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STRATEGIES TO IMPROVE COLLEGE TEACHING: THE ROLE OF
DIFFERENT LEVELS OF ORGANIZATIONAL INFLUENCE ON FACULTY
INSTRUCTIONAL PRACTICES

By

Andrea Langell Beach

A DISSERTATION

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Michigan State University

in partial fulfillment of the requirements for the degree of

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Department of Educational Administration

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ABSTRACT

STRATEGIES TO IMPROVE COLLEGE TEACHING: THE ROLE OF DIFFERENT LEVELS OF ORGANIZATIONAL INFLUENCE ON FACULTY INSTRUCTIONAL PRACTICES

By

Andrea Langell Beach

In the face of mounting evidence of the positive effects on student learning of active and collaborative learning approaches, and concern about the quality of undergraduate education, colleges and universities are being urged to change their environments to encourage and support faculty engagement in such teaching practices. It is important, therefore, to understand dimensions of higher education organizations at multiple levels that influence faculty engagement in active and collaborative teaching practices in order to create strategies to improve college teaching. The concept of organizational climate is well suited to such inquiries because it focuses on current, significant, malleable dimensions of organizations, and is conceived and studied at multiple institutional levels. This study uses a two-stage, mixed methods approach to examine the impact of climate for teaching at the departmental level on faculty teaching approaches, with attention to factors at other organizational levels that may influence it. A model of climate for teaching was tested using a national data set and hierarchical modeling. In-depth qualitative case study analysis then explored how departmental climate for teaching is created and influenced. The results of the analyses complemented

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each other and provided a breadth and depth of analysis not possible in a single method approach (Tashakorri & Teddlie, 1998).

The departmental level represents 17% of the possible variance in active and collaborative teaching, and the dimensions of departments modeled in this study explained 45% of that variance. Results confirmed the assertions of researchers that the department is an important nexus of extra-institutional, institutional, disciplinary, and personal influences on faculty (Colbeck et al., 2001; Massey, Wilger & Colbeck, 1995), that departmental climates are unique (Moran & Volkwein, 1988; Volkwein & Carbone, 1994), and that they influence the use of active and collaborative teaching by individual faculty. It also demonstrated that disciplines strongly influence department climates for teaching, but do not determine them completely.

The dimensions of departmental climate for teaching that emerged from both analyses as most important included the extent that departments engaged in faculty development for teaching improvement, the leadership and support of departmental chairs, the resources available to departments, and the perceptions of resources available to the department.

This study is one of the first to propose and test dimensions of departmental climate for teaching (Volkwein & Carbone, 1994) and their influence on individual faculty teaching approaches. The results suggest that further definition of departmental teaching climate constructs would be fruitful. An instrument focused on climate for teaching could serve as a useful diagnostic tool for institutions and systems seeking effective strategies to support and encourage faculty excellence in teaching.

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A dissertation is never successfully completed in isolation. I received help, encouragement, critique, consolation, and so much else in the course of this project from multiple people, felines, and entities. They deserve acknowledgement.

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I want to thank the UCLA Higher Education Research Institute for allowing me access to the 1998 Faculty Survey data set used in this study. Dr. William Korn was extremely helpful in setting up the data and trouble-shooting shortcuts to data reduction.

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He and his staff of graduate students were completely gracious about having me work in their midst and even displace them from their normal routines and work stations. I am very grateful to them.

My family and friends have supported and encouraged every step of my journey. My mother got weekly updates, listened to me whine, and bragged about me to her colleagues and friends. My father and step-mother were constant supports, and my brothers and sisters more proud of me than I deserve. Mick and Bon Albrecht and Julie and Bob Royce helped and encouraged me throughout, as did friends Joseph Brocato, Jessica Kovan, Liliana Mina, Patricia Farrell, Kim VanderLinden, Karen Bush, Karen and Phil Lienhart, and so many others along the way. Thank you all!

Pollux and Castor the "Beastie Boys" arrived weighing a pound and a half combined (fleas included) a couple months before I defended my proposal. They have since zintupled their weight, shed at least a pound and a half of fur in my office alone, and learned to interrupt me at just the right time and lay on my keyboard when they have had enough of my working. They are tutoring me well on the priorities of life and the art of napping.

I must acknowledge the Zumberge Library at Grand Valley State University as a contributing factor to the successful completion of this dissertation. Its quiet summer pace, air-conditioning, and liberal food policies made it the ideal "writing cave." The bulk of the results of this study were written there.

Finally, I want to acknowledge the most important person in my life. Thank you, Rick, for knowing what it's like, for being so much more rational than I, and for, well, for everything. This dissertation is dedicated to you.

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CHAPTER 1

INTRODUCTION

Numerous studies have demonstrated the effectiveness of active and collaborative teaching approaches on different student learning outcomes (Bruffee, 1993, 1999; Johnson, Johnson, & Smith, 1991, 1998; Kuh, Pace, & Vesper, 1997; McKeachie, 1990; Pascarella & Terenzini, 1991; Springer, Stanne, & Donovan, 1999). Cooperative and collaborative learning are both defined by the collective intellectual effort required of a group of students to accomplish shared learning goals or tasks (Bruffee, 1984, 1993; Johnson, Johnson, & Smith, 1991, 1998). Active teaching and learning approaches are those in which students are contributing members of the learning process, rather than passive receivers of information. Experiences such as group work, group projects, student presentations, class discussions, and student evaluations of each other's work improve students' critical thinking skills and comprehension, as well as their achievement in and attitudes about what they study (Dunkin & Barnes, 1986; Johnson & et al., 1991; Kulick & Kulick, 1979; McKeachie, 1990). A meta-analysis of the effects of cooperative and collaborative small group work on student achievement (Springer, Stanne, & Donovan, 1999) found that achievement and persistence were higher for students in collaborative and cooperative small groups than for students not participating in such groups. Kuh, Pace, and Vesper (1997) found that the greatest gains in student self-rated learning were associated with participating in cooperative and active learning. Johnson, Johnson, and Smith (1998) reviewed 75 years of meta-analyses of cooperative and collaborative learning. They contend that the positive effects of cooperative and collaborative learning extend to knowledge acquisition, retention, and accuracy,

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creativity in problem solving, and higher level reasoning. They also promote meta-cognitive thought, transfer of learning from one situation to another, and the willingness to engage and persist in accomplishing difficult tasks (Johnson, Johnson & Smith, 1998). Such learning outcomes have been advocated by higher education scholars (Augustine, 1996; Black, 1994; Jones, 1996; Paulsen & Feldman, 1995) and policy-makers (ABET, 1998; National Goals Panel, 1992; National Science Foundation, 1996; Kellogg Commission, 1997) as critical to preparing students to work in a fast-changing global environment.

Despite the substantial support for the effectiveness of active and collaborative teaching and learning on agreed-upon student outcomes, the extent to which faculty engage in active and collaborative teaching practices remains small. Although some researchers see an increase in the use of active learning approaches by faculty members across institutional type and discipline (Sax, Astin, Arredondo, & Korn, 1996), others (Finkelstein, Seal & Schuster, 1998) assert that more than three-quarters of new and senior faculty use lectures as their primary teaching method. Fairweather (1997) found that only 14% of faculty nationally report using active learning approaches in most of their classes.

The discrepancies between teaching approaches recommended by scholars, policymakers, and the literature and those reported by faculty, combined with increasing public concern over the quality of undergraduate teaching and learning (Fairweather, 1996; Paulsen & Feldman, 1995), have led to a significant amount of discussion regarding the personal and organizational factors that influence faculty teaching practices (Bess, 1987; Blackburn & Lawrence, 1986, 1995; Einarson, 2000, 2001; Fairweather,

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1997; Fairweather & Rhoads, 1995; Massy, Wilger & Colbeck, 1994). Colleges and universities are being urged to reshape their environments – tenure, promotion, and reward systems; hiring practices; and climates and cultures – to support faculty commitment to and engagement in active and collaborative teaching (Barr & Tagg, 1995, Boyer, 1990; Guskin, 1994). Unfortunately, strategies meant to encourage effective teaching are often appeals to individual faculty (e.g., “self-help” for improving teaching) or are rather blunt instruments aimed at increasing faculty accountability. They are piecemeal in their underlying understanding of how the multiple organizational contexts within which faculty work influence their attitudes and practices (Colbeck, 2002; Colbeck, Fairweather, Brown, Beach, & Fingers, 2001; Fairweather & Beach, 2002). If colleges and universities wish to support faculty engagement in active and collaborative teaching practices, they need strategies and policies that reflect a more comprehensive understanding of the organizational influences on faculty engagement in those practices.

