students who demonstrate that there is more than one path to success.

Research on approaches to learning is directed towards describing the actions and processes students take as they go about a learning task (Marton & Säljo, 1984). These researchers have generally noted that students with different intentions for learning process information in either superficial (surface) or deliberate (deep) ways that influence their learning and understanding of the information. Although epistemological beliefs about learning and knowledge and assumptions of learning are cognitive processes that influence learning, few researchers have examined how beliefs and approaches are related or how they influence and are influenced by other learning components such as

motivations and goals, and contextual factors (e.g., Buel, 2003). This study examines these issues with law students.

Although there are several studies of law students' reflections on their personal experiences in law school or perspectives on classroom practices that hinder or enhance learning (Hess, 1997), little research has been conducted specifically to investigate law students' beliefs about learning and instruction and their on-going efforts to sustain or modify their beliefs about learning during their years in law school. First-year law students are interesting to examine because of the complex nature of the knowledge that is to be acquired, the impact of the social context upon learning, and the importance of students' individual cognitive skills and efforts upon their academic success.

The interplay of all of these processes was the focus of this study. This dissertation sought to make in-roads in gaining an understanding of the interconnections among beliefs, approaches to learning, and motivation of law students in their first year of law school. Additionally, understanding how law students develop and refine their conceptions for learning as they become more experienced in dealing with the law school environment has been a goal of this study.

Purpose of this Study

The purpose of this study was to examine first year law students' conceptual experience of law school. Students' conceptual experience of law school refers to their beliefs about learning and knowledge, their assumptions about ways to approach their studies, and their motivations and goals for attending law school and eventually entering the legal profession. This study was undertaken to determine how first year law-students'

academic efforts were influenced by their beliefs about learning and instruction, their strategies for trying to accomplish their academic tasks, and their motivations and goals for learning.

The questions that guided this study were the following:

(1) As advanced students, do first-year law students show a range of epistemological beliefs that compares to traditional age students as reported in previously published research?

(2) Is there a relationship between first-year law students' epistemological beliefs, their assumptions about learning, and their motivations and goals?

(3) How do law students make sense of their conceptions about their learning experiences in law school?

Chapter 2: Literature Review

"Every individual has an implicit model or conceptualization of knowledge and learning that determines the way the person thinks about the instructional process" (Shuell, 1996, p. 727). Although instructors and students may seem to have a common purpose, that of students' acquisition and eventual application of knowledge, getting to the end product of a learning interaction is a multifaceted proposition. Law students may be particularly interesting in this respect. While they have experienced academic success prior to law school, the domain of knowledge they aspire to attain is distinctive due to its cognitive complexity and learning requirements. For this reason, students' past approaches to learning may need to be altered. Additionally, when students are faced with such complexity, it is not unusual for them to rely on the personal theories and implicit understandings about how to learn that have led them to academic success in the past. Thus, their beliefs and assumptions about knowledge and how to acquire knowledge have a mediating effect upon what they learn in this new environment. First-year law students' learning-related beliefs influence their learning choices and, in turn, could impact their academic performance. As Shuell (1996) explained, "the manner in which the student perceives, interprets, and processes information from the various things that happened during [a class] (and at other times) is the primary determiner of the educational outcomes acquired by students" (p. 727).

In the following sections, I provide information about the unique context of studying law. I will then review the existing literature on students' epistemological beliefs about knowledge and instruction before moving to a review of the literature on motivation and

self-regulatory strategies. In a third section, I will review studies on conceptions of learning that combine epistemological beliefs and motivation. In the last section, I will conclude with a synthesis of how these processes interact with students' learning endeavors.

The Law School Context and Students' Learning

Learning is embedded in a rich, complex environment that provides the context for activating students' cognitive processes that affect their decisions, actions, and motivations for learning. Although this study is primarily about students' conceptions – their thought structures and how their beliefs, motivations, and orientations for learning impact what they do to learn – it is critical to situate such a study by considering particular factors in a law school learning environment that may affect first-year law students' conceptions for learning. Anderson (1989) identified several elements of an instructional environment that impact student learning. These include students' academic goals (Schutz, 1991), their perceptions of their learning role and of their teacher's instructional role, the nature of the learning task, and the overall social climate. Similar to students in other professions, first-year law students potentially have many different contextual influences upon their learning efforts. The following sections will discuss features of the law school learning environment that can influence students' conceptions for learning, such as the instructional methods used in law school, the quantity and type of information students typically have to manage in law school, the kind of cognitive tasks that law students have to perform, and the complexity of the information they have to learn.

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Students' Responses to the Instructional Environment

One environmental impact upon law students' learning is the method of instruction that students receive in their introductory law courses. First-year law school instruction is often one that emphasizes teacher-centered, rather than student-centered instructional methods (Campbell, 1997). Student-centered instruction puts the students' understanding, or meaning-making efforts at the focal point for learning. Students use their accumulation of beliefs, motives, intentions, and previous learning to create meaning, acquire knowledge, and apply understanding to new situations. For instructors, a student-centered emphasis means that they are just as concerned about the conceptions and learning activities of their students as they are about lesson preparation and methodology.

By contrast, law school is often teacher-centered. Conventional first-year law school education gives a central role to instruction using the casebook method with in-class discussions of appellate court opinions. Many law professors see their primary responsibility as making this body of knowledge accessible to their students (Donald, 2002). Students learn to use analogies based upon previously decided cases as examples for developing legal reasoning abilities. As Nathanson (1997) pointed out, this emphasis on learning the rules of substantive law is not often connected to students' prior experience with law-related topics or with their expectations for developing the skills that lawyers use to help people.

In a study of law students' perceptions of classroom experiences that enhanced or hindered their learning in law school, Hess (1997) reported that students are less responsive to teacher-centered instructional environments. Students reported they often

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did not feel they were engaged in a collaborative process with their professors to develop course objectives, learn information that met their goals for law school, or learn information that was connected to their real life experiences. On the other hand, students reported that instructional activities that enhanced their learning efforts included student-centered methods that helped them understand abstract concepts or solve problems derived from real world situations (Campbell, 1997; Hess, 1997).

Although law professors could purposefully try to cultivate a student-centered learning environment that, for one thing, made use of students' prior knowledge about law subjects, the demands of legal education often preclude them from connecting information to individual students. Nevertheless, students have a tendency to respond to new learning environments by making their own connections with prior knowledge. For example, students have prior knowledge about topics that comprise law school courses, such as wills and estate, property, or contracts, and this prior knowledge influences the connections they make to new information or concepts they are learning (Nathanson, 1997). Thus, one possible effect of the teacher-centered instructional methods upon first-year law students' conceptions for learning may be that students may fall back on their own prior experience as learners in other contexts to help themselves deal with certain aspects of this new experience (Holt-Reynolds, 1992).

Interestingly, Bond and Le Brun (1996) recently noted that law school faculty are paying more attention to the shift in focus from a knowledge delivery to a student-centered approach to learning that has occurred in higher education. They heralded the need for law schools to provide a learning context in which students "construct their own

knowledge frameworks" and use these frameworks to further their learning and achievement in law school (Bond & Le Brun, 1996, p. 28). Whatever instructional approaches are used in law school, students will respond to the instructional environment by structuring their thoughts and conceptions in ways that are most relevant to them.

Students' Responses to Instructional Methods

Law students' perceptions of their learning role and the relation of that role to their professors' instructional choices are other important features of the learning context. Black (1996) reported that law students' perceptions of teaching methods affected their experience of the learning process itself. Black selected an introductory law course that was conducted using four teaching methods that included a formal lecture in combination with either a tutoring session or an interactive workshop, an independent research assignment combined with a discussion session, or a skill-based seminar. Law students were interviewed about the effectiveness of the teaching methods and the influence that the various methods had upon their learning process. Black's analysis of student interviews showed that most students valued the lecture method combined with an interactive workshop. They appreciated the information they received from the lectures and enjoyed the workshop interactions that included role-playing and games. The lectures gave them needed information and the interactive workshops allowed them to practice and clarify their understanding of the content.

Most of the students in Black's (1996) study reported that teaching methods influenced, either negatively or positively, the way they went about learning course information and their perceptions of the instructor. Some students found, for example,

that formal lectures limited them to take in the information that was given and then to use strategies that focus on recording, absorbing, and memorizing the information given. The implied message from a lecture method was that the information given in lecture was authoritative and important and to be given utmost attention by students. On the other hand, some students found the structure and directness of the lecture helpful for organization and guidance for knowing what was important to study. Similarly, students spoke of the independent research in combination with a discussion session as a method that allowed them to have more control over the content and skills they needed to learn or as a method that was too open-ended and unstructured for them to feel secure in the direction they needed to take for studying. Another study that examined law students' learning processes according to the type of course they were taking found that students used higher-order strategies, such as obtaining knowledge from outside the course, when the course was more directly connected to their own experiences and more relevant to their interests (Vermetten, Lodewijks, & Vermunt, 1999). These students also were more engaged and self-directed in courses in which the professor included information about methods for completing tasks or provided suggestions to guide their study decisions.

Thus, these studies indicate the importance of the instructional environment on students' experiences and their conceptions of learning. However, an additional influence upon learning are those embedded within the type of cognitive activities students use in law school. These are discussed in the next session.

Cognitive Tasks

The cognitive tasks students undertake to interact with information is another feature of the learning environment that influences students' conceptions for learning. For example, Donald (2002) compared the thinking and validation processes of law with other disciplines such as the sciences and humanities. The thinking task in law is to learn to think like a lawyer (or as Nathanson (1997) pointed out, to think more like an appeals judge who reviews all sides of the relevant arguments in a case) through processes such as problem-solving, factual investigation, and legal analysis. Donald found that in structured disciplines, such as physics or biology, validation occurs by the use of experimental methods whereby evidence is connected to theory in systematic ways. In less structured disciplines, such as education or literature, validation is derived from the judgments or critiques of others' ideas or work.

Validation in law stems from human authority, tradition, legal evidence and proof, witnesses, and ultimately, the logic and persuasion that it takes to convince a judge or jury to accept a legal argument (Donald, 2002). All of this takes place in the milieu of legal doctrine and precedent. Whatever disciplines law students came from as undergraduate students, it is important that they develop the knowledge and skills that allow them to reason like a lawyer, using the appropriate validation procedures as needed to do their work. As such, first-year law students must not only learn new information but must also learn the appropriate methods to justify and support their reasoning.

According to Donald (2002), in every discipline, students who aspire to become proficient in that discipline must accomplish three essential learning tasks: they must

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have an ability to identify the context, state their assumptions, and change their perspectives. Identifying the context is the process of examining a situation for the essential elements in a problem, deriving relevant information from the setting, and recognizing what steps are appropriate. Stating assumptions requires consideration of potential bias or viewpoints that might frame thinking and making them an explicit part of the learning process. Finally, by changing perspective, students are more able critically to consider a problem from a variety of perspectives that allow them to build meaning and understanding. As law students are learning legal knowledge, skills, and values they are challenged to place this learning into an organizing framework that allows them to access all the relevant parts of information they will need to conduct their work. Developing that framework, however, in itself is not an easy task as the next section indicates.

Complexity of Law-Related Information

Students are also influenced by the complexity of the information they work with in their instructional environment. This is of special concern to first-year law students and the decisions they make about their learning. Spiro, Feltovich, and Coulson (1996) studied the cognitive demands of students who learn in ill-structured domains. Fields such as medicine or law are said to be ill-structured because the individual cases used as examples or instances for teaching are unique in their complexity and have many extensions and connections to diverse yet related areas. Even case examples from the same content area have a great deal of variability in structure and content. In ill-structured fields of study, students must be aware that exemplary explanations contain

various components that may or may not be relevant in every real-world situation. Standard rules are not always applicable in all situations and students need to develop implicit knowledge that helps them recognize and attend to characteristics of the situation that change the decisions they must make. Spiro, Feltovich, and Coulson (1996) found that students who had the most difficulty with ill-structured learning situations tended to oversimplify the complexity and did not attend to all of the relevant information. On the other hand, they noted that students who performed well with complex learning scenarios (e.g., cases) developed cognitive flexibility in their approaches of attending to, and using, relevant information for adaptive problem-solving.

Although theoretical legal issues provide students an organizing framework for understanding law (Keyes & Orr, 1996), the study of law is an ill-structured domain. Law is in a constant state of flux due to the changes in legislation, rulings, or societal norms that affect laws (Donald, 2002). Additionally, students have to learn to recognize the needs in a particular case to which they should respond. To be successful, law students must develop cognitive flexibility for adaptive problem-solving. However, students' personal beliefs about the nature of knowledge and learning may interfere with their learning of the complex, ill-structured domain of practicing law. Indeed, Spiro, Feltovich, and Coulson's (1996) research has suggested that some students hold "underlying beliefs about the nature of knowledge and learning that predispose" them toward or "guard them against" certain ways of acquiring (in this case) advance, complex knowledge (p. 551). They reasoned that these underlying beliefs affect students' subsequent behavior, such that they may be less likely to engage in or sustain the kind of cognitive activities

necessary for successful learning. "These kinds of beliefs are qualitative conceptions about the nature of knowledge and represent personal, non-scientific theories about knowledge" (Neber & Schommer-Aikins, 2002, p. 60).

Bond and LeBrun (1996) defined the term *conception* as "the meaning that we place on the relation between a person and a phenomenon in the world – that person's experience of a particular phenomenon. If the phenomenon is law, then one's conception of law is the meaning that one gives or understanding that one has of that experience" (Bond & Le Brun, 1996, p. 5). For first-year law students who are novices to the study of law, the particular phenomenon that comprises their conceptions may be the meaning they give to the experience of law school itself. Their conceptions, then, would understandably center on the experience of being a learner in the complex learning environment of law school. One type of student conceptions are their beliefs about the processes of knowing and the nature of knowledge of influence the way they approach the complex learning demands in law school. The following section describes research that has been conducted about the nature of beliefs.

The Nature of Students' Beliefs About Learning

Some researchers (e.g., Schraw, 2001) begin their discussion about students' beliefs by examining the differences between knowledge and beliefs. Historically, philosophical studies of epistemology (the study of knowledge) were rooted in extensive debates about the nature of truth. Beliefs, defined as faith claims about truth, were contrasted with knowledge, defined as justified, true beliefs (Schraw, 2001). Steup (1996) for example, identified three conditions for knowledge: that a person believes a proposition, has

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justifying evidence for that belief, and does not possess any other proposition that factually defeats the evidence for that belief. By contrast, constructivist views of learning and thinking position beliefs as a component of knowledge. Learning researchers consider knowledge as the information, skills, beliefs and memories that comprise a person's individual storehouse of understanding. Knowledge in this sense is not necessarily objectively verified knowledge (Alexander, Schallert, & Hare, 1991). Cognitive learning researchers, thus, have considered beliefs and knowledge to be comparable cognitive structures that serve as organizing frameworks replete with interconnections and relationships with other cognitive structures (e.g., schemas, Schallert, 2002). These, in turn, influence knowledge structures as well as other belief structures (e.g., beliefs about self, Rokeach, 1968).

For purposes of this study, beliefs are "repertories of understanding" (Munby, 1982) that refer to the implicit theories that pervade and influence students' achievement related thoughts and behaviors, while at the same time being influenced by those two processes. A review of the literature about beliefs is admittedly an excursion into several divergent lines of research about the psychological context in which students plan, decide, and act. Beliefs research related to education include topics such as students' perspectives on learning, students' conceptions of learning or studying, and students' implicit theories for learning. For example, Rando and Menges (1991) defined implicit theories as "submerged rationales about events in the world and about [one's] behavior in the world" (p. 7). They conceptualized implicit (or informal) theories as existing beyond the awareness of the individual and distinct from the knowledge structures that represent

formal theories. The assumptions that students make about different aspects of a learning situation help them to cope consistently with an ever-changing environment. The tacit nature of these informal theories or assumptions allows students to react quickly without having to examine all of the contingencies present in an educational situation. Rando and Menges (1991) suggested that students' implicit theories may be inaccurate because they are self-protective, created without awareness rather than purposefully, and automatically accepted as part of the larger ideological system associated with an academic institution or culture.

The overarching commonality among these different lines of research about beliefs is the acknowledgement that this kind of cognitive structure is important for understanding students' thought processes and learning. In contrast to other kinds of knowledge structures, belief structures are likely to be more specific to individuals, are often not examined or articulated, and are used as unexamined guides for learning (Rando & Menges, 1991). Nespor (1987) was foundational in explicating the differences between beliefs and knowledge concepts. The following section describes these characteristics.

The Structural Features of Beliefs

Studying beliefs is useful because it allows consideration of the underlying cognitive structures that affect learning behavior. When beliefs are made salient in response to classroom events or purposeful reflection, the underlying belief structures may be examined. Nespor (1997) identified six characteristics that are specific to an individual's beliefs. These belief characteristics may be helpful for understanding how, for example,

impediments in thinking preclude students from readily accepting and acting upon

knowledge they receive in class.