Organizational Levels of Influence on Teaching

In recent years, higher education researchers have recognized the need to attend to the systemic and hierarchical nature of colleges and universities, and the level at which organizational influences are conceived, operationalized, and analyzed (Moran & Volkwein, 1987, 1988; Porter & Umbach, 2001, Volkwein & Carbone, 1994). Porter and Umbach (2001) emphasize that the hierarchical nature of universities calls for multi-level models to appropriately address the complex organizational effects caused by group membership (in a discipline, department, or work group) in colleges and universities. They focus on the analytic approaches to multi-level modeling. Others advocate careful attention to the “level” (individual, group, organization) at which phenomena are

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theorized, and how constructs to test those phenomena are assembled, measured, and analyzed (Kozlowski & Klein, 2000). The levels perspective in organizational theory and research is concerned with “identifying principles that enable a more integrated understanding of phenomena that unfold across levels in organizations” (Kozlowski & Klein, 2000).

For the most part, studies of influences on faculty teaching using large, nationally representative data sets have had to measure intra-organizational dimensions by proxy. Such research may theorize organizational factors as operating within an institutional context, but explore and measure those elements in an aggregated way across institutions that can mask important relationships, differences, and directions of influence (Einarson, 2000, 2001). Colbeck (1994) warned that aggregating to institution or discipline levels masks important consequences of workplace conditions for the conduct of faculty work (p. 23).

For example, Blackburn and Lawrence (1995) proposed a theory of faculty motivation for teaching and research in which properties of the person (demographic as well as motivational and self-knowledge) interact with properties of the environment and both impact productivity. This interactionist perspective is compelling, in that it takes into account both individual and organizational influences. Blackburn and Lawrence, however, did not theorize about aspects of immediate work environment (e.g., department factors). Only institution type and discipline as environmental factors were considered in analysis. The data used to test their models were conceived, gathered, and analyzed at the individual level only. Blackburn and Lawrence urged that other environmental dimensions be investigated as influences on faculty work.

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Other studies proposing models of influence on faculty teaching have included individual characteristics of faculty, disciplinary influences, organizational dimensions such as institutional rewards for teaching, facilities, resources, and managerial practices and influences by institutional type (Einarson, 2000, 2001; Fairweather, 1997; Fairweather & Rhoads, 1995). The models were also tested using only individual-level data or data aggregated across institutions and disciplines. Only one study explored and found differences in faculty use of active teaching approaches across academic departments (Antony & Boatsman, 1994). It did not, however, further explore contextual variables at the department level that might explain the differences found.

Qualitative researchers have been able to analyze organizational levels the majority of quantitative researchers have not. Qualitative studies of academic cultures and influences on faculty teaching (Austin, 1990, 1994, 1996; Massy, Wilger & Colbeck, 1994; Tierney, 1988) have identified elements of intra-organization environments that bear further specification. They indicate that the department level may be the most important to study in relation to organizational influences on faculty work, including teaching attitudes and practices (Austin, 1990, 1996; Massy, Wilger & Colbeck, 1994). Other studies (Beach, Salerno & Colbeck, 1999; Colbeck, 2001; Fairweather & Beach, 2002) indicate that there may be a number of organizational levels from which faculty attitudes, motivation, and practices are influenced.

Climate for Teaching

Organizational influences in higher education have often been studied through the conceptual frames of organizational “culture” and “climate,” which have distinct definitions (Peterson & Spencer, 1990) and potential for informing policy. Culture is a

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holistic view of organizations and their deeply held meanings, beliefs, and values (Austin, 1990, 1994; Tierney, 1988). Dimensions of organizational culture generally change only through cataclysmic events or slow, long term efforts (Peterson & Spencer, 1990).

Organizational climate consists of perceptions of current and important organizational elements (e.g., patterns of relationships, atmosphere, organizational structures), that have the potential to influence individual attitudes and behaviors (Peterson & Spencer, 1990; Schneider, 1975; Schneider & Reichers, 1983). It can operate on many different organizational levels (Kozlowski & Klein, 2000) and is most informative when focused on specific outcomes – “climate *for* something” (Schneider, 1975). It can legitimately be defined as both an individual (psychological) construct and a property of the organization (Kozlowski & Klein, 2000) when individual perceptions demonstrate a consensus among those perceiving the climate (Dansereau & Alluto, 1990; James, Demaree & Wolf, 1993; James & Jones, 1974; Kozlowski & Hults, 1987). Climate is seen as a more immediately accessible and malleable construct than organizational culture; it can be changed through policy or other administrative or organization-member actions. This makes climate a strong conceptual frame to apply in research that attempts to inform policy and practice.

Conceptions of climate in higher education research have focused on campus climates for students and faculty (e.g., Baird, 1990) and managerial or administrative climate influences on student outcomes (Peterson, Cameron, Jones, Mets, & Ettington, 1986). Moran and Volkwein (1988) found that climate has some relevance at the institutional level by distinguishing individual campuses from one another, and high

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relevance at the sub-unit, or departmental, level. They failed, however, to test department-level climate measures against any outcomes – either at the department level or the individual level. Volkwein & Carbone (1994) tested departmental teaching and research climate measures against undergraduate student growth and satisfaction. They found that departmental teaching and research climates varied substantially among 27 departments within one institution. Their measures of teaching climate, however, did not consist of collective perceptions of faculty. *Climate for teaching*, conceived from faculty perceptions of organizational factors (e.g., workloads, reward systems, resources and priorities, leadership, collegial quality and relationships, student qualities), has not been proposed or tested against teaching outcomes.

The Research Problem

Individual faculty teaching is embedded in program, department, discipline, institutional, and global academic contexts (Colbeck et al., 2001). Researchers in other organizational fields have long recognized the critical influence of work-group and department environments, or climate, on worker attitudes and behaviors (Kozlowski & Klein, 2000). Qualitative studies of academic cultures (Austin, 1990; Massy, Wilger & Colbeck, 1994) have established the importance of department-level influences on individual faculty attitudes and work, and other researchers have found potentially important influences at other levels of higher education organizations (Fairweather & Beach, 2002).

The levels perspective of organizational research and multi-level modeling approaches (Kozlowski & Klein, 2000; Rousseau, 1985; Snijders & Bosker, 1999) specifically take into account the nested and hierarchical nature of individuals within

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their work groups, departments, and organizations. They are therefore well suited to address issues of influence on faculty teaching within programs, departments, colleges, and institutions. Organizational climate, as a malleable and multi-level construct, provides a conceptually and practically useful lens through which to view influences on faculty teaching. Researchers can take more explicit account of the department-level influences on faculty work, or the institutional or discipline influences on departmental structures. The levels perspective of research offers conceptual and operational methods for studying meaningful perceptual constructs such as organizational climate for teaching at the group level and higher.

Although research on faculty work has been extensive, studies have been limited by the level at which influences on faculty work has been conceived and analyzed. Research has focused on internal psychological processes driving faculty, or on institution-type and discipline forces (Blackburn & Lawrence, 1995; Fairweather, 1996; Einarson, 2000, 2001). Administrative, racial, and managerial climates in colleges and universities have been conceptualized and studied (Peterson & et al., 1986; Peterson & Spencer, 1990), and a small amount of research has addressed levels of analysis for generalized organizational climate in higher education institutions (Moran & Volkwein, 1987, 1988). Few researchers, however, have studied specific dimensions of climate for teaching (Volkwein & Carbone, 1994) and the organizational levels at which they are most relevant. Likewise sparse is research on the extent to which teaching climates influence faculty use of active and collaborative teaching approaches (Antony & Boatsman, 1994; Einarson, 2000, 2001).

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This study uses a mixed methods approach to explore departmental climate for teaching and its influence on individual faculty members' use of active and collaborative teaching. It also examines factors at other organizational levels that might influence teaching practices as well as departmental teaching climate. Questions addressed by this research are:

1. What is the relative influence of departmental climate for teaching on individual faculty use of active and collaborative teaching practices?
2. What is the relative influence of factors at other levels (individual, college, institution) of higher education organizations on a) individual faculty teaching practices, and b) departmental climate for teaching?
3. How are departmental climates for teaching created, and what actions, policies, or other factors – at the individual, departmental, and institutional levels – might be taken to influence those climates?

The study takes a two phased approach. The first two questions are addressed by testing a multi-level model of departmental climate for teaching that takes into account potentially important factors at other organizational levels (see Figure 1 in Chapter 2). The model includes factors at the individual, department, and institution level identified in prior studies as important to faculty use of active teaching methods (Antony & Boatsman, 1994; Einarson, 2000, 2001; Fairweather, 2002; Massy, Wilger & Colbeck, 1994), as well as departmental climate factors suggested by the literature, but not before tested as collective constructs. The third question *how* climate for teaching is created and influenced – is explored through in-depth qualitative case studies of multiple academic departments within different universities.

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This research addresses gaps in the extant literature on influences on teaching by explicitly addressing levels of organizational influence on faculty teaching practices. It extends prior research on climate within higher education institutions (Moran & Volkwein, 1987, 1988; Peterson, 1988; Peterson & et al., 1986; Peterson & Spencer, 1990) by focusing specifically on climate for teaching. The cross-level model and case studies address the hierarchical and systemic nature of higher education organizations (Porter & Umbach, 2001). This study also brings together dimensions of organizational influence on teaching suggested by previous studies (Antony & Boatsman, 1994; Austin, 1990, 1994, 1996; Blackburn & Lawrence, 1995; Einarson, 2000, 2001; Massy, Wilger & Colbeck, 1994) to test on faculty teaching practices.

Significance of the Study

This research should be of interest to researchers of faculty work and higher education organizations, as well as to department chairs, deans, faculty development professionals, administrators, and policy-makers. The study seeks to clarify issues of influences on teaching at different organizational levels that have not yet been addressed by higher education researchers. Results of this study should identify elements of faculty members' work environments – and the organizational level most salient for those elements – that can be altered to support and encourage faculty engagement in effective teaching.

Summary

This dissertation contains seven chapters. In chapter two, I review the literature pertaining to influences on faculty teaching, the levels perspective in organizational and

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higher education research, and the definition, history, and uses of climate in organizational and higher education research. I end the chapter with a presentation and discussion of the model for departmental climate for teaching. Chapter three discusses the methods I use in the quantitative model testing and in the qualitative case analysis. Chapter four details the results of the quantitative model testing. Chapter five presents the qualitative departmental case profiles, and chapter six discusses cross-case themes. The final chapter integrates the findings from both phases of the study. It also discusses the implications of this research for strategies to support the use of active and collaborative teaching, as well as areas of future research recommended by the findings.

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CHAPTER 2

REVIEW OF LITERATURE AND PROPOSED MODEL

This chapter discusses the literature on influences on faculty teaching, issues of levels of analysis in organizational research, and climate as a construct with which to study organizational influences. It then discusses the ways that climate constructs have been utilized in higher education research. The chapter ends with a presentation and discussion of the multi-level model of influence on active and collaborative teaching practices tested in this study.

Influences on Faculty Teaching

Research into the influences on faculty teaching has largely defined teaching in terms of the time faculty spend on teaching (“workload”) or outputs of teaching (“productivity”) as opposed to the approaches faculty use (“practices”) (Blackburn & Lawrence, 1995; Fairweather, 1997, 2002; Fairweather & Rhoads, 1995). These studies tested models including individual characteristics of faculty, disciplinary influences, socialization, organizational factors, and influences by institutional type. Intrinsic variables such as personal interest, commitment, efficacy, and morale (Blackburn & Lawrence, 1995) were not found to be predictive of differences in faculty teaching workloads. More predictive were salary structures and faculty perceptions of reward systems, work allocation (the hours assigned to the classroom), and current beliefs about the importance of scholarship (Fairweather, 1996; Fairweather & Rhoads, 1995). Fairweather and Rhoads found that early socialization – operationalized as one’s highest degree, degree institution, and work as a teaching assistant in graduate school – had little

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to do with time spent on teaching. Fairweather (1997) found institutional differences in faculty teaching productivity and in the factors that influenced high teaching and research productivity.

Blackburn and Lawrence (1988, 1996) proposed a theory of faculty motivation for teaching and research based largely on demographic (age, gender, race) and career stage (assistant, associate, and full professor) variables. Their “life course” model posited that properties of the person interact with properties of the environment and that both impact productivity. All elements were conceived to interact over time in an iterative fashion that drives career development and change. They later expanded their model with internal motivational and self-knowledge concepts, but did not theorize about aspects of immediate work environment (e.g., department factors). Their largely intrinsic model of faculty motivation was called into question by Fairweather (1997) and Fairweather & Rhoads (1995), who found little empirical support for motivational influences on teaching productivity. Perhaps recognizing the limitations of their model at intra-organizational levels, Blackburn and Lawrence (1995) urged that other environmental dimensions be investigated as influences on faculty work.

Although scholars argue that measures of instructional productivity should include the use of teaching methods found effective in promoting student learning (Fairweather, 2002), only a few studies have examined faculty use of active and collaborative teaching as an outcome (Antony & Boatsman, 1994; Einarson, 2000, 2001; Fairweather, 2002). Antony and Boatsman (1994) created a construct representing the broad use of cooperative and active pedagogy, and tested different faculty groups’ use of it (men/women, minority groups, faculty in different departments and in different types of

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institutions). They found strong gender differences in the use of cooperative pedagogies, and some racial differences. They also found differences among academic departments. They did not, however, test any factors within departments or institutions that might contribute to the differences they found. Einarson (2000, 2001) also found gender differences in use of active and collaborative teaching, but inconclusive differences by race. She found no practical differences in use of active teaching and learning methods across institutional types. She found discipline across institutional types to be predictive of active teaching methods, but not measures of institutional influence such as teaching facilities and professional development resources. Her study was limited by the nature of the data used in analysis. Although she conceived measures of institutional climate for teaching to pertain to individual institutions as measured by individuals' perceptions, those measures were analyzed across institutional types rather than within specified institutions.

Recently Fairweather (2001) tested measures of faculty use of different teaching approaches as well as measures of teaching and research productivity, across disciplines and types of institutions. He found that few faculty at 4 year institutions were simultaneously productive researchers and productive teachers who also employed active and collaborative teaching approaches. The factor that facilitated high productivity in teaching and research, more hours in the classroom, might also inhibit use of collaborative teaching approaches. He also found that faculty attitudes and beliefs about criteria for promotion and tenure influence teaching and research productivity (Fairweather, 1997).

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Studies of academic settings (Austin, 1990, 1994 1996; Tierney, 1988) have established the importance of department-level influences on individual faculty attitudes and work. Departments are seen as the location from which norms of faculty productivity and rewards emanate, and the most influential socialization force for faculty (Austin, 1990, 1994, 1996; Tierney, 1988). Prevalent norms and values embedded within departmental cultures are seen to influence what faculty do and how they do it (Kuh & Whitt, 1988). Massey, Wilger, & Colbeck (1994) examined the conditions within departments that support or inhibit faculty members' working together on undergraduate education. They found most departments mired in fragmented communication, constrained resources, and inappropriate evaluation and reward systems that hindered faculty members' abilities to come together and work collaboratively on improving undergraduate teaching and learning. They identified only a small number of departments that they characterized as exemplary in promoting and supporting effective teaching. Key elements of those departments included frequent interaction among faculty, balanced incentives, consensus decision-making, and effective department chairs. Institutional type, discipline, and size of department played no role in the existence of these supportive departments. The authors thought that the single most important factor in determining whether or not a department supported teaching excellence was the chair.

The Levels Perspective

The levels perspective in organizational theory and research is concerned with "identifying principles that enable a more integrated understanding of phenomena that unfold across levels in organizations" (Kozlowski & Klein, 2000, p. 7). The perspective draws on organizational systems theories (Allport, 1954; Katz & Kahn, 1966; Parsons,

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1960), that arose from and are heavily influenced by general systems theories (GST). A detailed discussion of organizational systems theory is beyond the scope of this review, and would be redundant to better efforts by others (Morgan, 1997; Katz & Kahn, 1966). Most scholars of higher education are already familiar with systems theories and the powerful metaphors offered by them. The levels perspective is an attempt by organizational researchers to take systems theory beyond the level of metaphor to that of testable principles (Kozlowski & Klein, 2000).