Existential presumptions. The first characteristic of beliefs that Nespor described was

that of existential presumptions, an abstract quality that Pajares (1992) called the

"incontrovertible, personal truths everyone holds" (p. 309). These may best be

understood as a person's core beliefs. Individuals rely upon these core beliefs and

personal truths to manage the uncertainties present in situations. Students may find that

these personal truths facilitate learning when their beliefs are not challenged. In other

contexts in which their personal truths are challenged, their beliefs may block cognitive

processing. For example, research has shown that students' beliefs can interfere with

learning new science concepts (Bell & Linn, 2002) that contradict intuitive beliefs. A

conflicting belief may prevent students from understanding all the nuances of a new

concept or it may hinder them from making the cognitive effort to reconcile the new

information with their previous understanding (Weinstein & Mayer, 1986). Students may

therefore find that their personal beliefs facilitate or interfere with their motivations for

engaging in learning tasks.

Idealized realities. Nespor's (1987) second characterizing quality of beliefs is that of

idealized realities. Individuals often have strong notions about how things ought to be.

For example, some students may believe that learning should occur quickly, otherwise it

will not occur at all (Schommer, 1990). If such idealized versions of realities go

unchallenged, they can be a primary influence upon students' thinking about classroom

goals and tasks. For example, students who believe that learning should occur quickly

may be inclined to lose interest or motivation if they encounter challenges.

Affective and evaluative quality. The third characteristic of beliefs concerns the

affective and evaluative properties that serve as a regulatory function. Pajares (1992)

noted that beliefs interact with other cognitive systems such as attitudes and values. For

students, this regulatory function can influence ways they learn and interact with

knowledge. For example, some students may believe they must have the highest grades in

a class (an achievement orientation). If students identify with being the best and the

brightest student, they will have strong emotional reactions if they encounter a situation

in which they are not in first place, and will have a strong accompanying and negative

self-evaluation. Students in this situation could disengage from the academic task. On the

other hand, if students have a strong work ethic, believing that they should always try

their hardest, this belief may serve as a supportive regulatory function to facilitate their

academic engagement.

Episodic memory. Nespor's fourth characteristic highlights the way in which beliefs

are accumulated and stored in memory compared to knowledge concepts. While

knowledge is semantically stored, beliefs are accumulated based upon the personal

experiences, real life events, and cultural or institutional folklore that are stored in

episodic memory. Although episodic memory is usually short in duration and highly

susceptible to reconstruction, teachers and students rely upon specific classroom episodes

for teaching and learning (Martin, 1993). Students may remember, for example, specific

situations in which they learned to calculate a mathematics problem a certain way and continue to use the same procedure even when it is no longer useful.

Nonconsensuality. Nespor referred to nonconsensuality as the fifth characteristic of beliefs. In contrast to knowledge systems that accumulate and change according to agreed upon rules of evidence, belief systems are composed of tentative propositions that could be considered debatable to those who do not share similar beliefs. Beliefs, therefore, are less open to the evaluation or critical examination that people apply to knowledge concepts (Pajares, 1992). Non-consensus is associated with the four previously mentioned belief characteristics: assumptions about personal truths, idealized realities, regulatory function, and personally meaningful episodic memories. As such, belief systems are less malleable than knowledge systems and are therefore difficult to change.

Unboundedness. Nespor's final belief characteristic, unboundedness, also is a characteristic of an individual's entire belief system. Belief systems are loosely bound, highly variable, and multiply-linked to memory and knowledge systems. Not only is it difficult to relate real world events to ascertain the source of an individual's beliefs because their beliefs are interconnected to personal, episodic, and emotional experiences, it is also difficult to predict how a person's beliefs will extend to their behavior across multiple situations. In other words, as Nespor stated, "people read belief-based meanings into situations where others would not see their relevance" (Nespor, 1992, p. 321).

Other features. While Nespor concentrated on describing the structural qualities of beliefs in contrast to knowledge, other researchers described other key aspects of the nature of beliefs. For example, Pratt (1992) found that beliefs can be classified in terms

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of their clarity, confidence, and centrality. The clarity of beliefs was demonstrated by whether beliefs were easily explained in a clear and coherent manner or if they were vague and implicit. The confidence of beliefs had to do with whether beliefs were held tentatively or considered incontestable. The centrality of beliefs is the quality of beliefs that made them marginal or dominant to thoughts about learning and teaching.

Rokeach (1968) argued that beliefs vary in intensity and power along a central-peripheral dimension. The more central a belief, the more important it is, and the more resistant it is to change. Conversely, peripheral beliefs are thought to be easier to change. Beliefs about self and identity are more central, as are beliefs that develop from direct, personal experiences (derived beliefs) rather than vicarious experiences (underived beliefs). Beliefs shared with others are also more central. Rokeach stated that the connectedness of beliefs is another important aspect of the belief structure. Contradictory beliefs may exist within the same person in different parts of a network of beliefs. Beliefs that are functionally connected, more central to, or in communication with other beliefs are more able to influence other beliefs (Rokeach, 1968). The intensity of beliefs is affected by other cognitive structures such as attitudes, values, and emotions that provide increased influence upon beliefs.

Considering the structural qualities of beliefs furthers an understanding about the ways beliefs affect and are affected by other processes. For example, while Nespor emphasized the unchangeability of beliefs (as compared to knowledge that is more easily changeable), researchers who have examined the nature of beliefs allow room for some flexibility within the belief structure depending upon, for instance, the clarity or centrality

of the beliefs. These concepts help explain why a belief can have the characteristic of being a stable and inflexible aspect of a student's conceptions and yet be somewhat responsive to the context of the learning situation and instructional environment. These features of beliefs are important structures for understanding student learning actions and achievement. The next section describes theory and research about students' beliefs that are specifically related to the learning process.

Epistemological Beliefs About Learning

The study of epistemological beliefs places an emphasis on the individual's vantage point or personal stance about knowledge. Typically, researchers have used the term *epistemological beliefs* to refer to students' or teachers' beliefs about the nature of knowledge and learning (Jehng, Johnson, & Anderson, 1993). Hofer and Pintrich (1997) acknowledged that beliefs about learning and teaching are probably interrelated with personal theories about how knowledge is acquired, and used the term *personal epistemology* in their discussion of the construct.

Pintrich's (2002) suggestion of three positions for thinking about the number and independence of epistemological beliefs is useful for reviewing the literature in this area. First, a cognitive-developmental perspective considers epistemological beliefs and development as unidimensional with distinctions in the position or level of achievement. Maturation generally occurs in a mechanistic manner with students proceeding in a stage-like sequence as they change in epistemological thought. Second, a cognitive perspective of epistemological beliefs considers beliefs in a multiplistic manner within a small number of independent dimensions of beliefs. According to this theoretical stance,

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students' upbringing and experience in education contribute to their growth in epistemological stance. Third, a contextualist perspective of epistemological beliefs emphasizes an unspecified number of independent beliefs that individuals draw from as resources to respond to specific demands present in the learning environment. The remainder of this section reviews some of the theoretical bases for the study of epistemological beliefs using these perspectives.

The cognitive-developmentalist perspective of epistemological beliefs research. The roots of empirical investigations about epistemological beliefs are often traced to William Perry (1970) and his interest in the cognitive developmental structure of knowledge. Perry's studies of the intellectual development of male undergraduate students at Harvard University led him to identify recognizable patterns of college students' intellectual change and growth over time. Perry found that at an early stage of intellectual development students viewed knowledge in a dualistic manner in which information was perceived as either "right" or "wrong." Students in the dualism stage also tended to perceive instructors as authority figures who would provide the answers to students. Perry noted that as students progressed in their education, they entered the multiplicity stage in which they were able to appreciate an intellectual world in which multiple points of views could exist with expert proponents supporting each viewpoint. Additionally, at the multiplicity stage, students typically thought that one point of view was as good as any other. Later on in the process of knowledge acquisition, students arrived at the relativism stage. At this stage, they viewed knowledge as correct depending upon various elements within a particular context. Finally, students entered the commitment stage

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during which they recognized that, although there were multiple possibilities, they needed to make a strong commitment to certain perspectives or ideas. They also were able to acknowledge that this commitment could be amended.

Interestingly, as students progressed through Perry's (1970) stages with increasing complexity of thought, they also experienced changes in their conceptions of knowledge, their role as learners, and their expectations of instructors. Perry's research emphasized that as college students proceed through their studies, they often progress through cognitive activities that allowed them to leave behind less effective ways of thinking. These students had an ability to "give up more primitive strategies as new ones develop[ed]" (Braebeck, 1984, p. 13).

Because Perry's work was solely focused on male students in an elite undergraduate educational experience, it was inevitable that others would see the need to expand on Perry's work. For example, Belenky, Clinchy, Goldberger, & Tarule's (1986) examined sequential patterns of epistemological development in women's reflections about knowledge and learning. Baxter Magolda (1992) studied the commonsensical theories individuals of both genders held about knowing. Interest eventually shifted to the cognitive processes of thinking and reasoning and the assumptions people make about knowledge, how people come to know, and the weight of certainty they place on what they know (Kitchner & King, 1990; Duell & Schommer-Aikens, 2000). Kitchner and King's reflective judgment model consisted of a series of stages that individuals progress through in their beliefs about knowledge from an absolutist, objective view to a more subjective, idiosyncratic view of knowledge. In the final stage, knowledge claims are

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examined and deemed reasonable based on supported facts and information (King &
Kitchner, 1994).

The study of epistemological beliefs research moved beyond the justification of
knowledge and student reasoning to focus on individual epistemological beliefs relative
to their learning actions. For example, Ryan's (1984) research on students'
epistemological beliefs and text comprehension demonstrated that students with different
beliefs used different information processing strategies to achieve their learning
objectives. In his studies, he found that students categorized as dualists (i.e., those who
defined knowledge as right or wrong) tended to use recognition or memorization
strategies to comprehend information while relativists (i.e., those who looked at a variety
of sources for knowledge) searched for strategies that facilitated deeper learning.

Wangerin (1988) examined legal education in light of Perry's sequential stage model
of development and although he qualified his discussion by acknowledging that student
growth through the stages is usually gradual, he couched his anecdotal examples of law
student learning and recommendations for instructional practice in terms of helping
students move towards more relativistic thinking. Wangerin's review of legal education
and supporting research studies did not extend beyond this developmental perspective of
students' cognitive growth to consider that epistemological thinking may be comprised of
different components that may or may not develop in a sequential manner. Promoting a
developmentalist view of epistemological thinking may not allow for adequate
consideration of what strategies and resources law students may be able to call upon to
bolster their learning and their epistemological thinking. Epistemological beliefs

researchers in the cognitive and contextual perspectives centered their investigations on these issues.

The cognitive perspective of epistemological beliefs research. Schommer (1990, 1994) considered how previous researchers' emphasis on a unidimensional description of belief stages limited the understanding of how beliefs impacted learning. Schommer treated students' epistemological beliefs as a belief system that is "composed of several more or less independent dimensions" (1990, p. 498), bringing in a multidimensional approach to describe each dimension as a continuum of how students' beliefs may vary. Schommer first used five epistemological belief dimensions about the nature of knowledge and learning as expressed from the perspective of the less sophisticated to the more sophisticated beliefs in (1) the certainty of knowledge (i.e., learning ability is fixed and not amenable to change, or growth and improvement in learning is possible) (e.g., Dweck & Leggett, 1988); (2) quick learning (i.e., learning occurs quickly or not at all, or learning occurs gradually) (e.g., Schoenfeld, 1983, 1985); (3) simple knowledge (i.e., knowledge is comprised of isolated pieces of information, or knowledge is interrelated concepts) (e.g., Schoenfeld, 1983, 1985); (4) innate ability (i.e., the ability to learn is a gift one is born with or it can be achieved over time) (e.g., Dweck & Leggett, 1988); and (5) omniscient authority (i.e., knowledge is handed down from authorities or can be derived by individual discovery) (Perry, 1970).

Schommer (1990, 1993) developed an epistemological beliefs questionnaire to assess this system of beliefs and formulated a framework comprised of these five dimensions that vary from naive beliefs to more sophisticated beliefs about the nature of knowledge

and learning. These beliefs reflect the fundamental, dominant beliefs about learning that students may default to without intervening instruction or prompting (Schommer, 1997). Schommer and Walker's (1995) research demonstrated that these beliefs are independent and that they are important for understanding students' learning preferences for conducting academic tasks and ultimately, their academic achievement. Schommer's early work also confirmed the multidimensionality of the dimensions, meaning that students may be sophisticated in some beliefs and still be naive in other beliefs.

Additionally, other researchers have found epistemological beliefs to be an important construct that reflects students' implicit assumptions about knowledge that affect their comprehension, learning choices, and conceptual change (Schommer & Walker, 1995; Qian & Alvermann, 1995). This, in turn, has resulted in further research about important issues surrounding epistemological beliefs. For example, one of the questions of interest has been concerned with whether beliefs are domain specific or general and whether they generalize across different disciplines or domains of knowledge (Jehng, Johnson, & Anderson, 1993; Schommer & Walker, 1995; Paulson & Wells, 1998). Epistemological beliefs have been examined across different age groups, such as middle and high school students (Schommer, 1993); college and university students (e.g., Qian & Alvermann, 1995; Palmer, Marra, & Moore, 2001), and graduate students (e.g., Jehng, et. al., 1993).

There has been some indication that students vary in their beliefs about knowledge and instruction due to their level of educational achievement and field of study. Jehng, Johnson, and Anderson's (1993) study, for example, indicated that graduate students tend to believe that knowledge is uncertain, learning is not necessarily an orderly process, and

that learning independently is essential. Their study did not find a significant difference between graduate and undergraduate students in their beliefs about innate ability and quick process. As advanced students, law students may also show the same tendency as other graduate students, and because of their position as first-year law students, a majority of them may lean toward beliefs that are less sophisticated, such as a belief in innate ability, due to reliance on their academic history. Students may vary their epistemological beliefs for reasons other than marked differences in the academic demands in major fields of study. The learning environment itself may elicit responses from different parts of students' belief systems.

The contextual perspective of epistemological beliefs research. More recently, researchers have emphasized the importance of contextual factors as activating various epistemological thinking resources that students may use. Researchers in this category have also explicated categories for the resources that students may draw from depending on the demands present in an instructional situation. Hammer and Elby (2002), for example, were reluctant to merely describe individuals by their personal theories in a trait-like fashion. They argued against accepting that individuals consistently act according to their primary beliefs in either a unitary or multiplistic category. Instead, they posited that epistemological beliefs are more sensitive to contextual factors, and, in their research with young children, developed a list of more elemental epistemological resources that are generally present in familiar learning situations. The four epistemological resource categories are similar to the of dimensions from the cognitivist perspective and include resources for understanding (1) the nature and source of

knowledge, (2) the performance of knowledge enhancing activities (e.g., checking, gathering), (3) the vehicle or type of knowledge structure (e.g., stories, puzzles), and (4) the type and nature of epistemological stance or reactions to knowledge (e.g., doubt, disbelief). It is hoped that by studying how individuals draw upon these various epistemological resources in reaction to a situational demand a better understanding of epistemological characteristics would result. Epistemological characteristics or traits would presumably be more responsive to instruction and training than the other theoretical conceptions of beliefs would allow (Hammer & Elby, 2002).

Epistemological styles. Epistemological styles researchers have found it more useful to think of epistemological constructs (absolutism, relativism, and evaluatism) as a dispositional combination of beliefs that individuals hold across the constructs to varying degrees (e.g., Charney, Newman & Palmquist, 1995). Epistemological styles allows consideration of the degree to which individuals espouse any epistemological assumptions (Martin, Silva, Newman & Thayer, 1994). Wilkinson & Migotsky (1994), for example, found that participants in their study tended to have a preference for varying numbers of epistemological styles, using preferred styles more frequently than other styles. Epistemological styles may provide a useful description of students' preferred ways of epistemological thinking. However, a dispositional view of epistemological beliefs does not adequately address many of the structural qualities of beliefs that are related to the essential cognitive nature of beliefs rather than the nature of the individual.

Summary of epistemological beliefs theories. As Pintrich (2002) recently noted in his effort to define the boundaries and essential elements of epistemological beliefs

construct, some researchers do not limit personal epistemology to students' beliefs about the nature of knowledge and instruction. Whereas Pintrich and Hofer (2000) argued for four specific dimensions of personal epistemological centered around the certainty, simplicity, source, and justification of knowledge (Hofer & Pintrich, 1997), other researchers have found it useful to broaden their focus to include beliefs about the nature of learning (e.g., quick or slow learning, Schommer, 1994) or how learning is best accomplished (e.g., use of knowledge forms or stances, Hammer & Elby, 2002) or what learning assumptions students may favor (e.g., epistemological styles, Wilkinson & Migotsky, 1994). The cognitive theories of epistemological beliefs can draw from important concepts from the contextual or epistemological style perspectives on epistemological beliefs to expand research in fruitful directions (i.e., the consideration of how the environment activates various epistemologies or how a combination of beliefs dimensions ma be simultaneously held to varying degrees of commitment) (Elen & Clarebout, 2001).

Beliefs about the nature of learning, intelligence, instruction, and beliefs about self are related elements that are central to the cognitive structure of personal epistemologies. Few studies, however have included additional factors such as students' motivations for learning, conceptions of learning and studying, and need for cognition. The focus of this study is to examine epistemological beliefs from the cognitivist perspective and to extend that focus to consider several elements from the learning environment that may prompt students to activate epistemological beliefs, even epistemological beliefs that would

appear to be opposed to each other. This study makes some initial steps in examining these issues in a population not often examined with these constructs.