Researchers using the levels perspective seek to address issues of conceptual and operational validity of theoretical constructs used in organizational research through careful attention to the “level” (individual, dyad, group, organization) at which phenomena of interest are theorized, and how constructs to test those phenomena are assembled, measured, and analyzed. For a thorough discussion of the principles guiding the levels perspective, see Klein & Kozlowski (2000). Most pertinent to the present study is the work that levels researchers have done to address cross-level, contextual effects models of organizational phenomena. Researchers have demonstrated (Hofmann & Stetzer, 1996; Kozlowski & Farr, 1988; Kozlowski & Hults, 1987; Rousseau, 1978) that “group and organizational factors are contexts for individual perceptions, attitudes, and behaviors and need to be explicitly incorporated in meaningful models of organizational behavior” (Kozlowski & Klein, 2000).

Individual faculty work is embedded in program, department, discipline, institutional, and global academic contexts, as well as in the dynamic of time. These system contexts cannot all be taken into account in a model of faculty beliefs and behavior. Researchers can take more explicit account of the group-or department-level

influences on faculty work, or the institutional or discipline influences on departmental structures.

Organizational Climate

Organizational climate as a theoretical construct and framework can be useful in studying higher education environments and influences on faculty work because it focuses on the collective perceptions of current, important influences on work. Elements of organizational climate such as goal clarity, leadership, supportiveness, reward-performance dependency, social relations, and autonomy have been explicitly or implicitly included in much research on faculty work and productivity, organizational change, and strategic planning (Peterson, et al., 1986). This broad applicability is the strength as well as the weakness of climate as a conceptual construct and research focus.

This section defines the conceptual construct of climate in the organizational literature, and discusses the ways that climate has been adapted and used in higher education research. Throughout the section, the discussion of climate will take into account issues of levels within organizations and how levels play an important part in conceptualizing, analyzing, and interpreting climate constructs.

Climate Defined

Before reviewing the literature on climate, it is helpful to define the construct as distinct from, but often discussed in conjunction with, culture. Culture attempts to gain a holistic view of organizations and to understand deeply held meanings, beliefs, and values (Hellreigel & Slocum, 1974) that change only through cataclysmic events or slow, long term efforts (Peterson & Spencer, 1990). Climate, on the other hand, can be defined

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as current common patterns of important elements of organizational life or its members' perceptions of those elements (Peterson & Spencer, 1990). It is considered more immediately accessible and malleable construct. Numerous researchers (Ashkanasy, Wilderom & Peterson, 2000; Denison, 1996; Lindell & Brandt, 2000; Peterson & Spencer, 1990; Reichers & Schneider, 1990) discuss the long conversations within the organizational theory literature comparing, contrasting, and clarifying the theoretical, conceptual, and operational differences between climate and culture. Peterson and Spencer (1990) created a table (reproduced on Table 1) comparing climate and culture that provides a clear and concise overview of their differences.

Climate can legitimately be seen as both an individual (psychological) construct, and a property of the organization (Kozlowski & Klien, 2000), when consensus among those perceiving the climate can be demonstrated (Kozlowski & Hults, 1987). Individual level psychological climate has been theorized to have corresponding group-level constructs (James & Jones, 1974). When elements of climate are aggregated to the group level or higher, they can be useful in understanding factors that influence the normative behavior of group members. As a construct used in organizational research, climate is "composed of perceptually based sets of descriptions that incorporate people's interpretations of the organizational context" (Kozlowski & Hults, 1987, p. 541). It is a measure of the "shared subjective experiences of organizational members that have important consequences for organizational functioning and effectiveness" (Ashkanasy, Wilderom, & Peterson, 2001, p.1). Although many climate scales contain similar dimensions – autonomy, goal orientation, social relations, level of rewards and reward-performance dependency, supportiveness, and structure – others vary widely, since they

are specific to settings and outcomes (Peterson, et al., 1986). Defining the content dimensions of climate in a generic way is therefore difficult, and in many ways, pointless.

Table 1

Primary Distinctions of Culture and Climate

Organizational Concept	Climate	Culture
Basis of Concept	Common member perceptions of or attitudes toward and feelings about organizational life	Deeply shared values, assumptions, beliefs, or ideologies of members
Primary conceptual sources	Cognitive and social psychology and organizational behavior	Anthropology, sociology, linguistics, and organizational behavior
Organizational perspective	Pervasive, various organizational patterns, often focused on specific arenas	Holistic primary emergent patterns
Major purposes of concept	Extrinsic: member control Intrinsic: member motivation	Instrumental: social interpretation, behavior control, and adaptation Interpretive: metaphor or meaning
Primary elements	Common views of participants	Super-ordinate meaning
Primary values or use	Comparison among organizations or over time	Identifies uniqueness in relation to other organizations
Major characteristics	Current patterns or atmosphere	embedded or enduring
Nature of change	More malleable, various direct or indirect means	Cataclysmic or long-term and intensive efforts

From "Understanding Academic Culture and Climate" by M. W. Peterson and M. G. Spencer, 1990, in Tierney, W. G. (Ed.), *Assessing Academic Climates and Cultures*, New Directions for Institutional Research, No. 68. Copyright 1990 by Jossey Bass. Reprinted by permission of John Wiley & Sons, Inc.

Peterson et al. (1986) define dimensions that bound the construct and circumscribe the ways it is measured and interpreted. They include: strength (the extent to which individuals agree strongly that certain descriptive elements are present in the organizational context); congruence (a prerequisite for the presence of organizational climate indicated by agreement among individual perceptions); type (a climate must be *for* something – such as service, commitment, safety. Type refers to what the climate is

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for); and clarity (the extent to which the climate is understood or unambiguous to individuals).

Development of Climate Research

Climate research is grounded in the Gestalt psychology of Kurt Lewin and incorporates the notion that individual elements of perception formed into wholes represent more than the simple sum of those elements. Therefore, organizational climate is a gestalt based on perceived patterns in the specific experiences and behaviors of people in organizations (Schneider, Bowen, Ehrhart, & Holcombe, 2001, p. 21). Climate as a construct was first conceptualized and tested in a 1939 study by Lewin, Lippit, and White examining the relationship between leadership style and productivity among boys' groups. Its major introduction, however, came in the late 1960's (Reichers & Schneider, 1990). Research through the next decade demonstrated the relationship between organizational climate dimensions and job satisfaction (Lawler, Hall & Oldham, 1974), and organizational performance at sub-unit (departmental) levels (Lawler, Hall & Oldham, 1974; Pritchard & Karasick, 1973). Investigators found that multiple climates exist in organizations (Johnston, 1976; Powell & Butterfield, 1978) and that climate perceptions vary as a function of organizational level (Payne & Mansfield, 1973) and group membership (Drexler, 1977; Howe, 1977).

Reichers and Schnieder (1990) traced the evolution of the climate construct through early empirical work and reconceptualizations, and arguments about whether climate was simply work satisfaction with a different name (Guion, 1973). Subsequent studies clarified the concept and empirically distinguished it from satisfaction (Schneider & Snyder, 1975). Climate has been related to individual outcomes such as commitment,

performance, and satisfaction and organizational outcomes such as effectiveness and efficiency (Lindell & Brandt, 2000).

Schneider (1975) reviewed the literature on climate, and concluded that the prevailing generic concept of organizational climate was so inclusive and potentially multifaceted that it was conceptually amorphous. He proposed that climate must have a focus – that climate should be *for* something. The more the concept is focused and directly linked to outcomes of interest, the more helpful it is in understanding those outcomes. Zohar's (1980) research on the climate for safety and accident prevention in industrial organizations marked the beginning of the empirical tests of "climate for something." It has been followed by a diverse range of climate studies in organizations – which include climate for sexual harrassment (Fitzgerald, Drasagow, Hulin, Gelfand, & Magley, 1997), well-being at work (Burke, Borucki & Hurley, 1992), service in insurance companies and banks (Schneider, 1990; Schneider & Bowen, 1985; Schneider, Parkington, J. J., Buxton, V. M., 1980), technical updating in industrial settings (Kozlowski & Farr, 1988; Kozlowski & Hults, 1987), and innovation in Research and Development subsystems of technology companies (Abbey & Dickson, 1983). Together, these studies have demonstrated the usefulness of climate measures focused and specific to particular issues and settings.

Levels of Theory and Measurement in Climate Research

According to Moran and Volkwein (1988), the eleven major reviews of the organizational climate literature all raised questions regarding the appropriate level of analysis to conceptualize the construct. The controversy centers on whether climate is an attribute that occurs at the individual, group, or organizational level (Woodman & King,

1978). Researchers had to distinguish between individual perceptions and the aggregated perceptions of many individuals. James and Jones (1974; Jones and James, 1979) theorized both a psychological climate that occurs at the individual level, and an organizational climate, comprised of averaged meanings people give to particular features of their work environment. This allows the climate construct to be applied to multiple levels of analysis within organizations (James & Jones, 1974) without losing its definition. Researchers concerned that averaged responses alone do not adequately justify using climate at levels above individual responses (e.g. Dansereau & Alutto, 1990; L.R. James, Demaree, and Wolf, 1984; Kozlowski & Hults, 1987; Lindell & Brandt, 2000; Schneider & Reichers, 1983) have proposed analytical approaches such as the use of variance measures – Intra-class correlations (ICC I and II) and r_{WG} (variance within groups) – and grouping statistics such as WABA (Within and Between Analysis) to address issues of legitimate aggregation (Kozlowski & Klein, 2000). The intense attention of organizational researchers to conceptual and analytical issues inherent in climate research has resulted in clearer standards for use of climate and more sophisticated applications of the construct to organizational problems.

Climate in Higher Education Research

In a review of the culture and climate literature in higher education, Peterson, et al. (1986) noted that the literature in higher education often did not clearly distinguish between climate and culture, making it difficult to categorize organizational research in higher education settings into separate “schools” of research. Despite the “fuzzy” nature of climate definitions in higher education research, the climate framework has been used in distinct ways. Campus climate for students was the earliest adaptation of climate for

higher education settings, and continues to be a rich area of research. Researchers have also explored classroom climate for specific groups of students and for different kinds of learning. Institutional climates and managerial climates have been measured in a number of ways. Although many climate elements used in general organizational research – goal clarity, leadership, supportiveness and warmth, commitment – have been tested, other elements unique to the higher education setting have been developed and explored. This is in keeping with the understanding that dimensions of climate must be specific to their setting and outcome in order to be useful.

Campus climate studies

Pace and Stern's (1958) College Characteristics Index (CCI) is an early example of the way higher educational researchers adapted the climate construct from organizational research. It was designed as an individually-oriented measure of climate for dimensions of student life on campus. Pace simplified the instrument and developed the College and University Environment Scales (CUES) (1969). In creating the CUES instrument, Pace addressed the need to distinguish between individual and collective perceptions by using the college – or institution level – as the unit of analysis. He also set a minimum percentage of students who must agree on the direction of an item for it to be scored (Baird, 1990), a rough variance measure of consensus. The CUES instrument explored dimensions of campus climate such as pragmatism, community, awareness, campus morale, and faculty-student relationships. The instrument has been used extensively and related to a wide variety of student and alumni variables, reviewed by Feldman and Newcomb (1969) and Baird (1988).

Other campus climate instruments were created (see Baird, 1990 and Peterson et al., 1986 for a review) that measure how campuses function and how particular academic or administrative goals are emphasized on campus. These inventories were designed to elicit perceptions from students, faculty, administrators and others in the campus community. They can be seen as parallel to the general organizational climate measures created early in organizational research. The dimensions of climate explored in these instruments overlap with those of organizational effectiveness (Cameron, 1978; 1985) and organizational culture (Tierney, 1988, 1990) in higher education, contributing to the broad nature of all of the constructs.

As organizational research shifted to more focused “climate for . . .” conceptions, campus climate shifted to sub-units in colleges and classrooms and to climates for particular groups of students and faculty. Campus climate for minority students (Hurtado, 1992; 1994), and the effects of racial climate on minority student adjustment to college and persistence to graduation (Cabrera, Nora, Terenzini, & Hagadorn, 1999), as well as professional and social climate for women and minority faculty, and for diversity in general, have become important research areas as universities try to promote diversity in the curriculum, the student body, and the faculty (Conley & Hyer, 1999; Hurtado, Milem Clayton-Pederson & Allen, 1998). Campus climate surveys have also been created to assess campus climates for gay, lesbian, and bisexual students (McRee & Cooper, 1998; Rankin, 1999) and for disabled students (Chelberg, Harbour, & Juarez, 1998). A recent theme issue of *New Directions for Institutional Research* (Bauer, 1998) addressed climate for multiple college and university sub-groups (E.g., faculty, graduate

students, minorities) and described a range of instruments for measuring campus climate – from general to very specific.

Classroom and instructional climate

The climate created in classrooms by teachers and students has been studied and linked to outcomes such as persistence, achievement, and student satisfaction. For example, low numbers of women and minorities in the sciences and engineering have led to classroom climate studies focused on their perceptions. Paulson (1996) studied the classroom climate for women engineering students and found that, although a “chilly” classroom climate did not impact their persistence to graduation, it did affect their satisfaction with their education. This finding is supported by classroom climate research using videotapes of interactions among students and faculty. Krupnick (1985) found that male students in classes with male instructors talked 2.5 times longer than did female students. Female students talked 3.0 times longer than male students in classes with female professors. Similarly, the climate in classrooms at a college that had recently begun to admit male students changed over time (Canada & Pringle, 1995). As the proportion of male students in classes increased, their initiation of comments and questions for faculty increased. Those of females in classes with male professors declined sharply.

Faculty reaction and response to student questions creates a climate for participation in classrooms. In classes with higher participation, students described their professors as demonstrating openness to student questions and ideas (Auster & MacRone, 1994). Further, student motivation, and learning activity were positively related to their perceptions of faculty support for questioning (Karabenick & Sharma, 1994).

Researchers have developed survey instruments to measure dimensions of classroom climate such as professorial concern, cathectic learning climate, academic rigor, affiliation, and structure (Winston, Vahala, Nichols, Gillis, Wintrow, & Rome, 1994 cited in Austin & Menges, 2001).

University and faculty cultures

While administrative and managerial climates in colleges and universities have been conceptualized and studied (Peterson et al., 1986; Peterson & Spencer, 1990), research on faculty work specifically has taken different directions and predominantly used culture terminology. Austin (1990, 1992, 1994, 1996) describes four primary cultures that influence faculty values and behavior: the academic profession, the discipline, the academy as an organization within a national higher education system, and the specific type of institution. The culture of the academic profession is based on key notions such as the pursuit of knowledge and truth, service to society, autonomy and academic freedom, intellectual honesty, and collegiality. The cultures of the disciplines are manifest in faculty assumptions about what is knowable and how it is knowable, standards for performance in research and publication as well as teaching, and expectations for rewards. Variations across disciplines in teaching and research orientation are well established (Becher, 1987; Biglan, 1973; Braxton, 1995; Fairweather, 1996; Finkelstein, 1984). The culture of the academy as an organization seems to be shifting and in conflict in recent decades (Austin, 1996). The traditional collegial culture which emphasizes intrinsic motivation and autonomy of faculty is being replaced by a more bureaucratic culture emphasizing accountability, increased workloads, and decreased faculty involvement in organizational decision-making. Institutional culture

addresses specific missions of different colleges and universities – research universities, state universities and colleges that emphasize undergraduate instruction, and liberal arts colleges are familiar institutional types. The conflicting values of multiple cultures (e.g., the disciplinary value of research and frequent publication in conflict with institutional mission for undergraduate instruction) can negatively impact faculty motivation and performance, as well as institutional performance, by creating competing goals and rewards (Alpert, 1985).

This intersection of disciplinary and institutional influences was noted by Clark (1987), who found so much variation in faculty work, disciplinary influences, and institutional contexts among universities that he characterized academic life as “small worlds, different worlds.” Peterson et al. (1986) characterize the culture of colleges and universities as “distinctive,” drawing on Clark’s (1970) seminal study of three selective liberal arts colleges. Each had an organizational saga through which the values of the institution were conveyed. Those sagas influenced the institutions’ missions, standards, choice of faculty and students, governance structures. Peterson et al. also noted the proliferation over the course of the prior two decades of different and specialized institutions with different cultures than had been traditionally described by other scholars.

While discussions faculty and institutional cultures lend insight into the major changes that have taken place in higher education over the course of the past five decades and identify areas of potential tension for faculty work, the holistic nature of culture does not lend itself to investigations aimed at identifying elements of faculty work environments that can be altered through policy interventions to support teaching and learning.