The following section concerns general motivational constructs that influence the relevance, expectations, and effort students have for learning.

Motivational Aspects of Learning

Little is known about the interrelatedness of law school students' beliefs, motivational goals, and their approaches to studying law. Indeed, one purpose of this dissertation study was to determine how law school students' beliefs about learning and understanding are related to their motivational goals and study strategies. Two important motivational goals that are connected to students' approaches to learning is the extent to which they are *intrinsically* motivated to engage in academic tasks and/or the extent to which they are *extrinsically* motivated to engage in academic tasks. Students demonstrate an intrinsic motivation for learning when they engage in academic activity because of an interest in the topic or because the activity itself is rewarding. In contrast to intrinsic motivation, when learning is externally motivated, students perceive that their reward for doing an academic task is external to the learning itself. Students are also motivated by their self-efficacy beliefs or expectations for achieving success in their academic pursuits (Garcia, 1995) and by the commitment they have to regulate their learning endeavors through effort control (Pintrich, Smith, Garcia, & McKeachie, 1991). The following section describes research that has been conducted regarding intrinsic and extrinsic motivational goals, self-efficacy for learning, and effort management.

Goal Orientations

    Extrinsic goals. Students demonstrate academic extrinsic motivation when they focus on obtaining external rewards such as grades or praise instead of finding an inward appreciation for what they are learning or the experience of learning. Students who are predominantly extrinsically motivated tend to view academic performance as an indicator of intelligence. For this reason, extrinsically motivated students are less persistent when confronted with obstacles (Pintrich & De Groot, 1990) and they tend to use surface learning strategies (e.g., rote memory with respect to test preparation). Furthermore, students who find external rewards such as grades or praise to be motivating also tend to believe that academic ability is a fixed entity that does not improve with practice or effort (Dweck & Leggett, 1988).

    Intrinsic goals. According to Deci and Ryan (1991), intrinsic motivation is really an inborn, internally generated psychological energy. Students who find academic activities intrinsically motivating tend to be more adaptive when they encounter challenges because they are focused on mastering the learning objective (Heyman & Dweck, 1992). For students who find learning situations intrinsically motivating, they are exhilarated from their learning and value their enjoyment of tackling learning tasks. Additionally, these students do not view difficulties as an indicator of incompetence but instead, see learning difficulties as an indicator of a need to increase their effort or change the strategies that they have been using (e.g., Dweck & Leggett, 1988). In this regard, students who are intrinsically motivated to obtain learning objectives tend to focus on mastering learning tasks (Dweck & Leggett, 1988), and towards this end, they tend to be more self-

regulating, more persistent in their academic activities, and more apt to use deeper cognitive learning strategies (Greene & Miller, 1996; Pintrich & De Groot, 1990). Furthermore, students who find learning intrinsically motivating also tend to believe that academic ability is not a fixed entity but is instead malleable and, indeed, increases with effort and practice (Dweck & Leggett, 1988).

In addition to students' motivational goals for engaging in academic tasks, it is important to consider the ways students use personal, contextual, and behavioral factors to regulate their learning (Bandura, 1986). Students' motivations for academic achievement, which includes their intrinsic or extrinsic goal orientation and self-efficacy, affects their activation of self-regulation processes that enable them to take the necessary steps to achieve their goals. One of these self-regulation processes is the confidence students have for their ability to achieve their academic goals.

Self-Efficacy

Self-efficacy for learning is conceptualized as students' confidence in their abilities to learn course materials or accomplish certain academic tasks (Bandura, 1986, 1989, 1991; Schunk, 1989, 1990). Research regarding self-efficacy for learning has demonstrated that this concept is linked with students' acquisition of skills (Schunk, 1989), continued persistence in dealing with difficult or uninteresting learning tasks (Pintrich & De Groot, 1990), and students' selection and use of cognitive learning strategies to accomplish specific academic tasks (Pintrich & De Groot, 1990; Zimmerman & Martinez-Pons, 1990). Self-efficacy beliefs also have an effect on students' choices about whether or not to engage in similar, future activities (Sansone & Morgan, 1992). Students' beliefs or

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expectations for successful achievement can be high or low depending on personal, behavioral, or environmental factors. For example, students who have high self-efficacy beliefs display persistence, even after they have received feedback indicating they are not performing well academically (Rosenthal & Zimmerman, 1978; Schunk, 1989). Additionally, students with low self-efficacy beliefs are more likely to attribute any success they achieve to factors over which they have little or no control, such as luck, instead of something they can control, such as their own effort (Schunk, 1991). Empirical studies have consistently found a positive relationship between self-efficacy and good academic performance (Schunk, 1990), including a study of first-year law students who had high expectations about their ability to perform well in law school (Adams, 1991).

During prolonged periods of learning, students' self-efficacy may lead them to place differing value and importance on their goals for learning and students' intrinsic and extrinsic goals may fluctuate throughout the learning process. Thus, it becomes necessary for students to use inner resources to support their goal related activities and to regulate their behaviors, using such processes as self-discipline, self-control, and effort management (Snow, Corno, & Jackson, 1996; Pintrich & Garcia, 1993). The next section addresses one of the important regulatory processes that help students manage their learning environment.

Effort Management

Effort management is an important learning strategy because it is seen as the linking connection between motivation and cognition (Pintrich, 1993). Students' ability to succeed in the attainment of their academic goals often requires them to monitor,

evaluate, and reflect on their self-knowledge of their own learning processes. For example, students who are aware of their overall inclination toward distractions can monitor their study environment and make adjustments before distractions adversely affect the attainment of their goals. A key aspect of this self-management resource is the skill students have for coordinating cognitive strategies with the necessary amounts of effort. Students who are able to manage their own effort use their prior knowledge of their own learning successes and failures to anticipate and control potential learning hazards. For example, by considering the consequences of carelessness, procrastination, and mistakes, students can expend the effort necessary to manage their time resources, organize their schedule, or check their work for errors.

Students react to the information they receive from ever-changing environmental factors that impact their performance. Some students decrease their effort or persistence at learning because of unexpected negative feedback they receive about course performance. Other students are able to garner energy derived from emotions associated with negative feedback to invoke self-regulatory actions or strategies that increase positive goal-related cognitions and actions (Csikszentmihalyi & Csikszentmihalyi, 1988; Csikszentmihalyi & Nakamura., 1989, Turner & Schallert, 2001). Students also can prevent potential emotional interference in their learning by reminding themselves of their goals or making provisions to reward themselves for accomplishing certain learning tasks. These types of strategies, known as volitional self-regulatory actions, are ways students maintain and protect a learning environment that is conducive to the cognitive

activity they need to achieve their learning goals (Corno & Kanfer, 1993; Kuhl, 1985; Snow, et al., 1996; Turner, Husman, & Schallert, 2002).

Interestingly, another important characteristic of students who are both highly motivated and self-directed in their learning is the extent to which they find enjoyment in thinking deeply about a variety of issues. Individuals who have a penchant for thinking deeply are said to have a high need for cognition. The following section describes this construct and how it is related to student achievement.

Need for Cognition

Need for cognition, as a cognitive motivation, refers to an individual's consistent tendency to enjoy and engage in thinking (Cacioppo & Petty, 1982). When viewed as an information processing system, individuals can be distinguished by their need for cognition and the way they use information in integrative ways to understand complex situations. Cacioppo, Petty, Feinstein, and Jarvis (1996) stated that when individuals are high in need for cognition they are likely to "seek, acquire, think about, and reflect back on information to make sense of stimuli, relationships and events" (p. 198). By contrast, when individuals are low in need for cognition they are more likely to "rely on others (e.g., celebrities and experts), cognitive heuristics, or social comparison processes to provide … structure" for their thinking (p. 198).

Research of a variety of problem-solving situations has demonstrated that individuals who indicate they have a high need for cognition also tend to generate complex attributions for human behavior (Fletcher, Danilovics, Fernandez, Person, & Reeder, 1986), are more curious (Olson, Camp, & Fuller, 1984), are more open to ideas, actions,

feelings, and values (Berzonsky & Sullivan, 1992), and are more thorough in their use of information sources to make decisions (Bailey, 1995), compared to those who indicate a low need for cognition.

Need for cognition has also been studied within educational contexts. For example, students who have high needs for cognition are more likely to consider issue-specific information and elaborative processing of information than students who have a low need for cognition (McDaniel & Lawrence, 1990; Sadowski, 1996). Additionally, students who enjoy effortful cognitive activities are more likely to spend time reflecting and seeking opportunities to think deeply about topics of interest (Nair, 2000). A few studies have shown a positive relationship between need for cognition and higher grades (Leone & Dalton, 1988; Sadowski & Gulgoz, 1992). However, and perhaps more importantly, the positive relationship between need for cognition and grades has been shown to be mediated by students' self-efficacy (Elias & Loomis, 2002) and elaborative processing of information (Sadowski, 1996).

Of particular interest to this dissertation study, need for cognition has also shown a positive relationship to the effective solving of complex problems, particularly in ill-structured domains (Nair, 2000). First year law students who have a high need for cognition may be more likely to condone epistemological beliefs that are more sophisticated and persist with the heavy cognitive demands of information than those students who are low in need for cognition.

One of the major ways that students' beliefs and motivations interact with their learning of content information is to influence how students approach their studying. The

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following sections describe primarily international research on student approaches to learning.

<div align="center">*Learning-Related Conceptions*</div>

Another related branch of research that originated in the United Kingdom and Australia has concentrated on students' conceptions of learning and the different approaches students adopt for particular learning tasks (Entwistle & Entwistle, 1992; Marton & Säljö, 1976). This research is based upon phenomenographic theory in which the meaning that an individual places upon an experience is the basis for gathering and interpreting findings. Thus, researchers in this area are more interested in describing the content of learning from the learner's point of view rather than through psychological or theoretical principles. Students' perspectives about learning include their conceptions of their learning efforts and tasks, the ways they attempt to accomplish specific tasks of learning, and their motivational stance or support for their learning activities (Bond & Le Brun, 1996; Keyes & Orr, 1996).

Marton and Säljö (1976) used the term *conception of learning* in their studies of how adults understood learning, and reported five different, increasingly complex conceptions: learning as increasing knowledge, memorizing (reproducing), acquiring facts (applying), abstracting meaning (understanding), and as interpreting procedures for understanding reality. The increasing or memorizing knowledge conceptions emphasize the quantitative aspects of learning such as the amount of knowledge gained or how many facts and pieces of information are accumulated. In these descriptions, knowledge is viewed as decontextualized and external to learners and can be collected, gathered,

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stored, recalled, or retrieved (Biggs, 1996). Students who rely on these conceptions of knowledge can best be described as consumers of knowledge who take in, retrieve, and use knowledge as needed. These conceptions are associated with surface-level, very methodical processing focused on the information itself.

Studies about the application, understanding, and interpretation of learning conceptions emphasize the transformative nature of learning. These conceptions stress that knowledge is internal to learners and is focused on the change that occurs to learners as a result of interacting with the knowledge (Marton & Säljö, 1984). Students who hold these conceptions of learning talk about knowledge as it relates to them: their viewpoint, the meanings they grasp, or other possible perspectives that contrast with their own understandings. These conceptions of knowledge reflect deep-level, internalized, processing that is seeks the underlying meaning of the information (Biggs, 1978).

Orientations to Learning

Researchers began using the term *orientation* to refer to an overarching compilation of approaches to learning, focuses or preferences for learning, and motivations for learning. Researchers found evidence for three primary orientations: a reproducing orientation, a meaning orientation, and an achieving orientation. Learners with a reproducing orientation have a surface approach to learning that is aimed at memorizing and reproducing information given by text (Kember, 1996) or lecture. Students are motivated to avoid failure and to achieve good results or academic success for the purpose of other long term goals such as obtaining a good job. Students with a meaning orientation have a deep approach to learning that is rooted in a desire primarily to

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understand and gain meaning from their studies. These students are motivated by an intrinsic interest in the information itself. Students with an achieving orientation use a strategic approach to learning in which they make decisions among various study methods (e.g., surface and deep approaches) and study resources (e.g., using other exams to prepare for a test) in a competitive effort to perform better than others. In her study of law students' perspectives on the effectiveness of the teaching methods and the impact the various methods had upon their learning processes, Black (1997) also linked the students' responses to surface, deep, and achieving approaches and to extrinsic, intrinsic, or achievement motivations respectively. The learning strategies students used corresponded with their reported approaches and motivation: the surface, extrinsically motivated students used strategies to reproduce accurately the most essential details; the deep approach, intrinsically motivated students had a personal genuine interest in a topic and wanted to maximize understanding through reflection, discussion, and reading broadly; and the achievement oriented students used their desire for competing to optimize their ability to organize and use a variety of study skills to obtain the highest reward, in this case, grades.

Approaches to Learning

The ability for students to adapt their approaches to a learning task so that they may meet a salient internal or external goal is a critical nuance in the investigation of students' conceptions of learning. Kember and Gow (1994) found differences in students' approaches to learning according to the primary instructional method a department used. Results of their study generally indicated that students in departments with professors

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who primarily used knowledge transmission, teacher-focused instructional techniques, used surface, extrinsically motivated approaches for studying. The departments in which the professors used student-focused learning facilitation instructional methods had a greater number of students who used deep, intrinsically motivated approaches for studying or highly organized study skills achievement related approaches for studying.

Entwistle and Ramsden (1983) additionally revealed the need to consider assessment requirements as another important aspect of approaches to learning for students. Their research revealed that students who have an achievement orientation are responsive to the assessment requirements that are placed upon them. As students who have a strategic goal of obtaining the highest possible grade, they employ deep or surface approaches to learning so they can acquire content knowledge in a competitive bid to pass examinations successfully. Students who primarily have a surface approach to learning are also very aware of the assessment requirements but they use learning strategies in an effort to avoid failure, meet the requirements of the course, and obtain their long term post-education goals. Students who primarily use deep approaches to learning are also keenly aware of assessment requirements but, almost as a byproduct of the actions they take to obtain a deep understanding of material they are interested in, they become prepared to meet the assessment requirements at a high level of achievement.

Entwistle and Entwistle's (1992) study of the nature of understanding was based upon college students' explanations and descriptions of their revisions of their final examinations. These researchers elicited students' responses concerning the meaning and experience of developing an understanding about their examination topics. Entwistle and

Entwistle found that students experienced understanding as an emotional feeling as well as a conceptual recognition of the completeness or "fit" of ideas that were not clear before. Students described understanding as feeling the satisfaction of insight, finding coherence among concepts or significance in meaning, developing confidence in explanations of complex material, and being flexible in their ability to modify or apply information. The students also spoke about their methods for developing their understanding. They used essentially deep approaches to learning: elaborative or organizational techniques, relating new information to previous knowledge or personal experience, and using a pre-developed or original structure to help provide a framework or context for learning and remembering. Entwistle and Entwistle also found that the students described different forms of understanding that derived from how students interacted with different sources of information and how they proceeded to develop a structure for them. This research demonstrated the value of obtaining students' explanations of their actions and motivations for pursuing meaningful understanding in their academic work.

Importance of Conceptions of Learning Research

Conceptions of learning research brings together consideration of beliefs, motivations, and strategies for learning. As such, it puts the perspective of the individual student at the forefront of examination. For example, Pratt (1992) interviewed adults from three different cultures about their understandings of teaching and developed a definition about the conceptions of teaching and learning from their responses that encompassed three interrelated components: actions, intentions, and beliefs. The action

part of conceptions about learning concerned what students do to learn and how they actually go about the process of learning. This is understandably, the most visible and evident part of conceptions. Intentions were the part of their explanations based upon their sense of purpose, responsibility, and goals for learning that denoted other psychological functions such as their motivation and affect for learning. The final and most abstract part of conceptions about learning were beliefs about learning and instruction. Beliefs, Pratt found, were often the most stable and least flexible aspect of a person's conceptions of teaching or learning.

Pratt's (1992) study suggests that conceptions of learning interweaves students' beliefs with their reasons and motivation for learning. An information processing approach to studying beliefs "focuses on the characteristics of learners, including not only self-beliefs, such as self-concept and self-efficacy, but also beliefs about the nature of intelligence, knowledge, and motivation" (Pajares,1992, p. 308). As students who have to manage their learning in an environment with many confounding influences upon them, first-year law students may derive some of their ability to perform their academic tasks from their motivations and goals for entering law school and learning law-related information. Motivational goals are integrally related to students' beliefs (Dweck & Leggett, 1988) as well as their capabilities for self-regulated learning and their use of cognitive learning strategies (Pintrich & De Groot, 1990; Zimmerman & Martinez-Pons, 1990).

Not many studies have examined the relationships among the approaches for learning and epistemological beliefs variables. Saunders, Cavalla, and Abraham (1999), for

example, examined the relationships among college science students' type of instructional experiences and their approaches to learning and epistemological beliefs. These researchers used the rote (surface) and meaningful (deep) Approaches to Learning subscales and a science-based epistemological beliefs questionnaire they developed. Saunders, Cavalla, and Abraham (1999) found a small relationship between rote approaches to learning and students' beliefs about science knowledge as it referred to students' tendency to believe that knowledge came from authority.