Peterson et al. (1986) focused on the effects of organizational climate in higher education institutions on student outcomes, rather than on faculty behaviors. Their review of culture and climate literature encompassed the influence of institutional strategies such as mission definition, faculty characteristics, and resource allocation on student outcomes, academic management practices and their impact on institutional culture and climate, as well as student outcomes, and the relationships of organizational characteristics to institutional culture and climate. Although their synthesis of the literature was exceptional, they noted gaps in the literature on climate in higher education, particularly the fact that organizational climate instruments are dated, and little research has explored organizational patterns that may improve the teaching/learning climate of students and faculty. They posed important questions about organizational climate in higher education: what is organizational climate in an academic setting? How does one create or change such a climate? Those questions have not yet been answered.

Organizational Levels in Faculty Research

Moran and Volkwein (1988) examined whether organizational climate primarily characterized higher education organizations as a whole or subunits within organizations in nine four-year public colleges. They also examined differences in the perceptions of climate on the part of subgroups, namely, academic departments. They found departments varied more significantly in climate than did institutions. Their tentative conclusion was that climate appears to operate to a greater degree at the intra-organizational level than at the organizational level. Their study was limited because only two of their nine institutions had enough data in the departmental cells to be analyzed. Further, their climate dimensions were quite generic – they did not constitute a

strong “climate for . . .” something that Schneider (1975) recommends and that has become standard in organizational research. With these limitations, however, their results point to a potentially fruitful direction for climate research in higher education, namely the effect of intra-organizational units on primary faculty.

Recently, Fairweather and Beach (2000, 2002) found that variations in teaching, research, and grant productivity within research universities are strongly attributable to department or program area differences. Using case analyses of three research universities, they found that academic departments’ collective attention to teaching was affected by departmental or college level factors such as relationships with governmental or private research laboratories, the need for faculty to recover portions of their salaries in funded research, the need for a department to provide service courses that all students in the university are required to take, and the existence of high-visibility graduate programs. At the same research institutions, Beach, Salerno, and Colbeck (1999) found that faculty largely see the influences to change the way they teach coming from within themselves or from the needs of their students rather than from institutional mandates. Across departments, the barriers to change faculty perceived were largely structure- and resource-oriented – lack of sabbatical leave, technology infrastructure and support, and tenure and promotion expectations.

Taken together, these studies suggest that organizational levels affect faculty work-- individual, departmental, college, and university. Further, the factors that emerged as influential or variable fit within the rubric of climate rather than that of culture. Climate research can carefully examine the level at which dimensions such as

rewards, resources, support for innovation, and collegial relationships operate to influence outcomes such as faculty teaching attitudes and practices.

Summary

Although research on faculty teaching has been extensive, studies have been limited by the level at which influence on faculty has been conceived and analyzed. Many studies have focused on internal psychological processes driving faculty, or on institution-type and discipline forces. Some qualitative researchers (Austin, 1990, 1994, 1996; Massy, Wilger & Colbeck, 1995) have identified organizational influences on faculty teaching at the departmental level. Other studies have either not conceptualized intra-institutional influences (Blackburn & Lawrence, 1995) or conceptualized such influences, but measured them in an aggregated manner across institutions and disciplines rather than within them (Einarson, 2000, 2001).

Recognition of the need to attend to the level at which organizational influences are conceived, operationalized, and analyzed in higher education research has grown in recent years (Moran & Volkwein, 1987, 1988; Porter & Umbach, 2000). Researchers using a levels perspective advocate careful attention to the “level” (individual, group, organization) at which phenomena are theorized, and how constructs to test those phenomena are assembled, measured, and analyzed (Kozlowski & Klein, 2000). This perspective has been applied to climate research in organizational and business research, but much less so in higher education research.

Organizational climate consists of perceptions of current and important organizational elements (e.g., patterns of relationships, atmosphere, organizational structures) that have the potential to influence individual attitudes and behaviors

(Ashkanasy, et al., 2001; Peterson & Spencer, 1990; Schneider, 1975; Schneider & Reichers, 1983). It can operate on many different organizational levels (Kozlowski & Klein, 2000) and is most effective when focused on specific outcomes – “climate *for* something” (Schneider, 1975). It is generally measured through survey instruments that collect the perceptions of organization members regarding numerous factors believed to or previously demonstrated to be important for particular outcomes. Climate is seen as malleable; it can be changed through policy or other administrative or organization-member actions. This makes climate a strong construct to apply in research that attempts to inform policy and practice.

Administrative, racial, and managerial climates in colleges and universities have been conceptualized and studied (Peterson et al., 1986; Peterson & Spencer, 1990), and a small amount of research has addressed levels of analysis for generalized organizational climate in higher education institutions (Moran & Volkwein, 1988). No researcher, however, has studied specific dimensions of departmental climate for teaching and their influence on faculty use of active teaching approaches (Antony & Boatsman, 1994; Einarson, 2000, 2001).

Cross-Level Model of Departmental Climate for Teaching

The model of departmental teaching climate influences proposed and tested in this study (see Figure 1) encompasses individual and organizational factors studied previously as well as those constructed according to levels and climate literature that have not been researched. Its purpose is to validate theory about department-level and other intra-organizational influences on faculty teaching practices. The model proposes a combination of individual and environmental variables impacting individual outcomes in

much the same way Blackburn and Lawrence (1995) theorized. The relationships represented by the model predict that individual, departmental, and institutional factors have direct effects on individual faculty teaching practice. In addition, it predicts that departmental teaching climate has unique direct effects on individual faculty teaching practice when the other factors are accounted for, and mediates the effects of those individual, departmental, and institutional factors as well. This model by no means captures all of the elements that influence faculty work. It is meant to answer key questions about influences on teaching at the departmental level. Individual, discipline, and institutional type elements are contained in the model, to serve as controls to ensure accurate estimates of departmental effects.

Use of Active and Collaborative Teaching

I used Antony and Boatsman's (1994) previously tested construct of faculty use of active and collaborative teaching approaches as the outcome of this model. The construct is the average of seven variables that measure the extent to which respondents used particular teaching and evaluation methods or approaches in their courses the prior semester. Respondents indicated, for each item, whether they used the approach in none, some, most, or all of their courses. Items that make up that construct are use of cooperative learning (small groups), group projects, student presentations, class discussions, student-developed activities, student-selected topics, and student evaluations of each other's work.