Several legal education studies have used the approaches to learning concepts with two or three of the levels of processing as a basis for qualitative examination of students' ways of learning in law school (e.g., Monahan, 1993; Keyes & Orr, 1996; Campbell, 1997). The studies based in Australia or Great Britain (e.g., Black, 1996, Bond & LeBrun, 1996) often involved younger students who were the age-equivalents of American undergraduate college students. None of these studies examined law students' approaches to learning orientations in conjunction with their epistemological beliefs, motivation, and need for cognition in an effort to understand students' conceptions of learning law.

Synthesis

"Even micro level cognitive processes are under the influence of contextual variables" (Garner, 1990, p. 523). The environment and social culture of law school can exert an important influence upon the epistemological beliefs of law students. There is a great deal of structure in law school and, although there may be room for individual expression of learning that diverges from the norm, the first year of law school is about

learning the system, and it is about learning to conform to the structure of instruction in law school (e.g., Nathanson, 1997).

Examining the law school learning environment also provides some insights into the context for understanding first-year law students' conceptions about learning, including their epistemological beliefs about learning, the motivations for learning, and their approaches to learning. First-year students' conceptions of learning are particularly well-suited for making sense of learning contexts because of their impact upon students' actions and achievement efforts. Advanced courses may allow more opportunity for students to recognize familiar features of classroom environment and use those perceptions to make the most effective decisions about learning and study strategies. But first-year courses do not often contain precisely defined learning objectives or established procedures for determining if learning has occurred. Consequently, first-year students have the opportunity to make many decisions about various aspects of their learning environment and their beliefs about learning and instruction help shape their choices (Schommer & Walker, 1995).

Students conceptions for learning in law school can help them make sense of instructional situations. This study provides the opportunity to examine novice learners who must manage their own learning in an ill-defined, complex field. An additional point of interest in the research is to consider what can be learned about the structure of epistemological beliefs and how that structure relates to students' motivation, assumptions of learning, and need for cognition.

Chapter 3: Methods

To investigate students' perceptions about their law school learning experiences, both quantitative and qualitative methodologies were used in this study. Direct assessment of beliefs is difficult because these types of cognitive structures are not directly observable and are not always easily accessible for study participants to discuss. Beliefs are highly contextualized, held unconsciously, hard to put into language, and highly personalized perceptions. Therefore, indirect methods such as extended interviews and stimulated recall have been found to be useful as a means of explicating these kinds of internal structures. However, this type of research is often time consuming and results in the use of fewer subjects. This study made use of both survey instruments and open-ended interviews to allow breadth in the number of students who could provide information needed for the research questions. First-year law students who completed a questionnaire packet provided information about the broad scope of students' conceptions about learning including their epistemological beliefs, assumptions about learning, motivation, and need for cognition. In order to ascertain how the students made sense of their learning environment and learning experiences, a small subset of participants was later interviewed about these conceptions and how they impacted their law school experience.

Participants

At the time of the study at a public law school in the southwest with a student population of 1394 (45% women, 21% minority students), 468 students were in the entering class (Law School Admission Council, 1999). First-year law students were recruited from two classes of more than 100 students each. These students had completed

their mid-term examinations and were nearing the end of their first year of law school. At the end of one of their class sessions, students were given a brief verbal explanation of the purpose of the study, and given a questionnaire packet. The students were informed that if they chose to participate in the study, they were to complete the questionnaire packet and return it to a designated drop-box in the law school within two weeks. The students were assured that there would be no penalty or influence upon their grade if they chose not to participate in the study. Students were encouraged to participate in the study in order to help provide information that would potentially benefit the first-year learning experience of future law students. They were given periodic reminders of the project by a notice posted in the class during the two weeks.

Fifty-eight students completed the questionnaire packet, 27 from one course, 29 from a second course, with two additional first-year students from other courses agreeing to participate in the study. Most of the students who responded were women (60%), white (86%), and between 21 and 29 years of age (81%). The law school Most of the students who responded had completed their undergraduate degrees within the three years prior to entering law school (53%) and most had been liberal arts majors (62%). Two students reported that they had earned a Ph.D., nine had earned a master's degree, and three had earned an education certificate.

Table 1
Demographic Descriptions
Number and Percentage of First Year Law Student Participants

Gender			Ethnicity			
Male	23	40%	White		50	86%
Female	35	60%	African American		2	3%
			Hispanic		1	5%
			Asian		5	9%
Age			*Age*			
21-23 yrs.	24	42%	33-35 yrs.	3	5%	
24-26 yrs.	17	29%	36-38 yrs.	2	3%	
27-29 yrs.	6	10%	45-49 yrs.	1	2%	
30-32 yrs.	4	7%				
Years Since College Graduation			*Undergraduate Major*			
1-3 yrs.	28	53%	Business		4	7%
4-6 yrs.	11	21%	Communication		7	12%
7-9 yrs.	7	13%	Engineering		4	7%
10-12 yrs.	2	4%	Fine Arts		2	3%
13-15 yrs.	3	6%	Liberal Arts		36	62%
16-20 yrs.	1	2%	Natural Sciences		5	9%
>20 yrs.	1	2%				

Data Collection Materials

The questionnaire packet consisted of survey instruments that were used to assess

first-year law students' epistemological beliefs, motivation, and approaches to learning.

The first page of the packet was designed to gather background information about the

students: age, gender, race/ethnicity, and academic history. Students also answered

questions about their grade expectations and academic and legal career goals. The second

part of the questionnaire packet consisted of four questionnaires containing

epistemological belief items, motivation for learning items, assumptions about learning

items, and a need for cognition scale.

Epistemological beliefs. The epistemological beliefs questionnaire consisted of 50 items and was adapted from Schommer's (1990) epistemological beliefs framework of five dimensions: Omniscient Authority, Simple Knowledge, Certainty of Knowledge, Quick Learning, and Innate Ability. The questionnaire consisted of Likert-type items that were rated on a 7-point scale with responses ranging from 1 ("Strongly Disagree") to 5 ("Strongly Agree"). The five dimension subscales evaluated students' beliefs about the source and nature of knowledge. Stated from the naive perspective, these included statements about knowledge as determined and distributed by authorities and experts (omniscient authority), knowledge as consisting of simple, discrete facts (simple knowledge), knowledge as absolute facts that are or can be known (certainty of knowledge), learning as occurring quickly or not at all (quick learning), and learning as an ability to acquire knowledge that is determined at birth (innate knowledge) (Jehng, Johnson & Anderson, 1993; Schraw, 2001).

Scale reliabilities for the Epistemological Beliefs Questionnaire were calculated to determine the internal consistency of each scale and to aid in producing a coherent measurement of the cluster groups. The initial reliability of several of the epistemological beliefs subscales was low (i.e., below .50), therefore the construction of the scale was reexamined. Each statement that made up a dimension subscale was analyzed using Cronbach's reliability measure (Cronbach, 1951) to examine the correlation between the statement and both the subscale and overall scores. Seven out of the original 50 statements had correlations lower than .10 and were deemed unreliable and eliminated from their respective subscales. The reliabilities of the subscales were recalculated. The

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five dimension subscales reliabilities ranged between .50 and .74. The total reliability of

the 43 items for the scales reached .83. Table 2 lists sample items and the reliabilities for

each of the subscales in the epistemological beliefs questionnaire.

Table 2
Summary of Scales and Sample Items for
Epistemological Beliefs Questionnaire Items

EPISTEMOLOGICAL BELIEFS QUESTIONNAIRE (.83)

A. *Omniscient Authority* (7 items, alpha = .50)
   I can believe most things I read in a textbook.
   How much a person gets out of school mostly depends on the quality of the
      professors.

B. *Simple Learning* (14 items, alpha = .74)
   When I learn, I prefer to make things as simple as possible and avoid looking for
      different explanations for the same thing.
   Being a good student generally involves memorizing a lot of facts.

C. *Certainty of Knowledge* (8 items, alpha = .63)
   I prefer that professors stick to more concrete examples and do less theorizing.
   I dislike working on problems which have no clear-cut answers.

D. *Quick Learning* (6 items, alpha = .54)
   If a person cannot understand something within a short amount of time, it is often
      unnecessary to keep on trying.
   Understanding something is not a process which takes a long time or is
      complicated.

E. *Innate Ability* (8 items, alpha = .55)
   An expert is someone who has a special gift for a particular field.
   Sometimes I feel that I lack the talent to do well in school.

Motivation for learning. The second questionnaire consisted of 18 items from the

Motivated Strategies for Learning Questionnaire (MSLQ, Pintrich, Smith, Garcia, &

McKeachie, 1991). The original instrument was developed to assess students' general

motivation in academic situations. Three subscales were selected from the motivation

section of the MSLQ: intrinsic goal orientation (4 items), extrinsic goal orientation (4

items), and self-efficacy for learning and performance (6 items). From the learning

strategy category of the MSLQ, the self-regulation resource control strategy of effort

management (4 items) was used. These items were answered on a 7-point Likert scale

("not at all true of me" to "very true of me"). The subscales assessed students' goals for a

course (intrinsic goal orientation and extrinsic goal orientation), their beliefs about their

expectancy to succeed in a course (self-efficacy for learning and performance), and their

ability to apply the appropriate amount of energy to their study endeavors (effort

management).

Alpha coefficient reliabilities for the four MSLQ subscales ranged from .61 to .93.

Table 3 displays subscale sample items and alpha coefficients.

Table 3
Summary of Scales and Sample Items for Motivation Questionnaire Items

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MOTIVATED STRATEGIES FOR LEARNING QUESTIONNAIRE

A. *Intrinsic Goal Orientation* (4 items, alpha = .68)
In this class, I prefer course material that really challenges me so I can learn new things.
I prefer course material that arouses my curiosity, even if it is difficult to learn.

B. *Extrinsic Goal Orientation* (4 items, alpha = .77)
If I can, I want to get better grades in this class than most of the other students.
I want to do well in this class because it is important to show my ability to my family, friends, employer, or others.

C. *Self Efficacy (Expectancy for Success)* (6 items, alpha = .93)
I'm confident I can learn the basic concepts taught in this class.
I'm confident I can do an excellent job on the assignments and tests in this course.

D. *Effort Management* (4 items, alpha = .61)
I often feel so lazy or bored when I study for class that I quit before I finish what I planned to do.
Even when course materials are dull and uninteresting, I manage to keep working until I finish.

Approaches to learning. Fourteen items from the Approaches to Learning Inventory (Entwistle & Tait, 1990) were also included in the questionnaire. The items consisted of three subscales: deep and surface approaches to learning and achievement motivation. Students responded to these items on a 7-point Likert scale ranging from "strongly disagree" to "strongly agree." The surface approach to learning items (6 items) tested for a reproducing orientation with which students tend to rely on memorization and other strategies to reproduce information that is to be known. The deep approach to learning (4 items) assessed a meaning orientation in which students tend to use learning methods that support their efforts to find meaning by relating or reformulating information. The

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achievement motivation items (4 items) reflect a strategic preference for using both deep

and surface approaches to learning in a competitive way that maximizes accomplishment

of overall goals.

Scale reliabilities are reflected in alpha coefficients ranging from .56 to .63. Table 4

displays subscale sample items and alpha coefficients.

Table 4
Summary of Scales and Sample Items for the
Approaches to Learning Questionnaire Items

ASSUMPTIONS ABOUT LEARNING INVENTORY

A. *Surface Approaches* (6 items, alpha = .68)
   Professors seem to delight in making the simple truth unnecessarily complicated.
   The best way for me to understand what technical terms mean is to remember text-
      book definitions.

B. *Deep Approaches* (4 items, alpha = .56)
   I often find myself questioning things that I hear in lectures or read in books.
   When I'm tackling a new topic, I often ask myself questions about it which the new
      information should answer.

C. *Achievement Motivation* (4 items, alpha = .63)
   I enjoy competition; I find it stimulating.
   I hate admitting defeat, even in trivial matters.

Need for cognition. A short form of the Need for Cognition Scale (Cacioppo, Petty &

Kao, 1984) was also included in the questionnaire packet. Participants indicated their

level of agreement or disagreement with each of the 18 Likert-type items ranging on a 9-

point scale from "very strongly disagree" to "very strongly agree." Higher scores are

indicative of a greater need for cognition. The reliability of the scale items with this

sample of students equaled the reliability determined by the authors of .90.

Table 5
Summary of Sample Items for the Need for Cognition Scale

NEED FOR COGNITION SCALE (18 items, alpha = .90)

I would rather do something that requires little thought than something that is
sure to challenge my thinking abilities.
The notion of thinking abstractly is appealing to me.
I usually end up deliberating about issues even when they do not affect me
personally.

Interview Format and Participants

Near the end of their final year of law school, twelve law students who had completed

the questionnaire packet in their first year of law school were asked to participate in brief

interviews about their conceptions of learning and instruction, their approaches to

studying, their motivations for learning, and their understanding of how the law school

learning environment had affected their decisions and efforts to become a lawyer. Four

students agreed to be interviewed and participated in 30-45 minute interviews that were

audio-recorded. Two interviews were conducted by telephone and two were in-person

interviews that took place at the law school. The interviews were conducted without an

awareness of what became the students' cluster group placement as I will explain in the

next chapter.

During the interview, students were reminded of their participation in the first-year study and given a brief explanation of the focus and purpose of the study. A protocol of three general questions was developed for students to respond to in a semi-structured interview format. Interview questions were designed to elicit students' conceptions of learning and to allow participants to explain how their law school experiences had influenced their motivations, beliefs, and actions. Follow-up questions were used to prompt, clarify, or further explore their responses. Students were then asked to describe themselves as learners throughout their law school experiences from the first year to the present. They were prompted to discuss grades, knowledge and study strategies, motivation and goals, and the importance of all these academic aspects to their eventual legal career. Students were also asked to describe their view of themselves as a lawyer from the first year to the present, focusing on how this view related to their aspirations for becoming a lawyer, their grades, employability, and learning efforts. Finally, students were asked to talk about how they would advise new students beginning law school about their learning tasks and how they would grow in thinking about themselves becoming a lawyer.

Interviews were transcribed and coded for statements related to students' conceptions of learning: their beliefs about knowledge and instruction, their motivations for learning, and their approaches to studying. Additionally, information pertaining to students' response to the learning environment, to the way they managed their learning and studying, and to their reasons for the choices they made during law school were categorized. During the interviews, students had also reflected on their thoughts,

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attitudes, and feelings about becoming a lawyer. These statements and their advice to new law students were also organized.

The students were then identified by cluster group with each of the three groups represented by at least one of the interviewees. Students' interviews were examined with the goal of understanding how their statements further illuminated as well as resisted each category. These interviews were not subjected to a full qualitative data analysis which would have been warranted with a larger number of interviews or a more in-depth case study approach. A full qualitative analytic approach would require coding, sorting, and examining the data for patterns and themes (Miles & Huberman, 1994). Instead, these interview descriptions were repeatedly read, revised, and examined with two other researchers until all were satisfied that the descriptions provided a rich detailed description of the students' experiences.

Chapter 4: Results

The results of this study are organized into two major sections. The first section details the quantitative data through: (1) a descriptive analysis of the epistemological beliefs, motivation, approaches to learning, and need for cognition of the first-year law students participating in the study; (2) a correlational analysis of the relationships among these same four data sources; and (3) a cluster analysis of the interactive or combined relationships among the four components. These analyses were used to provide information about whether first-year law students could be appreciably differentiated from each other based on these types of instruments and, if so, what the relationships among the data tell us about these advanced students.

The second section of this chapter summarizes the interviews of three students chosen because they represented each of the clusters from the cluster analysis. Conducted at the end of law school, these interview responses provide information about students' perceptions of their law school learning experiences and environment and how those perceptions influenced them as they proceeded through law school and worked toward their goals of becoming members of the legal community.

Quantitative Analyses

Descriptive Analysis of First-Year Law Students' Survey Responses

Students responded to four survey instruments in their questionnaire packet. First, I discuss the means and standard deviations of the student responses to the epistemological beliefs questionnaire selectively to provide a picture of how the participants responded overall and then according to gender and age groups.

Epistemological beliefs. The first questionnaire consisted of items for five dimensions of epistemological beliefs based on Schommer's work (1990, 1994) about the nature of learning and knowledge. Responses were first summed to yield a single overall score for each participant. Students' overall epistemological belief scores ranged from 73 to 186, with a median score of 135, on a scale that ranged from 43 to 301, with low scores representing the more sophisticated beliefs about the nature of learning and knowledge and high scores representing the less sophisticated (more naive) beliefs. Similar to a sample of advanced students in another study (Schallert, Harris, Lissi, & Turner, 1997), this group of first-year law students' epistemological beliefs total scores were mostly represented in the lower half of the total possible range of scores. All but two scores were situated in the lower half of the scale (i.e., below 178) indicating that although there is a variation in scores, this sample of students as a whole tended to be more sophisticated (more relativistic) in their beliefs about knowledge and learning. Following the convention established in Schallert, et al. (1997), and to facilitate the differentiation between the students in this study, I will refer to the students as more relativistic (scores below the mean of 135) or less relativistic (scores above the mean of 135) in their epistemological beliefs, acknowledging that even the less relativistic students were sophisticated in terms of absolute scores.

For the next step in the analysis of the epistemological beliefs survey, means were calculated across all students' responses to the individual subscales that make up the epistemological beliefs survey: omniscient authority, simple knowledge, certainty of knowledge, quick learning, and innate ability. High scores indicated a less relativistic

view of learning while low scores indicated a more relativistic view of learning. In other words, a student who agreed with statements that, for example, favored a belief that knowledge is unchanging and certain, scored high in the certainty of knowledge dimension. A student who scored low on these same items tended to view knowledge as a changeable, more disputable part of learning. Although these dimensions show some variation and range in the lower half of the epistemological beliefs total scores, Table 6 indicates there was no appreciable difference between the means in the students' scores when they were categorized by age or gender.

Table 6
Means of Epistemological Beliefs Subscales by Gender and Age

	Gender		Age		Total
	Male (N=23)	Female (N=35)	21-24 yrs. (N=28)	25-49 yrs. (N=30)	
1. Omniscient Authority	3.6	3.5	3.6	3.4	3.5
2. Simple Knowledge	3.1	3.1	3.2	2.9	3.1
3. Certainty of Knowledge	3.1	3.0	3.2	2.9	3.1
4. Quick Learning	3.0	2.6	2.6	2.9	2.7
5. Innate Ability	3.2	3.0	3.1	3.1	3.1

When considering the participants' field of undergraduate study, however, there were some interesting differences between the groups (see Table 7). For example, students who had majored in engineering as undergraduates had a higher mean for simple knowledge and students who had majored in natural sciences had a higher mean for innate ability than any of the other groups. The fine arts group had only two participants but their responses for the Certainty of Knowledge subscale were appreciably below

other majors, and as might be expected for students who are developing their artistic

abilities, one of the higher means for innate ability.

Table 7
Means of Epistemological Beliefs Subscales by Major

	Bus. N=4	Com. N=7	Eng. N=4	F. Arts N=2	L. Arts N=36	N. Sci. N=5	Tot. N=58
1. Omniscient Authority	3.1	3.6	3.4	2.4	3.6	3.6	3.5
2. Simple Knowledge	2.8	3.3	3.7	2.0	3.0	3.2	3.1
3. Certainty of Knowledge	3.6	3.3	3.5	1.8	3.0	3.3	3.1
4. Quick Learning	2.6	2.6	2.9	1.9	2.8	2.8	2.7
5. Innate Ability	3.2	2.9	2.1	3.6	3.1	3.8	3.1

Compared to a study that examined the epistemological beliefs of undergraduate and

graduate students (Jehng, Johnson, & Anderson, 1993), the subscale means from this

sample of first-year law students were higher than the graduate student group, showing

that in all the dimensions these first-year law students tended to be less relativistic in their

beliefs about the nature of knowledge and learning than students in the graduate student

sample. As students in their first year of studies after their undergraduate work, these

students may be more similar to upper division undergraduate students than the

experienced graduate students who were sampled. Table 8 shows that, like the graduate

students in Jehng's study, law students have a strong belief that knowledge is not a quick

or simple, orderly process.

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Table 8
Comparison of Mean Scores and Standard Deviations
for the Epistemological Beliefs Dimensions

	Graduate Students (Jehng, et. al) ($n = 95$)	First-Year Law Students ($n = 58$)
Omniscient Authority	2.3 (.78)	3.5 (.77)
Orderly Process/Simple Knowledge*	3.0 (.78)	3.1 (.74)
Certainty of Knowledge	2.3 (.95)	3.1 (.86)
Quick Learning	1.7 (.85)	2.7 (.77)
Innate Ability	2.0 (.88)	3.1 (.82)

*Simple Knowledge was replaced with Orderly Process in Jehng study. The scores in the Jehng study shown here were adjusted to match the direction of the scale used in this study.

Motivation, approaches to learning, and need for cognition. The means and standard deviations for student responses to the motivation, approaches to learning, and need for cognition surveys were also calculated and are reported in Table 9. Mean responses for the motivation variables ranged from 4.9 for the intrinsic and extrinsic goal orientations to 5.3 for self-efficacy and effort management. The results indicated that the means for the approaches to learning variables, which ranged from 3.7 to 5.1, were lower for surface approaches to learning, as might be expected for experienced law students. The need for cognition scale mean was 7.0 and indicated that the participants generally enjoyed engaging in effortful cognitive activity.

Table 9
Comparison of Mean Scores and Standard Deviations for
Motivational Goals, Approaches to Learning, and Need for Cognition

	n	Mean	*SD*
Motivational Variables			
Intrinsic Goals	58	4.9	(.93)
Extrinsic Goals	58	4.9	(1.40)
Self Efficacy	58	5.3	(1.23)
Effort Management	58	5.3	(1.02)
Approaches to Learning			
Surface Approach	57	3.7	(.99)
Deep Approach	57	5.1	(.83)
Achievement Motivation	57	4.9	(1.09)
Need for Cognition Scale	58	7.0	(1.10)

Note. *SD*=standard deviation. Motivational Items were rated on a 7-point scale: 7=Very Much Like Me, 1=Not at all Like Me. Approaches to Learning Items were rated on a 7-point scale: 7=Strongly Agree, 1=Strongly Disagree. Need for Cognition Scale Items were rated on a 9-point scale: 9=Extremely, 1=Not at All.

Correlational Analysis

Following a description and summary of the items and subscales of the questionnaire data, the next step was to examine the relationships among the various subscales of the epistemological beliefs, motivation, assumptions of learning, and need for cognition surveys. First, the relationships among subscales in each individual survey will be discussed and then the relationships across surveys will be discussed.

Epistemological beliefs subscales. Correlations were computed among the epistemological beliefs survey subscales. As Table 10 indicates, the two highest correlations were between Simple Knowledge and Certainty of Knowledge (r=.62, p<.001) and Simple Knowledge and Omniscient Authority (r=.49, p<.001). This finding is consistent with research indicating that students who tend to believe knowledge is best

understood as simple, isolated facts are the same ones who rely more on authorities to give them the knowledge they need and believe that knowledge does not change a great deal over time (Jehng, 1993; Schommer, 1993).

Other subscales that were moderately correlated included Quick Learning and Innate Ability ($r=.28, p<.05$), Omniscient Authority and Certainty of Knowledge ($r=.34, p<.01$), and Omniscient Authority and Quick Learning ($r=.35, p<.01$). Schommer (1993) found that students who believed in quick learning tended to jump to conclusions and had an overconfidence in their understanding of what they were trying to learn.

These results show that students who indicated that they believed that learning is simple also tended to believe that knowledge comes from authority and that knowledge is certain. Students who indicated they believed that learning should come quickly or it will not come at all also tended to believe that knowledge is given by authorities or is determined by a person's innate capabilities. There was also a correlation between believing that some people have a natural ability to understand and manage large quantities of information and the belief that learning comes quickly and easily for such students.

Table 10
Correlations of Epistemological Beliefs Subscales

	1	2	3	4	5
1. Omniscient Authority					
2. Simple Knowledge	.49***				
3. Certainty of Knowledge	.34**	.62***			
4. Quick Learning	.35**	.43**	.31*		
5. Innate Ability	.28*	.10	.15	.28*	
6. Scale Total	.69***	.83***	.74***	.64***	.47***

Note: *$p < .05$, **$p < .01$, ***$p < .001$

Motivation subscales. Correlations were computed for the four subscales from the

Motivated Strategies for Learning Questionnaire (MSLQ). As Table 11 displays, the

Intrinsic Goals and Self Efficacy subscales were moderately correlated ($r=.35$, $p<.01$).

The Effort Management subscale was also moderately correlated with the Intrinsic Goals

($r=.30$, $p<.05$) and Self Efficacy ($r=.32$, $p<.05$) subscales.

These results indicated that law students who endorsed an intrinsic value in learning

also tended to expect they would be successful in their legal studies. Students who

indicated that they were able to manage their effort to persist with their learning goals

even when it is not easy were also students who found learning interesting and expected

to succeed in their studies.

Table 11
Correlations of Motivation Subscales

	1	2	3
1. Intrinsic Goal Orientation			
2. Extrinsic Goal Orientation	-.06		
3. Self Efficacy	.35**	.21	
4. Effort Management	.30*	.10	.32*

Note: *$p < .05$, **$p < .01$, ***$p < .001$

Assumptions about learning inventory subscales. Correlations were also computed for

the three subscales from the Assumptions About Learning Inventory. Table 12 shows the

only significant correlation was between the surface approach and deep approach to

learning ($r=-.34$, $p<.01$). This moderate correlation shows that a negative relationship

existed between these two variables such that students who indicated they primarily used a surface approach to learning and studying also tended not to use a deep approach to learning, and vice-versa. This is consistent with the definition of the two approaches because students who use a deep approach tend to be more intrinsically interested in the subject and strive to find meaning, while those with a surface approach tend to want to avoid failing and rely on various means of reproducing information to structure and learn information for assessment.

Table 12
Correlations of Approaches to Learning Subscales

	1	2
1. Surface Approach		
2. Deep Approach	-.34**	
3. Achievement Motivation	.11	.13

Note: *$p < .05$, **$p < .01$, ***$p < .001$

Correlations across surveys: Epistemological beliefs and motivation. A look at epistemological beliefs and the motivation subscales revealed some interesting relationships (see Table 13). The strongest correlations were between the epistemological beliefs dimensions and the intrinsic goal orientation and extrinsic goal orientation subscales from the MSLQ. The Intrinsic Goal Orientation subscale was negatively correlated with the Simple Knowledge (r=-.44, $p<.001$) and Certainty of Knowledge (r=-.28, $p<.05$) subscales. The higher first-year law students rated themselves on the intrinsic motivation subscale, the less likely they were to believe that knowledge is simple and certain. On the other hand, the correlations also show that students who are motivated by

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external goals or rewards tended to believe they derived their knowledge from authorities and were more likely to view knowledge as simple and certain. The Extrinsic Goal Orientation subscale showed moderate correlation with Omniscient Authority (r=.39, p <.01), Certainty of Knowledge (r=.31, p <.05), and Simple Knowledge (r=.26, p <.05). There was also a notable moderate negative correlation between Effort Management and Quick Learning subscales (r=-.26, p <.05), showing that the more students managed their effort for learning the less likely they were to believe that learning must occur quickly or it will not occur at all.

Table 13
Correlations of Epistemological Beliefs and Motivation Subscales

	Intrinsic Goal	Extrinsic Goal	Self Efficacy	Effort Management
1. Omniscient Authority	-.02	.39**	-.07	.17
2. Simple Knowledge	-.44***	.26*	-.09	-.01
3. Certainty of Knowledge	-.28*	.31*	.00	.03
4. Quick Learning	-.07	.20	-.03	-.26*
5. Innate Ability	.01	.07	-.18	-.17
6. Epist. Beliefs Scale Total	-.29*	.35**	-.11	-.06

Note: *p < .05, **p < .01, ***p < .001

Correlations across surveys: motivation, approaches to learning, need for cognition, and grades. Next, I examined the correlations among the motivation subscales, approaches to learning subscales, need for cognition scale, and grades, and found interesting relationships. As shown in Table 14, very strong correlations existed between intrinsic goal orientation and need for cognition (r =.73, p<.001) as well as intrinsic goal orientation and deep approaches to learning (r =.60, p<.001). The higher first-year law students rated themselves on the intrinsic motivation subscale the more likely they were

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to have a propensity for thinking deeply and using deep approaches to learning. Conversely, the higher first-year law students rated themselves on the extrinsic motivation subscale, the more likely they were to endorse having a high achievement motivation (*r*=.59, *p*<.001), and the more likely they were to have a tendency to use surface approaches to learning (*r*=.36, *p*<.01).

Interestingly, students who had high expectations for success (i.e., high self-efficacy) also tended to have high achievement motivation (r =.46, p<.001), a fairly high need for cognition (r =.37, p<.01), and obtained high grades in the course they were taking at the time of the study (r=.42, p<.001, for mid-term course grades, and r =.36, p<.01, for final course grades). Additionally, there were moderate correlations between effort management and deep approaches to learning (r =.31, p<.05) and effort management and final grades for the course (r =.29, p<.05). Students who were able to regulate their effort (i.e., high effort management) were more likely to use deep approaches and, perhaps consequently, achieved a higher final grade for this course.

Table 14
Correlations of Motivation Subscales, Approaches to Learning,
Need for Cognition, and Grades

	Intrinsic Goal	Extrinsic Goal	Self Efficacy	Effort Management
1. Surface Approaches	-.38**	.36**	-.17	-.10
2. Deep Approaches	.60***	-.10	.33*	.31*
3. Achievement Motivation	.15	.59***	.46***	.03
4. Need for Cognition	.73***	-.05	.37**	.04
5. Mid Term Grade	.08	.20	.42***	.23
6. Final Grade	.22	.24	.36**	.29*

Note: *p* < .05, **p* < .01, ***p* < .001

Correlations across surveys: approaches to learning, need for cognition and course

grades. Table 15 displays the correlations among the approaches to learning subscales,

the need for cognition scale, and course grades. Consistent with the previous correlations,

students who had inclinations for a high need for cognition also tended to use deep

approaches to learning (r=.55, p<.001) and tended not to use surface approaches to

learning (r=-.44, p<.001). Need for cognition showed no relationship to achievement

motivation; however, a small, but significant relationship existed between students'

achievement motivation and their final course grade (r=.28, p<.05).

Table 15
Correlations of Approaches to Learning Subscales,
Need for Cognition, and Course Grades

	Surface Approaches	Deep Approaches	Achievement Motivation
1. Need for Cognition	-.44***	.58***	.13
2. Mid Term Grade	-.06	.00	.16
3. Final Grade	-.12	.14	.28*

Note: *p < .05, **p < .01, ***p < .001

Correlations across surveys: epistemological beliefs, motivation, approaches to

learning, need for cognition, and course grades. The final correlational analysis included

the epistemological beliefs subscales, the motivation subscales, approaches to learning

subscales, the need for cognition scale, and students' course grades. The primary impetus

for this analysis was investigating the relationships among the epistemological beliefs

subscales and the other variables. Simple learning and certainty of knowledge were

highly, negatively correlated with need for cognition (respectively, r=-.59, p<.001, and

r=-.55, *p*<.001) and intrinsic goal orientation (respectively, *r*=-.44, *p*<.001, and *r*=-.28,

p<.05), and were positively correlated with surface approaches to learning (respectively,

r=.51, *p*<.001, and *r*=.39, *p*<.01). Additionally, students who endorsed a belief in

omniscient authority of knowledge also tended to have extrinsic goals for learning (*r*=.39,

p<.001).

The only correlation with quick learning was a slight, negative correlation with effort

management (*r*=-.26, *p*<.05). This correlation is not surprising, given that as noted

earlier, these first-year law school students as a whole gave fairly low ratings for the

belief that learning should occur quickly or else it will not occur at all. It may be assumed

that these students did not believe that learning law-related information would happen

quickly. Interestingly, there were no correlations among innate ability beliefs and the

other variables as well as between students' beliefs and their course grades.

Table 16
Correlations of Epistemological Beliefs, Motivation, Approaches to Learning,
Need for Cognition, and Course Grades

	OA	SL	CK	QL	IA	EB T
1. Intrinsic Goal	-.02	-.44***	-.28*	-.07	.01	-.29*
2. Extrinsic Goal	.39**	.26*	.31*	.20	.07	.35**
3. Self Efficacy	-.07	-.09	.00	-.03	-.18	-.11
4. Effort Management	.17	-.01	.03	-.26*	-.17	-.06
5. Surface Approach	.29*	.51***	.39**	.16	.16	.48***
6. Deep Approach	-.18	-.40**	-.31*	-.18	-.08	-.37**
7. Achievement Motivation	.32*	.16	.22	.25	.19	.31*
8. Need for Cognition	-.23	-.59***	-.55***	-.15	-.06	-.52***
9. Mid-Term Grade	.21	-.10	-.08	.07	-.04	-.02
10. Final Grade	.21	-.15	-.06	-.05	-.06	-.04

Note: *p* < .05, **p* < .01, ***p* < .001. OA=Omniscient Authority, SL=Simple Learning, CK=Certainty of
Knowledge, QL=Quick Learning, IA=Innate Ability, and EBT=Epistemological Beliefs Total.

Cluster Analysis

A cluster analysis was performed to examine patterns of individual differences based upon students' self-ratings with respect to their epistemological beliefs variables (omniscient authority, simple knowledge, certainty of knowledge, quick learning, and innate ability). Cluster analysis is a statistical method that systematically and mathematically places individuals into groups "in space" according to similar ratings on more than one variable. The analysis produces groupings in which individuals are most similar within the group and most dissimilar to individuals in the other groups.

Cluster means were derived by using the Statistical Package for the Social Sciences (SPSS) quick cluster program. The appropriate cluster solution was based on parsimony and significant differences between the cluster group vectors on the subscales used to create the cluster groups. A three-cluster solution demonstrated significant multivariate differences between cluster groups. Table 17 displays the means, p values, and post hoc comparison of means for each clustering variable across the student cluster groups.