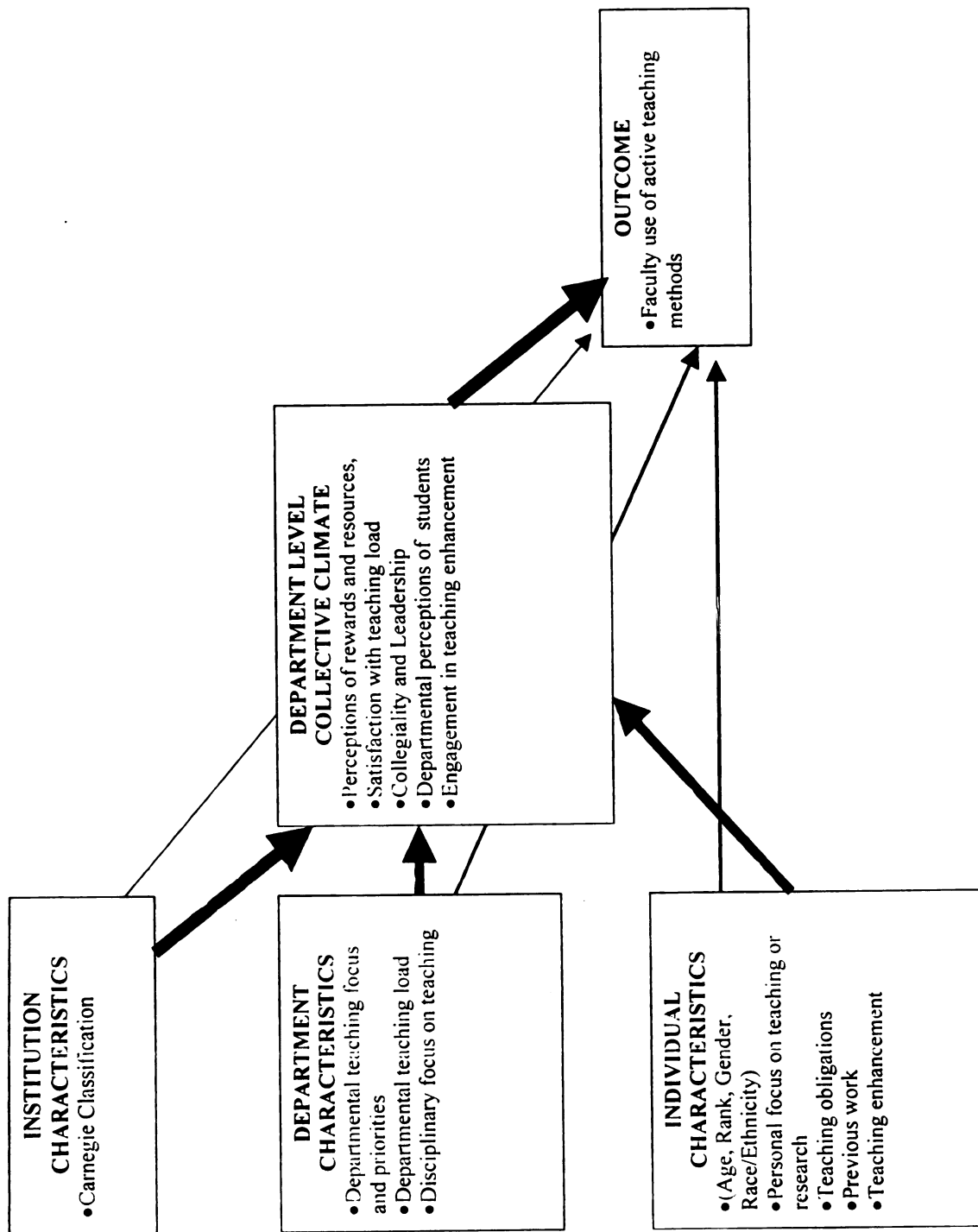


Figure 1. Cross-level Model of departmental climate for teaching on active and collaborative teaching.

Demographic Variables

Individual demographic variables in the model include age, rank, gender, and race/ethnicity. They represent variables that have been explored in past research with mixed results (e.g., Baldwin, 1979, 1990; Blackburn & Lawrence, 1986, 1988; Long, 1990; Long, Allison & McGinnis, 1993; Olsen, Maple & Stage, 1995; Reskin, 1979). They are included in the model to be controlled for when looking at department level variables. Cognitive ability and other variables dealing with self-esteem and self-efficacy are beyond the scope of the present study, but would be of interest in the future studies incorporating compositional constructs.

Age is a variable that, by itself, appears to predict little about how faculty spend their time (Blackburn & Lawrence, 1988). It has been found to interact with other variables to be predictive of productivity. Rank is another variable that has not predicted productivity well by itself, but seems to interact with other variables.

Studies on gender differences in faculty teaching practices consistently find that women use active and collaborative teaching more than men (Antony & Boatsman, 1994; Blackburn & Lawrence, 1995; Fairweather, 1997; Einarson, 2000). Men, however, are more likely to work in research universities and women in other institutions where teaching loads are higher (Blackburn & Lawrence, 1995). These results and speculative explanations argue for including gender in any model of faculty work.

Studies that use race as a predictor of faculty teaching have been contradictory (Einarson, 2000; Fairweather, 1997; Milem & Astin, 1992; Milem & Wakai, 1996 a and b). Neither Einarson nor Fairweather found racial differences in faculty use of active and collaborative teaching. Milem and colleagues found that women and faculty from

underrepresented minorities and ethnic groups were more likely to report using student-centered approaches to teaching and “active learning” techniques (Milem, 2001). A major limitation of the data used on previous studies is that it is so sparse.

Individual and Departmental Climate Constructs

The climate constructs proposed in this model are aggregated from individual faculty perceptions. They are tested at both the individual level and the departmental level. In effect the model proposes psychological and organizational climate influences on individual teaching practices. The climate constructs are discussed in detail below.

Student preparation for college level work

Faculty have recently voiced concern about the current generation of students’ preparedness for college level work (Colbeck, et al., 2001). Promotion of active and collaborative teaching and learning approaches has been based, in part, on addressing differing student learning styles and levels (Johnson, Johnson, & Smith, 1998). This model proposes that departmental perceptions of student preparedness, as well as individual faculty perceptions, influence faculty teaching approaches.

Rewards for teaching and research

Although 99% of faculty in a recent national study named being a good teacher as an important goal, 75% agreed that publishing was necessary to achieve tenure, and only 12.5% felt that their institutions rewarded good teaching (Sax, et al., 1996). Fairweather and Rhoads (1995) found that faculty who perceive rewards for teaching engage more in teaching, and Fairweather (1997) found that faculty who perceive higher rewards for research are more productive researchers. The link between perceived rewards and performance is not that clear in other studies. Colbeck (1994) found that salary and merit

pay – two very visible rewards – were not considered important incentives to faculty. They indicated that the cultures of their departments influenced them more than did institutional reward policies. The model proposes that departmental collective perceptions of whether faculty research is valued by their department and whether teaching is rewarded at their institution exist and influence individual faculty teaching behavior above and beyond the individual's perceptions.

Perceptions of resources

Peterson et al. (1986) contend that the nature of resource allocation clearly has an impact on the climate of higher education institutions. Departments with greater enrollments and levels of externally-generated funds would likely have greater influence and command greater resources in the institution. Other researchers contend that faculty perceptions of resources are more important than actual resources available to them (Colbeck, 1994; Einarson, 2001). This model proposes that collective faculty perceptions of the resources available to them will contribute to the climate for teaching in their departments and in turn, influence their teaching.

Prior work

Research on the effects of faculty members' employment status (Einarson, 2001; Fairweather & Rhoads, 1995) in terms of prestige of doctoral granting institution, full- and part-time status, and length of time in position, has not identified relationships with the amount of time faculty spend teaching or their teaching approaches. Little research exists that examines potential differences among faculty who have come from industry or non-academic settings (Fairweather & Paulsen, 1996), from administrative positions in academic settings, and from academic positions. Considering the strong socializing force

of the disciplines (Braxton, 1995), this model includes constructs at the individual and departmental level for prior work within and outside of academe.

Interest in teaching and research

Research has demonstrated a relationship between individual faculty interest in teaching and time spent on teaching (Fairweather & Rhoads, 1995) as well as use of active and collaborative teaching methods (Antony & Boatsman, 1994). This model proposes that departmental aggregated interest in teaching or research influences individual faculty teaching practices as well.

Satisfaction with teaching

Attitudes about teaching such as a faculty member's satisfaction with his or her teaching load have been proposed as potentially important influences on teaching practices (Blackburn & Lawrence, 1995). The few studies testing this relationship for individual faculty have not found a significant association between satisfaction with teaching loads or work mix and teaching behaviors (Fairweather & Rhoads, 1995; Einarson, 2001). It is possible that collective satisfaction has a greater influence on individuals, by creating a work environment that supports teaching.

Departmental collegiality and leadership

The level of collegiality among faculty appears to be a factor in departments that support excellent teaching (Massey, Wilger & Colbeck, 1994), but has not been tested as a direct effect on individual faculty teaching practice. Leadership by departmental chairs has likewise been identified as an important element of departments that are supportive of good teaching (Massey, Wilger & Colbeck, 1994). Leadership by chairs is proposed as a department-level construct in the model of departmental climate for teaching.

Faculty development for instructional improvement

Finally, individual and departmental engagement in teaching improvement is examined as an influence on teaching practice. Although many studies describe faculty development practices, few have examined relationships between faculty development and faculty teaching practice (Menges & Austin, 2001). This is an area of influence on faculty teaching practice that has received little attention. Menges and Austin (2001) assert that most of the literature regarding teaching improvement efforts and faculty development is descriptive in nature and extends only to gauging faculty beliefs and attitudes (p. 1132). Einarson (2001) tested faculty perceptions of the availability, adequacy, and use of professional development funds in relation to active and collaborative teaching practices. These funds, however, could have been used for training in either research or teaching. She found no relationship between them.

Departmental Characteristics

Departmental characteristics include the discipline associated with the department and departmental teaching obligations. Discipline is proposed as a departmental level factor only. Teaching obligations are proposed as both individual and departmental level factors.