Table 17
Cluster Group Means on Epistemological Beliefs Subscales

	Cluster 1 (n=28)	Cluster 2 (n=15)	Cluster 3 (n=15)	
Omniscient Authority	3.8_a	3.6_a	2.8_b	$p < .001$
Simple Knowledge	3.6_a	2.9_b	2.3_c	$p < .001$
Certainty of Knowledge	3.7_a	3.0_b	2.1_c	$p < .001$
Quick Learning	3.0_a	2.7	2.3_b	$p < .01$
Innate Ability	3.0_a	3.8_b	2.6_a	$p < .001$

Note: Means with different subscripts are significantly different at the .05 level.

The data analysis showed interesting group typologies of the students based on the patterns from the epistemological belief variables. The largest number of students (n=28) made up the first cluster group reporting the highest average means for four of the five dimensions. For this group of first-year law students, these students are best described as the less relativistic in their beliefs about learning and knowledge. These students' responses indicated that they were higher in tendencies to believe that the source of knowledge comes from an authority, that knowledge is simple and certain, and that learning occurs quickly or not at all. This same group was also more moderate in their belief that knowledge can be attained by other means than innate giftedness.

The second cluster (n=15) can be primarily characterized as a moderate, middle-of-the-road group because three of their subscale scores were between the less relativistic and more relativistic groups. This group of students was most distinctive in their beliefs about innate ability because they were the less relativistic relative to the other two clusters in their beliefs about the inherent nature of human knowledge capacity. The students also shared with the first cluster group of students a tendency to believe that their source of knowledge came from authorities or experts.

The third cluster group (n=15) consistently scored the lowest on all five of the dimensions. This group of students can be characterized as being the more relativistic students who viewed knowledge as malleable, uncertain, coming from a variety of sources, not necessarily quickly attained, and not based solely upon native ability for knowledge. Table 18 displays the student cluster groups are identified as:

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Table 18
Cluster Group Description

Cluster 1 (n=28) **Less Relativistic Overall**
                  High: Omniscient Authority, Simple Knowledge, Certainty Of
                           Knowledge, and Quick Learning
                  Mod: Innate Ability

Cluster 2 (n=15) **Moderately Relativistic Overall**
                  High: Innate Ability, Omniscient Authority
                  Mod: Simple Knowledge, Certainty Of Knowledge, and Quick
                           Learning

Cluster 3 (n=15) **More Relativistic Overall**
                  Low: Omniscient Authority, Simple Knowledge, Certainty Of
                           Knowledge, and Quick Learning, and Innate Ability

The next analysis was conducted in order to determine whether there were any significant differences between the cluster groups in their epistemological beliefs. MANOVA results indicated that there was an overall significant effect for the independent variable, Wilks Lambda = .18 (10, 102), $p<.001$. Separate univariate ANOVAS were performed as F tests in order to explain further how the cluster groups differed from one another. Significant differences were found for omniscient authority ($F(2,55)=11.68$, $p<.001$), simple learning ($F(2,55)=34.16$, $p<.001$), certainty of knowledge ($F(2,55)=38.35$, $p<.001$), innate ability ($F(2,55)=12.23$, $p<.001$), and quick learning ($F(2,55)=4.58$, $p<.01$).

In order to test further the validity of the three cluster-group solution, the three groups were compared on validating measures that were not included in the original cluster analysis. In fact, this is required as part of a cluster analysis. The student cluster groups

were tested for differences on the motivation, approaches to learning, and need for cognition variables. Table 19 summarizes the results and displays the means for each cluster group and the *p* values associated with the individual ANOVAs. Post hoc comparison of mean differences were calculated and are displayed in the table.

Table 19
Cluster Group Means on
Motivation, Approaches to Learning, & Need for Cognition Variables

	Cluster 1 (n=28) Less Rel.	Cluster 2 (n=15) Mod. Rel.	Cluster 3 (n=15) More Rel.	*p* Values
Motivational Variables				
Intrinsic Goal Orientation	4.7	4.9	5.2	n.s.
Extrinsic Goal Orientation	5.4 $_a$	5.1$_a$	3.9$_b$	<.001
Self Efficacy	5.3	5.3	5.3	n.s.
Effort Management	5.4	5.2	5.3	n.s.
Approaches to Learning				
Surface	4.2$_a$	3.6	3.2$_b$	<.001
Deep	4.9	5.1	5.5	n.s.*
Achievement Motivation	5.0	5.2 $_a$	4.3$_b$	<.05
Other Scale				
Need for Cognition	6.5$_a$	7.2	7.7$_b$	<.01

Note: Items were rated on 7-point scales except for Need for Cognition which was rated on a 9-point scale.
*=approaching significance *p*<.07. Means with different subscripts are significantly different at the .05 level.

Interestingly, the data indicated that the three groups are most distinguishable by their responses to the approaches to learning and need for cognition surveys. The ANOVAs demonstrated significant differences between the cluster groups for extrinsic goal orientation (*p*<.001), surface approaches to learning (*p*<.001), achievement motivation(*p*<.05), and need for cognition (*p*<.01). Only one of the four motivation

subscales, extrinsic goal orientation, indicated a significant difference between the three clusters group means.

These results suggested that the less relativistic cluster group of students were most likely to be motivated by extrinsic goals and to use surface approaches to learning. They also had the lowest need for cognition of the three cluster groups. These students tended to have a moderate expectation to succeed in their courses and to expend the effort necessary to regulate and manage their resources for learning in law school.

The second cluster of students, moderately relativistic in four of the dimensions, was distinguishable mostly by their tendency to believe that knowledge is an innate ability. These results indicated that the second cluster of students was as likely to be motivated by extrinsic goals as by intrinsic goals. Similar to the students in the less relativistic group, these students were moderate in their use of deep approaches to learning and they were more likely than the more relativistic third cluster of students to use both surface and deep approaches to learning strategically in an effort to achieve their goals. These students also were slightly more likely to have a tendency to use achievement motivation approach to learning than students in the less relativistic cluster.

The third group of students can be characterized as ascribing to the most relativistic beliefs about learning and knowledge of the students participating in the study. The results in Table 19 indicated that they were the most intrinsically motivated and least extrinsically motivated students. They were also the most likely to use strategies for learning that require deep processing and least likely to use study approaches that supported their desire to achieve their goals better than other students. These more

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relativistic students also had the highest need for cognition among the three groups. An interpretation of this scale would describe these students as interested in developing their ability to understand the field of law in meaningful ways, not interested in obtaining a simple understanding of complex issues, and tolerant of some of the ambiguity inherent in the legal domain evidenced by their tendency to enjoy thinking through complicated issues.

In summary, the patterns of student responses illustrate three distinct groups of students in this sample of law students. Interestingly, the self-efficacy and effort management scores were very similar across the three clusters. In order to explicate further the learning experiences of the students represented by each of the clusters, I contacted these students for interviews during their last year of law school (several more were contacted but only these agreed to be interviewed). Analysis of these interview data are presented in the qualitative portion of this chapter.

Qualitative Description

Interviews of Students Representing Each Cluster

The quantitative analyses indicated that there are some interesting relationships among the epistemological beliefs, motivation, assumptions of learning, and need for cognition measures. The cluster groups allowed an organization of the students according to similarities in their patterns of responses that also resulted in notable relationships. In order to achieve a more realistic understanding of the information obtained from the data analyses, it is necessary to, in a sense, "put a face on the numbers" before prematurely

characterizing these students according to the cluster group labels as good or better students.

However, a brief description of the law school environment may help provide some context to understand the student interviews. At the time this study was conducted, approximately 500 students were admitted at this particular law school each year as first-year students (also referred to as freshlaws). These students were divided into four groups called sections and each section was assigned a particular sequence of classes. The students took most of their courses in 100+ student classes in core topics such as property, contracts, constitutional law, and torts. These courses were year-long courses with the first semester (called a mid-term) examination grade counting as 20% and the final examination as 80% of the final grade for the course. The students were also assigned to one course that met in a small class of approximately 40 students. This class was designed for first-year students to experience some of the benefits of a smaller class size, allowing greater interaction with and feedback from the professor, more opportunity to participate in class discussion, and more direct attention to legal writing exercises conducted through these classes.

These first-year law students had a variety of available resources to draw from to aid them in their learning efforts. Upper class law students hired as teaching assistants helped students with areas such as writing assignments, ideas for outlining class notes and assignments, suggestions for preparing for examinations, and general encouragement or support for surviving the first year of law school. First-year students also had access to examinations from previous semesters at the library reference room, and during the

semester, many professors provided sample questions and answers for students to practice responding to examination questions. Some professors also made themselves available to answer student questions or give students specific help on improving their examination analyzing and writing ability.

At the time of the interview, most of the students were completing their final year of law school, studying in preparation for the bar examination in the summer, and finalizing employment arrangements for their first positions after law school. The students were contacted by email and reminded of their earlier participation in the study (when they had completed the questionnaire packet as first-year students). They were invited to participate in a 30-45 minute interview about their learning experiences throughout law school. Four students volunteered to be interviewed. The semi-structured interviews were audio-recorded, transcribed, and examined according to the cluster group the students were in from their earlier responses.

The primary purpose of the interviews was to elicit the students' perspectives about their law school learning experiences. They were asked to speak about three broad topics: their experiences as learners, their thoughts about becoming a lawyer, and their advice to incoming first-year law students. Students were asked to speak about their experience as learners throughout their law school career with probing questions about their grades, learning strategies, motivations, and relationships with others students and professors. Students were also asked to trace their thoughts about their developing views of themselves as a lawyer and how these were affected by their learning experiences. Finally, the students were asked what advice they would give to students who were just

starting law school. When examined in light of the cluster group descriptions, all of their responses to these questions would provide insight to how the students in the different clusters made sense of this learning environment.

The three students who are were selected as representatives of the cluster groups were between 23 and 27 years of age, white, and were liberal arts majors in college. The fourth student who was not included in this discussion was a student from the less relativistic cluster group. However, this student was completing her final year of a joint degree program that she was taking in conjunction with law school. The other student from the less relativistic cluster group had a more typical first year law student experience and so became the cluster group representative.

Mary – Cluster Group 1, Less Relativistic

For Mary, finishing law school meant she could get on with other, more personally meaningful parts of her life. Mary delivered her first child shortly after completing her law school examinations that final year. She had already obtained a job commitment from a relationship-oriented law firm that would respect her desire to have a family life apart from her work. Mary had found a way to manage her law school experiences in such a way that she maintained her personal life goals and attained what she wanted from the experience.

Mary described her law school learning experiences in a somewhat dispassionate way. Grades were an extremely important motivation for Mary throughout her law school career and she attributed this importance to her parents' influence. Mary recognized that grades were important for obtaining honored positions in law school, such as serving on

journal or law review editorial boards. However, Mary also found some personally relevant benefits from achieving good grades, especially after her first year exams. She remembered that attaining good grades after her first-year examinations made her feel more confident in her ability to do well and in her ultimate ability to become a lawyer.

Mary said her study strategies had not changed appreciably from her undergraduate study experiences. "I always tried to read everything that was assigned and do the outlining," Mary claimed. However, she also tried to limit herself to doing what the professors assigned and did not find that reading supplemental materials was a useful expenditure of her time. Mary relied on her professors to lead the way as far as obtaining legal knowledge. "I followed their plans. I didn't go talk to them a lot. But just whatever they said to do, I did," Mary explained.

Mary sometimes found it useful to share outlining duties with her peers during her first couple years of law school. However, she learned that other students' outlines were not always sufficient for her needs as she would sometimes have to do more work to compensate for their deficiencies. The greatest benefit to Mary in sharing the workload in this manner was that it helped her manage her emotions as she found these interactions with other students during the stressful years of law school "calming."

During her interview, Mary admitted that she did not like law school very much. Mary was rather matter of fact about the statement that she had obtained relatively good grades but she admitted that she was also motivated to persist in her learning efforts because of the promise of future financial rewards. Mary would not describe her learning experiences in law school as discovering law and, even though she thought she had

absorbed quite a bit of information, she also felt she had learned "a way to think about" the law.

Mary did not often venture into areas of law that interested her. In fact, she delayed her selection of an area of law on which to focus until her third year of law school. She chose the transactional tax area more for the fact that she could avoid litigation and court appearances as much as possible than for the reason of her interest in the tax area. Mary was content with her job selection choice and spoke of the quality of life benefits for employees of the firm she had agreed to join.

Mary's responses to the interview illustrates some of the less relativistic group characteristics. Mary deferred to her professor's knowledge as her primary guide for what she needed to know and study during law school. Mary gave some indication of being extrinsically motivated to pursue her goals in law school. Mary was directed in her selection of activities by external factors such as her parents' wishes for her to obtain a good grade. In addition, she was responsive to her outward environment because of her reticence for debating in a public forum. Mary's comments revealed her concern for her emotional well-being as she sought the companionship of the study groups because it helped soothe her emotions. Mary said her successful grades helped to bolster her confidence. As a student who did not enjoy law school very much, Mary found a way to persist until she achieved her academic goals and then devised a plan for her post-law school life that allowed her to maintain the personal goals she valued most.

Robin – Cluster Group 2, Moderately Relativistic

Robin was a law student who had a strong belief in obtaining grades for a purpose and yet, at the same time, a considerable belief in following her own interests in law school. Robin described herself as a student who had become an efficient learner in law school. For her, that efficiency meant doing what was necessary to find out first if her learning skills were adequate for the task, and then continuing to hone her study procedures so that she could accomplish what she wanted in her courses. As Robin put it, "I think I became comfortable with knowing what I had to do to get the grade I wanted. So there were times when it was exciting and interesting, and oh, I'm really into this … and then there were definitely times where it was … all about just get the grade, just get the grade."

Robin's repertoire of studying strategies in law school included relying on notes from classes, highlighting reading assignments with meaningful color codes, and listening to professors' explanations about legal concepts or theories. She would then use these notes and highlights to help herself memorize and organize the information for examinations. Robin also found great value in studying with other students and seldom studied alone. She felt that she processed information better by talking it over with peers than simply reading it on her own. Her first year study group spent extensive time outlining cases together and quizzing each other with questions they obtained from other study aids, students, or previous exams the professors made available to students. It was during these types of interactions that Robin made connections between the information and in the process of doing so, she would be able to remember the information for her examinations.

Even later, during her second or third year, Robin would seek out a study partner or two to review outlines, examine practice examinations, and narrow the topics to focus on pertinent information for the examination. Robin felt she needed these types of study relationships because she could not muster the energy to study in this way on her own.

Robin was motivated to maintain the good grades she had achieved in order to accomplish other goals she had during law school. Robin realized that if she did not achieve good grades, she would be limited in her ability to get a clerkship of her choosing, "…but it was also more of a feeling like … I can do this and I can continue to do well and get good grades. So it's ridiculous if I don't." On the other hand, Robin said she made a calculated attempt to take classes that she was interested in during law school rather than classes that only would be useful to her when it came time to take the bar examination. She decided to believe the advice she had received from other law students, that she could obtain all the preparation she needed from a commercial bar exam preparation course she would take after law school.

Robin, who had been a teacher for three years before law school, came to law school with a desire to "change the world." Her belief in her ability to influence the world on a grand scale diminished during the process of law school. While her interest in law and the application of justice on a broad basis did not wane, she became more realistic in her belief that she would have the opportunity to work on a case that would effect such changes. She learned through summer clerking experiences and talking with practicing attorneys that most lawyers spend their time in routine activities that make an impact one case or person at a time. Robin developed an unexpected interest in criminal law during

law school and she was able to parlay that interest into clerkship experiences that allowed her to examine international war crimes. Robin did not view herself as an "expert" in law and sometimes found herself amazed that she was even obtaining a law degree. Robin declared, "there are times when I'm like, oh my God. They are giving me a degree and they're so wrong. They shouldn't be letting me out in the world." Robin was not sure exactly what kind of law she wanted to practice, but she had obtained a two-year clerkship opportunity with a state judge that would allow her to make the decision over time.

Robin's interview provides some insight into how a student from the moderately relativistic cluster group in the first year navigated through law school. Robin's interview suggested that she had an extrinsic goal orientation and primarily relied on surface approaches to studying while also expending the effort necessary to engage in collaborative learning activities. In fact, Robin's self-knowledge about harnessing her learning efforts by making sure she studied with other students is indicative of students who highly manage their effort. Although Robin had an extrinsic focus on grades, she was also motivated by an initial altruistic interest in law that developed into a passion for working for the welfare of others on an international level. Robin held a tentative stance towards her expectancy for success in law school and as she received feedback on her ability to achieve in law school, she grew in her confidence about her capabilities. Robin had a similar tentative self-efficacy for becoming a lawyer but her plans for post-law school employment, her determination to prepare extensively for the bar examination,

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and her willingness to allow her decision about her future practice to emerge over time is indicative of a student who was in control of her own progress.

Charles – Cluster Group 3, More Relativistic

Charles came to law school upon the recommendation of co-workers at a hometown law firm where he had worked for summer jobs. They thought Charles would make a good lawyer because he liked to argue with them. Charles already had degrees in acting and directing and he thought this theatrical background and his penchant for debate made him a prime candidate for a legal career. That, and the fact that he desperately needed a paying profession instead of a purely artistic one led Charles to pursue law school with a great deal of energy.

Charles stated that he had very little difficulty learning in law school. He described a variety of strategies he used to acquire, organize, and prepare information he needed. Even though he found ways to learn and remember, for example, the content of statutes for examinations, "it's not about memory." Charles recognized early in his first year that he needed to put in the time "to do the analysis" and that he could not rely solely upon memorizing information to get through examinations.

Charles was thorough and disciplined in his approach to studying. He developed routines in scheduling his time for studying alone, studying in groups, and preparation for examinations. Charles structured his week so that he could devote his time and attention to his studies and have one day of the weekend that he could enjoy for his personal life, which for him included a new relationship he began during the time he was in law school. Charles was also very structured in his management of information from his courses: "I

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wrote my own outlines for every class I took." Even when he participated in study groups in which members would outline different parts of the class materials, Charles would take their outlines and modify them until they reflected his own preferences. Charles found his first-year study group immensely helpful because he would often engage in intense interactions with his fellow students as they "argued … at such length with such passion," and "disagreed with each other so vehemently," that they would learn the material far better than they would have otherwise.

Charles said he forced himself to control his curiosity about legal theories or interesting ideas and reined in his desire to look into these issues in more depth. He managed his time and focused on learning the material that was covered in class. That did not mean he did not go beyond the parameters of a course, however. "When I was learning this material, I did not take the professor's lecture as being final. I would always go back to the book and sometimes to a third source if I felt like I didn't understand it completely." Charles said he continued to seek other sources of information until he understood the material "well enough that I could teach it to myself."

Charles' hard work paid off as he had good success with his grades. Charles was very aware of the impact grades had upon his options in law school and for obtaining desired clerkships. He knew that "grades were absolutely almost the only important factor when it came to on-campus interviewing" for summer employment opportunities. Charles knew several students who did not handle well the discouragement that came as a result of pressure about grades. However, Charles was able to harness the pressure and use it as a motivation to continue his efforts for studying. Charles also found that doing well with

his grades fed his sense of well-being. "As I started doing better in law school it made me feel better about my abilities. I will leave law school with a very positive building experience."

Charles talked about his perspective on law school, "I saw law school almost like a game. Well, more serious than a game." As an example, Charles talked about how he would strategically respond to examination questions based on information he had gleaned from observation or other students about professors' preferences for examination answers. Charles said that on an important examination he had just completed, the answers he gave "were not what I thought were the correct answers" about the subject. Charles came to know which professors wanted their own answers back on the examinations, which ones took points off for extending answers beyond the parameters of the questions, and which ones were favorably impressed with copious amounts of verbiage about even obscure aspects of a subject. Charles said, "I never resented the game being played that way. Some did immensely. And so, I can respect that, but I guess I'm more results oriented."

Charles stated that he really enjoyed learning in law school and saw some changes in himself that he had not expected. Over the course of time in law school, he developed a real interest in the law, so much so that he declared, "for me now, it is almost not about the money," even though he had a prestigious clerkship to look forward to as he was finishing his studies. Charles was very aware that he had been blessed and he was very sympathetic toward other students who had not done as well.

Charles is a good example of students from the third cluster group. His disciplined study habits, his reliance on deep rather than primarily surface approaches to studying, and his intrinsic interest in various legal theories and subjects were apparent throughout his interview. Charles was also very strategic in his management of resources such as time and knowledge he could gather about professors from other students. In contrast to Mary, Charles' beliefs about learning were apparent throughout his interview as he mentioned his willingness to go beyond the minimal requirements for learning information, and his refusal to accept his law professor's explanations and instruction as the sole authority in his classes.

Chapter 5: Discussion

The purpose of this research was to examine law students' conceptions of their learning experiences in their first year of law school and to characterize their understandings of their entire law school learning experiences in terms of their epistemological beliefs, assumptions of learning, and motivations for learning. Three broad research questions of this study were used to determine (1) if a group of first-year law students would show a range of epistemological beliefs, (2) the relationships among the epistemological beliefs, assumptions of learning, and motivational variables, and (3) how law students conceptualized their learning experiences across the years of their program. These questions not only required analysis of the findings, but consideration in light of other research. In what follows I first summarize the findings by issues related to research questions and then address broader issues about epistemological beliefs presented in the introduction that are most relevant to this study.

Description of Law Students' Epistemological Beliefs

The first issue, already addressed in the results chapter, indicated that a group of first-year law students could be distinguished in terms of their epistemological beliefs. As measured by the epistemological beliefs dimensions, these first-year law students were predominantly grouped in the more sophisticated, higher end of the beliefs scales. This corresponds with other studies that show that upper-level undergraduate and graduate students tend to be more relativistic in their intellectual development and their epistemological beliefs (Braebeck, 1984; Moore, 1994). The law students in this study, however, varied within the upper half of the total epistemological beliefs scale and

ranged from, what I termed, less relativistic to more relativistic. By using these terms, however, I do not mean to concur with the stage model research point of view of epistemological development that posits a sequential maturation of college students' thought processes. According to proponents of the cognitivist-developmental perspective, many upper-level college students transition to a view of knowledge that is essentially relativistic and context-bound (Moore, 1994, Pintrich, 2002). Students who extend their education to graduate school are most able to move to Perry's (1970) highest stage of intellectual growth wherein they advance from viewing knowledge in a strictly relativistic stance to making a committed choice among competing alternatives based on personal meaning and relevance. The first-year law students who participated in this study could be said to reflect the range of development between these stages of growth. However, from a cognitivist epistemological standpoint, these students' many hours of experience and exposure to disciplinary reasoning facilitated their commitment to more sophisticated epistemological beliefs across many dimensions such as the certainty or simplicity of knowledge (Schommer, 1990; Schraw, 2001). These results are then also appropriate to the perspective that epistemological beliefs vary due to their independence (students can be more or less sophisticated in different beliefs) and due to their asynchronous nature (students can simultaneously believe different aspects of the same belief dimension) (Schommer-Aikins, 2002).

Relationships Among Beliefs, Approaches to Learning, and Motivation

The second research question explored relationships that exist among epistemological beliefs, assumptions of learning, and motivations for learning, including need for

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cognition. Based on the cluster analysis and ANOVA results, the relationships among epistemological beliefs, approaches to learning, and motivational variables were most informative. In several ways, the cluster analysis supported much of the existing theory and research on epistemological beliefs, motivation, approaches to learning, and need for cognition. For example, students who were less relativistic in their beliefs also tended to use surface approaches to their learning and studying, tended to be more motivated by extrinsic incentives (i.e., grades), and tended to be less motivated by deep thinking (i.e., need for cognition). By contrast, students who were more relativistic in their beliefs tended to use fewer surface approaches to their learning and studying, tended to be less motivated by extrinsic incentives, and tended to be more motivated by deep thinking.

Epistemological beliefs and assumptions of learning research supports these general characterizations that students with more sophisticated epistemological beliefs use more elaborative learning strategies, enjoy thinking deeply about subjects, and are motivated to learn because of an inherent interest in or appreciation for the subject. Conversely, students who employ surface approaches to learning typically have an extrinsic goal orientation and are more dependent upon factual information they can obtain from instructors or texts.

However, other aspects of the cluster analysis demonstrated interesting similarities among the students that warrant further discussion, and perhaps, further research. For example, the cluster groups demonstrated no significant differences with respect to their intrinsic motivational goals, their effort management, and their self-efficacy. Relative to the differences noted above, their similarities suggested that these students entered law

school with similar motivating interests and valuing of the study of law. As mentioned earlier, these students had already experienced a fairly high level of academic success as demonstrated by the fact that they had graduated from their undergraduate colleges and had been accepted into a highly competitive law school. Hence, their similar effort management and self-efficacy ratings suggested that these students had perhaps found it necessary to manage their effort in the past, and that their previous academic successes encouraged them to expect success in law school. Although they exhibited differences in their epistemological beliefs, they had all been successful enough in college to be admitted to a prestigious law school and they expected to be successful in law school.

Another interesting similarity across the cluster groups was their ratings for deep approaches to learning and studying. This is indicative of the fact that the epistemological belief dimensions that formed the cluster groups did not result in groups that were different in their use of strategies to attain meaningful understanding. It also corresponds with the students' intrinsic interest in law. The difference for these students was with respect to the extent to which they were willing to use surface approaches to learning and studying. The less relativistic and moderately relativistic students were more likely to use surface approaches to learning and studying when compared to the more relativistic group. The group differences for willingness and propensity to use surface approaches to studying could be reflective of their differences in need for cognition. All of the students may have been aware that deep approaches were necessary to the learning of law-related information, but only the more relativistic students enjoyed that demand.

It is interesting to note that epistemological beliefs were not correlated with students' grades for the course they were taking. The variable that was most correlated with students' grades was self-efficacy, a variable for which the cluster groups did not demonstrate significant differences. Hence, it is not surprising that the cluster groups did not demonstrate significant differences with respect to their grades. In essence, the dimensions that contributed to the clusters did not result in groups that were different in terms of success in law school.

Law Students' Conceptions of their Law School Experience

Other, broader questions were raised in the introduction to this study about epistemological beliefs and their structure, generality, and changeable nature. This study was not designed to explore these major issues fully, but the results suggested some initial support for the ideas. For example, the student interviews provide some indication that students (as representatives of the cluster groups) held varying degrees of epistemological beliefs and motivations and assumptions of learning. Both Mary and Robin, for example belonged to groups that were moderately strong on extrinsic motivation. However, Robin, from the moderately relativistic cluster group, definitely also had an initial intrinsic interest in law that evolved over the three years of law school, but never diminished. Mary's intrinsic motivation for law school was not readily apparent from her interview or her description of her law school interests or aspirations for future law employment.

Law students' interviews, therefore, further illustrated the complexity that the quantitative measures only suggested. For example, as demonstrated above, the students'

descriptions of their law school learning experiences showed the tensions between some students' intrinsic and extrinsic motivations. This is consistent with research that has demonstrated that although students can be primarily intrinsically or extrinsically motivated to achieve learning objectives, combinations of these orientations are often exhibited (Harackiewicz, Barron, Tauer, Carter, & Elliot, 2000; Rigby, Deci, Patrick, & Ryan, 1992). The critical issue, then, is not that students are primed to be intrinsically motivated for a topic because that will enable them to be more successful academically. Students who have an extrinsic goal orientation may also be acting in their own best interests. This is a common occurrence for students who realize they may not be able to attain higher-order, long-term future goals if they do not also show high academic performance. Law students, for example, exhibited their high ability prior to law school by attaining high GPA's or high scores on law school entrance examinations. For many students, their focus on doing what was necessary to achieve high grades might have paid off in the short term because they were able to attend law school. Motivation research has shown that students may simultaneously hold combinations of motivation components (e.g., intrinsic and extrinsic goal orientation or performance and mastery goals) and thereby maintain their interest in the subject matter while they pursue high academic achievement (Harackiewicz, et al.,1997).

Similarly, the students who simultaneously hold different epistemological beliefs might find corresponding advantages and disadvantages for their learning approaches. In these interviews, Mary spoke about her reliance on professors as a source of knowledge, accepting their recommendations and directives as the primary guide for her study

actions. At the same time, she indicated that she valued processes that allowed her to think and find meaning in what she was learning.

Considering the asynchronous nature of epistemological beliefs allows an appreciation of the strengths and weaknesses that any particular position on epistemological dimension a student might inhabit. Charles, the student representing the more relativistic group, responded to his learning environment by recognizing he could not pursue all of the levels of interest he might have for a particular topic. He realized he needed to harness his energy for deeply probing the information and knowledge he was acquiring for class and could not afford to be side-tracked into investigating tangential topics. Within that framework, Charles freely sought information and resources he needed to obtain the degree of understanding and meaning he wanted for class. At the same time, Charles was very aware of and responsive to the professors in his class. In fact, he relished the challenge of obtaining the information about how professors preferred to receive answers on examinations and using that information to his advantage. Charles' statements were not fully reflective of a belief in omniscient authority, but his strategic choices to act in this way are interesting to note. Further research efforts might examine if only more relativistic students display this kind of flexibility in strategically using their asynchronous beliefs.

In contrast, Mary maintained her distance from pursuing topics of interest because she relied on her professors' recommendations for what to study and do for the class. Mary's response to her learning environment was epistemologically less sophisticated, but at the same time she combined it with her belief that it was necessary for her to use

elaborative approaches to learning (reflecting a more sophisticated epistemological belief that knowledge was to be acquired from her own processes as well).

Research also supports the idea that students may simultaneously combine different approaches to learning. For example, Kember (1996) reported that students described their study efforts as actions to memorize and to understand information. Kember did not classify this as a new category reflecting a juxtaposition of both the deep and surface approaches to learning, but instead, he described this as a subset of the surface approach that allows consideration of students who use some level of understanding with memorizing to accomplish learning goals. As a step in the process towards getting more information, especially for students in the introductory portion of studies (Kember & Gow, 1994), students use rehearsal strategies to memorize information as part of the process to expand their understanding. By so doing, students create cognitive structures as they memorize the information that allows them then to make connections with other knowledge in more meaningful ways.

The interviews supported the idea that while students varied in their epistemological beliefs, their intrinsic and extrinsic motivation, approaches to learning, and need for cognition, the students' self-perceptions of their own interactions in the law school learning environment were also similar. As such, the interviews intimated that not only students' epistemological beliefs, but their self-beliefs about becoming a lawyer are also relevant considerations. Students perceptions about self in relation to different educational contexts may intervene between students' learning conceptions and their aspirations for the future. The self is a legitimate source of reference for students when it

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becomes the focal point of meaning making. For one thing, beliefs about self as central to the task of learning become more accepted by students as they mature in their epistemological beliefs (Moore, 1994) and begin to accept the role of self as an authentic participant with expert authorities (including texts) in constructing knowledge and understanding. Stage model views of epistemological growth also place students' views of self as an aspect of the mechanism for transition to the final stage is that students commit themselves to a certain viewpoint partially in relationship to their own identity or sense of self (Moore, 1994).

The following sections highlight the limitations of the study, the implications of the study for future teaching and learning, and the recommendations for future research.

Limitations

Several limitations exist for this study and are related to the sample size, characteristics of the participants, and the interview process. First, a small number of respondents from a single setting limits the generalizability of these findings to this specific domain and these findings may not be applicable to other domains or even other similar settings without careful consideration of how well aligned are these characteristics. In addition, reliance upon volunteer participants in the study more than likely resulted in an overrepresentation of students who had at least a moderate amount of motivation and self-direction to follow the procedures for completing and turning in the questionnaire materials. Students who did not volunteer to participate were not questioned to check to see if there was any systematic reason for their non-participation. Nevertheless, the number of participants in this study was sufficiently large enough to

find an adequate spread among the scores for epistemological beliefs and to form the students into discernable groups for the cluster analysis.

Furthermore, it may have been informative to have the students retake the measures in the final year to examine whether there had been significant changes in response over the years. A longitudinal study design would be more advantageous for obtaining a greater amount of student data spanning the period of a law students' academic career and make it possible to gather more evidence about changes in epistemological beliefs processes within this environment.

The interviews did not cover multiple representatives of the various cluster groups. It would have added strength to the study to have interviewed more students within each cluster group and thereby examine similarities and differences in their patterns of responses, beliefs, and attitudes about learning. Adding more interviews would also allow a more complete qualitative picture of the experience. Another limitation of the interviews in this research study was reliance on students' retrospective descriptions of intentions, actions, beliefs and motivations during law school. Admittedly, interviewing law students during or immediately following their first year of study could have added depth and accuracy to their descriptions, but it might have also captured their skewed understandings of those experiences due to the emotions and stress they may have still been processing. Asking third-year students about their entire law school process allowed the students to place that first-year experience into a different frame of reference that was probably balanced by the added perspective and experiences they had gained from the final two years of law school and legal work experience. Additional research could

examine how students' descriptions of their first-year experience changes or remains constant by their final year.

Familiarity with the law school culture can benefit and hinder researchers at the same time. As an insider researcher, it was to my advantage to have a shared reference with law students. However, it could arguably be considered not enough basis for fresh understanding and such familiarity may detract from the advantages that a more detached perspective gives (Crowson, 1987). The issue is clearly one for which researchers must seek balance and be aware of the limitations.

Implications of this Study for Teaching and Learning

One of the ways this preliminary study of law students' conceptions of learning can be used is to help educators identify reasons students have difficulty with thinking or understanding an issue (Schommer-Aikins, 2002). As legal educators become aware of the full spectrum of students' intellectual development and epistemological beliefs and how those processes affect and are affected by students' motivations, they are more able to consider this information in light of their instructional plans. Presumably, instruction could then be redirected towards helping students with their learning.

However, providing prescriptive advice to legal educators about students' conceptions of learning may not be the only useful action. This research proposes that researchers and educators alike value students' conceptions of learning whether they appear to be more or less sophisticated in their epistemological beliefs or assumptions of learning. It may be more worthwhile for law schools to begin by directing their efforts to providing a learning environment that helps first-year students become aware of their

own beliefs about learning and instruction so that they can make strategic choices to support their learning processes. Students could perhaps then anticipate problems, take steps to adapt to their instructional environment, and refine their learning repertoire to be more effective learners in law school. This research suggests that relativistic students may be able to make use of even their seemingly less sophisticated beliefs and assumptions of learning to their learning advantage.

Finally, students may also be able to help each other as they collaborate to carry on the law school learning environment. As students attend to and respond to their learning environment through self-reflective examination or conversations with other students about their implicit theories and beliefs, they can use their knowledge of their conceptions of learning to help each other. Students sometimes have valuable insights as to what other students need to do to succeed. The final interview question illustrates one possible type of student-to-student outreach. Students were asked what advice they would give to first-year law students just entering law school. Interestingly, the three students' responses reflected a salient aspect of their law school experiences in line with their cluster group representation.

Mary's advice to future first year law students was not focused on features of the learning environment that were external to her such as professors or grades (as might be expected from a student in the most relativistic cluster group). Instead, Mary's recommendations for new law students centered around advising them to manage their emotions during the first year. "…[S]tay calm and try not to listen too much to what everybody else is saying and doing." Mary felt it was important for first-year students to

move through the process of law school with an inner confidence built on knowing what they want to do and trusting that it will happen for them, regardless of

Robin, from the moderately relativistic cluster group, showed both an extrinsic goal orientation and a concern that first-year law students would find a meaningful learning experience in law school. She stated, "grades aren't everything." By this she meant, that "it's not the end of the world" if first-year law students do not receive immediately the grades they desire. She would advise new law students to have faith that "things will work out the way they're suppose to" and that they will be able to get good jobs after law school even if they are not at the very top of the class ranking. Robin then added that she would also advise first-year students how worthwhile it would be for them to take some classes – and some professors – just because of their own interest.

Charles, from the more relativistic cluster group, gave advice that mirrored his comments about his effortful management of resources so that he could stay focused on his learning goals. Charles said he would advise first-year law students to manage their time so they would be able to work hard to study and then reward themselves with time to do non-law related activities.

Future Research Directions

More than simply reflecting an interest in law students as an exotic species rarely described in psychological and educational literature, I found great value in investigating these issues about epistemological beliefs and conceptions of learning with students from this setting. A law school environment is a fruitful context for research about students' conceptions of learning and epistemological beliefs because it provides a microcosm of

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experienced learners who yet exhibit enough variability that representatives across the spectrum of epistemological beliefs (in the relativistic sections) could participate in a study. As experienced learners operating in a demanding, ill-structured learning environment, many law students' conceptions of learning are challenged enough during law school that it causes them to take steps to modify their learning actions. Although law students may not directly focus on the fact that they often respond to this learning environment by modifying their beliefs, motivations, or approaches to learning, they are able cogently to discuss their thoughts when asked about these processes in interviews and on self-assessment instruments. Future research would do well to include such students who generally are motivated to achieve and yet face a daunting task of integrating the knowledge into usable and meaningful framework.

More than likely, for many first-year law students, the interaction of their epistemological beliefs, motivations, and approaches to learning with elements from the learning environment impeded rather than fostered their learning. Future research should be directed at determining the structural components of epistemological beliefs that changed or modified over the course of three years of study in law school, which students have difficulty replacing their well-trained approaches to learning with different approaches, and what student actions result in ineffective learning. In addition, research should include examining how students come to be aware of their need to adjust their approaches to learning or to engage in more purposeful efforts to manage their learning,

Most certainly, a finer tuned epistemological beliefs instrument should be designed to specifically gauge how much students are in allegiance with either ends of the

epistemological beliefs scales. Additionally, this research suggested that future studies should continue to include measures of students' varying levels of combinations of approaches to learning, motivational beliefs, and need for cognition as part of participant characteristics in a particular learning environment. For example, this study indicated that first-year law students' self-efficacy beliefs would be a useful item to investigate further. Law students' high sense of academic self-efficacy may also be interrelated with their other self-beliefs (Pajares, 1992), such as their self-efficacy for summer clerkship positions or beliefs about becoming a lawyer.

Further investigations that connect conceptions of learning to other relevant cognitive and affective processes for students' success in law school is an important future research direction (Diaz, Glass, Arnkoff, Tanofsky-Kraff, 2001). For example, other studies that examine law students' emotions, methods for managing stress and anxiety, and views of self can be related to epistemological beliefs, assumptions of learning, motivations, and need for cognition.

Conclusion

Learning is a complex activity. In addition to new content students must learn, they also must deal with influences from the learning environment. Students' internal processes can help them or hinder them as they work to muster all their learning resources to achieve their academic goals. Students' epistemological beliefs are part of their conceptual tools for learning that are operating to affect their motivations and strategies for learning and studying as they go about their academic endeavors. Results of this study showed that as novice students, first-year law students who were more

relativistic and less relativistic were able to successfully made use of their more and less

sophisticated beliefs to accomplish their learning goals.

Appendix A: Information Sheet

Name: _____ (please print)

Class (circle one):   **Property**   **Torts**

Please answer the following general information questions:

1. Gender (circle one)   **Male**   **Female**

2. What is your age? _____

3. What is your ethnic background? _____

4. What year did you graduate from college? _____

5. What was your major in college? _____

6. What other degrees have you earned? _____

GENERAL INSTRUCTIONS

The following survey instruments are about your thoughts and beliefs about learning and motivation. Remember, there are no right or wrong answers; just answer as accurately as possible. It is most helpful if you can come to a decision point, so please answer each question.

Note that these questionnaires will be used for research purposes only and will remain strictly confidential. As with any response to any research questionnaire, it is very important that you answer as candidly as possible. Your answers should reflect your *current* beliefs and opinions formed over the years as a student. Please take into account that your answers should reflect your *personal* beliefs and/or opinions and not the theories or constructs you may have learned.

Thank you for your participation!

Appendix B: EB Questionnaire

Use the scale below to respond to the following statements. If you strongly agree with the statement, write a 7; if you strongly disagree with the statement, write a 1. If you more or less agree with a statement, find the number between 1 and 7 that best describes you. Please respond to each statement.

Strongly Disagree			Neutral			Strongly Agree
1	2	3	4	5	6	7

_____ 1. Professors should control the pace of students' learning.

_____ 2. When I study, I look for specific facts.

_____ 3. Professors should control the pace of students' learning.

_____ 4. It is often unnecessary to combine information across chapters in a book or even among classes.

_____ 5. In a heated discussion, I generally become so absorbed in what I am going to say that I forget to listen to what others are saying.

_____ 6. I prefer that professors stick to more concrete examples and do less theorizing.

_____ 7. When I learn, I prefer to make things as simple as possible and avoid looking for different explanations for the same thing.

_____ 8. Learning is essentially doing what your professors tell you.

_____ 9. Most problems have one best solution no matter how complex they are.

_____ 10. An expert is someone who has a special gift for a particular field.

_____ 11. I feel that a course in study skills would probably be valuable for many undergraduates.

_____ 12. For good students, understanding a concept is easy.

_____ 13. I can believe most things I read in a textbook.

EB Questionnaire

Use the scale below to respond to the following statements. If you strongly agree with the statement, write a 7; if you strongly disagree with the statement, write a 1. If you more or less agree with a statement, find the number between 1 and 7 that best describes you. Please respond to each statement.

Strongly Disagree			Neutral			Strongly Agree
1	2	3	4	5	6	7

_____ 14. A group that tolerates too many differences of opinion among its own members cannot exist for long.

_____ 15. If a person cannot understand something within a short amount of time, it is often unnecessary to keep on trying.

_____ 16. Sometimes I just have to accept the answers and comments my professor gives me even though I don't understand them.

_____ 17. I can rely on an expert (e.g., professor) in learning about something I really want to know.

_____ 18. The statement "genius is 10% ability and 90% hard work" is essentially true.

_____ 19. It usually takes a lot of time to learn important things.

_____ 20. Being a good student generally involves memorizing a lot of facts.

_____ 21. It is annoying to listen to a lecturer who cannot seem to make up her/his mind as to what she/he really believes.

_____ 22. The most important aspect of doing research is precise measurement and careful work.

_____ 23. How much a person gets out of school mostly depends on the quality of the professors.

_____ 24. I prefer classes in which students are told exactly what they are supposed to learn and what they have to do.

EB Questionnaire

Use the scale below to respond to the following statements. If you strongly agree with the statement, write a 7; if you strongly disagree with the statement, write a 1. If you more or less agree with a statement, find the number between 1 and 7 that best describes you. Please respond to each statement.

Strongly Disagree			Neutral			Strongly Agree
1	2	3	4	5	6	7

_____ 25. Usually the first time you try a new subject, you can tell how well you are going to do at it.

_____ 26. People who challenge authority are overconfident.

_____ 27. Learning definitions word-for-word is often necessary to do well on tests.

_____ 28. It is difficult to learn from a textbook unless you start at the beginning and master it one section at a time.

_____ 29. In a discussion, I often find it necessary to repeat myself several times to make sure I am being understood.

_____ 30. I dislike working on problems which have no clear-cut answers.

_____ 31. Even for a smart student, getting ahead takes a lot of work.

_____ 32. The best thing about science courses is that in them most problems have only one right answer.

_____ 33. For almost all information I can learn from a textbook, most of it should be understood on the first reading.

_____ 34. Some people are born as good learners; others are just stuck with limited ability.

_____ 35. Working on a difficult problem for an extended period of time only pays off for really smart students.

_____ 36. There is usually only one best way to solve most problems.

_____ 37. The really smart students don't have to work hard to do well in school.

EB Questionnaire

Use the scale below to respond to the following statements. If you strongly agree with the statement, write a 7; if you strongly disagree with the statement, write a 1. If you more or less agree with a statement, find the number between 1 and 7 that best describes you. Please respond to each statement.

Strongly Disagree			Neutral			Strongly Agree
1	2	3	4	5	6	7

_____ 38. Learning is a process of building up knowledge gradually.

_____ 39. Sometimes I feel that I lack the talent to do well in school.

_____ 40. I tend to believe what the professor says rather than what students say.

_____ 41. If a person is not really smart, it is hard for him/her to improve the effect of studying.

_____ 42. Scientists can ultimately discover the truth.

_____ 43. A good professor's job is to keep his/her students from wandering off the right track in a course.

_____ 44. If my professor's opinions are different from those I have, I tend to follow his/her opinion.

_____ 45. Understanding something is not a process which takes a long time or is complicated.

_____ 46. Most words have a single, clearly defined meaning.

_____ 47. My blood boils whenever a person stubbornly refuses to admit he/she's wrong.

_____ 48. Self-help books are not much help.

_____ 49. I'd like it if I could find someone who would tell me how to solve my personal problems.

_____ 50. Learning in college is to acquire new facts that I hadn't known previously.

Appendix C: MSLQ Scale

Use the scale below to respond to the statements. If you think the statement is very true of you, write a 7; if the statement is not at all true of you, write a 1. If the statement is more or less true of you, find the number between 1 and 7 that best describes you. Please respond to each statement.

Not at all true of me						Very true of me
1	2	3	4	5	6	7

_____ 1. In this class, I prefer course material that really challenges me so I can learn new things.

_____ 2. I often feel so lazy or bored when I study for class that I quit before I finish what I planned to do.

_____ 3. Considering the difficulty of this class, the teacher, and my skill, I think I will do well in this class.

_____ 4. I'm confident I can learn the basic concepts taught in this class.

_____ 5. I'm confident I can understand the most complex material presented by the instructor in this class.

_____ 6. Getting a good grade in this class is the most satisfying thing for me right now.

_____ 7. I'm confident I can do an excellent job on the assignments and tests in this course.

_____ 8. The most satisfying thing for me in this class is trying to understand the content as thoroughly as possible.

_____ 9. I expect to do well in this course.

_____ 10. I prefer course material that arouses my curiosity, even if it is difficult to learn.

_____ 11. I work hard to do well in class even if I don't like what we are doing.

_____ 12. If I can, I want to get better grades in this class than most of the other students.

MSLQ Scale

Use the scale below to respond to the statements. If you think the statement is very true of you, write a 7; if the statement is not at all true of you, write a 1. If the statement is more or less true of you, find the number between 1 and 7 that best describes you. Please respond to each statement.

Not at all true of me						Very true of me
1	2	3	4	5	6	7

_____ 13. When course work is difficult, I give up or only study the easy parts.

_____ 14. I want to do well in this class because it is important to show my ability to my family, friends, employer, or others.

_____ 15. Even when course materials are dull, and uninteresting, I manage to keep working until I finish.

_____ 16 When I have the opportunity in this class, I choose course assignments that I can learn from even if they don't guarantee a good grade.

_____ 17. The most important thing for right now is improving my overall grade point average, so my main concern in this class is getting a good grade.

_____ 18. I'm certain I can understand the most difficult material presented in my course readings.

Appendix D: ASI Questionnaire

Some of these items may seem familiar; however, you have not seen these exact items before. Use the scale below to answer each statement. If you strongly agree with the statement, write a 7; if you strongly disagree with the statement, write a 1. If you more or less agree with a statement, find the number between 1 and 7 that best describes you. Please answer each statement.

Strongly Disagree			Neutral			Strongly Agree
1	2	3	4	5	6	7

_____ 1. I find I have to concentrate on memorizing a good deal of what we have to learn.

_____ 2. I usually set out to understand thoroughly the meaning of what I am asked to read.

_____ 3. I enjoy competition; I find it stimulating.

_____ 4. I usually don't have time to think about the implications of what I've read.

_____ 5. Professors seem to delight in making the simple truth unnecessarily complicated.

_____ 6. I generally put a lot of effort into trying to understand things which initially seem difficult.

_____ 7. When I'm reading I try to memorize important facts which come in useful later.

_____ 8. It is important to me to do things better than my friends.

_____ 9. I often find myself questioning things that I hear in lectures or read in books.

_____ 10. Often I find I have read things without having a chance to really understand them.

_____ 11. When I'm tackling a new topic, I often ask myself questions about it which the new information should answer.

ASI Questionnaire

Some of these items may seem familiar; however, you have not seen these exact items before. Use the scale below to answer each statement. If you strongly agree with the statement, write a 7; if you strongly disagree with the statement, write a 1. If you more or less agree with a statement, find the number between 1 and 7 that best describes you. Please answer each statement.

Strongly Disagree			Neutral			Strongly Agree
1	2	3	4	5	6	7

_____ 12. It is important to me to do really well in the courses here.

_____ 13. The best way for me to understand what technical terms mean is to remember text-book definitions.

_____ 14. I hate admitting defeat, even in trivial matters.

Appendix E: NC Scale

Indicate how well each statement below applies to you by writing a number from 1 to 9 in the space provided. The more a statement applies to you, the larger the number you would write. For example, if a statement does not apply to you at all, write a 1. If the statement applies to you only moderately, write a 5. If the statement applies very much to you, write a 9. Use 2 to 4 and 6 to 8 for statements that apply to you in different degrees. Please respond to all statements.

Not at all				Moderately				Extremely
1	2	3	4	5	6	7	8	9

_____ 1. I would prefer complex to simple problems.

_____ 2. I like to have the responsibility of handling a situation that requires a lot of thinking.

_____ 3. Thinking is not my idea of fun.

_____ 4. I would rather do something that requires little thought than something that is sure to challenge my thinking abilities.

_____ 5. I try to anticipate and avoid situations where there is a likely chance I will have to think in depth about something.

_____ 6. I find satisfaction in deliberating hard and long hours.

_____ 7. I only think as hard as I have to.

_____ 8. I prefer to think about small, daily projects to long-term ones.

_____ 9. I like tasks that require little thought once I've learned them.

_____ 10. The idea of relying on thought to make my way to the top appeals to me.

_____ 11. I really enjoy a task that involves coming up with new solutions to problems.

_____ 12. Learning new ways to think doesn't excite me very much.

NC Scale

Indicate how well each statement below applies to you by writing a number from 1 to 9 in the space provided. The more a statement applies to you, the larger the number you would write. For example, if a statement does not apply to you at all, write a 1. If the statement applies to you only moderately, write a 5. If the statement applies very much to you, write a 9. Use 2 to 4 and 6 to 8 for statements that apply to you in different degrees. Please respond to all statements.

Not at all				Moderately				Extremely
1	2	3	4	5	6	7	8	9

_____ 13. I prefer my life to be filled with puzzles that I must solve.

_____ 14. The notion of thinking abstractly is appealing to me.

_____ 15. I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought.

_____ 16. I feel relief rather than satisfaction after completing a task that required a lot of mental effort.

_____ 17. It's enough for me that something gets the job done; I don't care how or why it works.

_____ 18. I usually end up deliberating about issues even when they do not affect me personally.

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Vita

Cheryl Lorraine Harris was born in El Paso, Texas on November 27, 1961, the daughter of Alton D. Harris, Jr. and Joyce L. Harris. After graduating from Eastwood High School in El Paso, Texas, she entered The University of Texas at El Paso. She completed 60 hours of courses in two years and then transferred to Liberty Baptist College where she received a Bachelor of Science in Educational Ministries in 1984. During the following years, she worked as a secretary for the City of Austin Parks and Recreation Department. From 1986 to 1989 she completed graduate courses in Interpersonal Communication and Child Development and Family Relationships at The University of Texas at Austin. In 1992, she entered the Educational Psychology Department at The University of Texas at Austin to pursue a doctoral degree in Learning, Cognition and Instruction. During her graduate studies she worked for many years as a legal secretary at The University of Texas School of Law. She also taught an undergraduate learning course in the Educational Psychology Department for two years. She is currently employed as a program evaluator for the Southwest Educational Development Laboratory in Austin, Texas.

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