Discipline use of active and collaborative teaching

Discipline is an important consideration in any study of influences on faculty teaching approaches, and has been studied rather extensively (Braxton, 1995; Braxton, Eimers, & Bayer, 1996; Braxton, Olsen & Simmons, 1998; Einarson, 2001; Murray & Renaud, 1995). Braxton (1995) and Braxton, Eimers, and Bayer (1996) found disciplinary differences in faculty attitudes and beliefs about teaching. Braxton contends

that faculty from “hard” paradigmatic development disciplines such as the sciences may be less receptive to teaching improvement or innovation than those from “soft” paradigmatic disciplines such as the humanities and social sciences. Murray and Renaud (1995) found disciplinary differences in classroom teaching practices, as did Einarson (2001). Einarson found that faculty in science, math, engineering, and social sciences made significantly less use of active and collaborative teaching practice than faculty in professional fields such as education. She found some differences among institutional types in the direction and magnitude of disciplinary influences on teaching practices. This model proposes direct disciplinary effects on teaching practices, as well as effects mediated by departmental climates. It is also important to control for discipline to accurately assess the unique influence of departmental climate factors on teaching.

Teaching obligations

The number of courses faculty teach and the time they spend on teaching and preparation have been used as predictors of research productivity and as measures of teaching productivity (Menges & Austin, 2001). Those aspects of teaching obligation as well as the level of instruction can directly influence faculty teaching practices (Stark & Lattuca, 1997). Einarson (2001) found that the number of students faculty taught was negatively associated with use of active and collaborative teaching, but that the number of hours taught was positively associated. The number of classes a faculty member taught was positively associated with active and collaborative teaching. Level of instruction (lower division undergraduate, upper division undergraduate, graduate) was not significantly associated with use of active and collaborative teaching in her study, except in comprehensive universities. This model proposes that the total number of

courses individuals teach, and the total course obligations of departments, have direct effects on faculty teaching practices. In addition, the number of general education and remedial education courses individuals and departments are responsible for is proposed to influence teaching.

Institution Level Variables

Carnegie classification is often used to define the research and teaching focus of higher education institutions, despite evidence that institutions are not as homogenous within types as might have been previously presumed (Fairweather & Beach, 2002). Einarson (2000) found that active and collaborative teaching practices varied significantly by institutional type, but the practical differences between institution types was quite small. That is, while the differences were statistically significant, their effect sizes were not large enough to warrant considering the differences meaningful. She did find that institutional type interacted with other organizational variables (2001) to influence faculty use of active and collaborative teaching. This model proposed small direct institutional-type influences on teaching, as well as interactions between institutional types and departmental climate.

Constructing Variables at the Group Level

Two related levels issues are attendant with group-level constructed variables: conceptualization and aggregation. Conceptualization involves the theoretical and empirical justification for studying a phenomenon at a particular level. Aggregation involves operationalizing that conceptual construct into a measurable variable.

Climate studies discussed in the previous sections lend conceptual justification for creating departmental variables to measure shared faculty perceptions of climate. Faculty as groups create the climate of the departments within which they work. Therefore, measuring climate must account for that shared construction.

Rousseau (1985) justifies aggregating data to form group level variables because “meaning . . . can be added by aggregation when each individual’s score on a variable (X) reflects the *result* of a unit-level phenomenon whose overall effect is of interest (p. 6, emphasis in the original). In the case of the department-level variables of climate for teaching, an individual’s perception of the department climate can be argued to be a result of the department’s climate, created and shared by the aggregate department’s members, rather than an individual perception alone that resides at the individual level. Without consensus, climate cannot be considered an organizational attribute (Kozlowski & Hults, 1987). Therefore, variables that operationalize the concept of departmental climate must allow measurements of consensus within departments and differences between departments.

Predicted Relationships

The relationships predicted by this model of departmental climate for teaching are designated by the narrow and bold arrows between boxes at three different organizational levels. Individual characteristics and perceptions, departmental characteristics, and institutional characteristics are proposed to have small direct effects on faculty use of active and collaborative teaching. I expect these variables to be related to the outcome in ways consistent with prior research findings. That is, women, those with a personal preference for teaching, those who teach more courses, and those in disciplines and

institutions that have demonstrated greater use of active and collaborative teaching will be more likely to use these approaches. I expect that these characteristic variables will also contribute to departmental climate for teaching, and that departmental climate will mediate their effects on the outcome. The primary focus of the model is departmental climate, designated by the shaded box in the middle of the model. I expect that the climate constructs will have positive relationships with the outcome variable, supporting individual use of active and collaborative teaching. I describe the data, specific variables I used to operationalize and test this model, and analytical approaches in Chapter 3.

CHAPTER 3

STUDY DESIGN AND METHODS

A two-stage mixed methods approach (Tashakkori & Teddlie, 1998) was used to address the three research questions proposed in this study. I tested first two questions – the relative influence of departmental teaching climate and other intra-organizational factors on faculty teaching practices – using hierarchical linear modeling and an extensive data set created from a national survey of faculty beliefs and practices. Data in that set were collected to permit identification of intra-organizational levels. The hierarchical analysis was designed to determine whether climate for teaching, as modeled, had unique influence on individual faculty teaching practices. Equally important, the analysis explored whether or not influences at other organizational levels – particularly the individual and institutional levels – affected both the outcome variables and departmental climate. I explored the third research question, *how* departmental climate for teaching is created and influenced, through qualitative case studies of multiple academic departments within different institutions.

This study used quantitative and qualitative methods sequentially (first quantitative and then qualitative in two stages) but equally to examine different facets of organizational influence on teaching practice, as well as to add breadth and depth to that examination (Greene et al., 1989 in Tashakkori & Teddlie, 1998). The case analysis addressed the findings of the quantitative model tests, but answered questions of process the model testing could not.

Cross-Level Model of Teaching Climate

A cross-level mixed determinants model (Kozlowski & Klein, 2000; Raudenbush & Bryk, 2002; Snijders & Bosker, 1999) was proposed to test direct and mediating relationships of individual and departmental level variables on faculty use of active teaching approaches. The model was cross-level in that it hypothesizes relationships between different organizational levels. The model used mixed determinants; that is, it contains multiple predictors at each of the levels hypothesized. The departmental climate variables were constructed from aggregated individual data regarding faculty perceptions of their department's teaching focus and priorities for undergraduate education, collegial relationships, and rewards. Table 2 contains the model constructs and variables used to operationalize them. The Higher Education Research Institute 1998 Faculty Survey (HERI 1998) used for this analysis is described in the next section of this chapter. The survey code book is included in Appendix A.

Table 2

Proposed Variables for Testing Cross-Level Model of Departmental Teaching Climate

Model Construct	Operational Definition	Variables and Scales Used
Outcome		
Faculty Use of Active Teaching Methods	Variables used by Antony and Boatsman (1994): cooperative learning (small groups), group projects, student presentations, class discussions, student-developed activities, student-selected topics, and student evaluations of each other's work.	Active and Collaborative Teaching : Continuous variable created by averaging the 7 items Original Scale for all: 1 (none) -- 4 (all) Rescaled: 0 (none) – 3 (all) for ease of interpretation
Department Level Constructs		
Departmental teaching obligations and load	Aggregated responses of total courses taught, number of general education and remedial education classes taught by faculty in each department, and average hours per week spent preparing for and teaching	Total Courses (Combined Courses1-4) General Education (Courses2) Remedial Education (Courses3) Hours Teaching (combined hrspwk01 and hrspwk02))

Model Construct	Operational Definition	Variables and Scales Used
Disciplinary Approach to Teaching	Disciplinary use of active/collaborative teaching methods. Disciplines were grouped based on prior research and confirmatory ANOVA.	Disciplinary Use 1=Low 2=Medium 3=High
Rewards and satisfaction	Aggregated responses regarding whether faculty believe their institution rewards good teaching, and their satisfaction with their teaching load	Faculty describe their institution as rewarding good teaching (Insdesc9): coded 1-not descriptive to 3-very descriptive Satisfaction with teaching: Satis03; coded 1-not applicable to 5-very satisfied
Teaching improvement	Proportion of respondents in each department who attended a teaching improvement activity in the last two years	tchact09 – coded 0-no answer, 1-no, 2-yes. Recoded 0-no answer or no, 1-yes
Departmental focus	Aggregated primary interest of department (teaching vs. research) Aggregated responses of work prior to this current position – teaching, academic non-teaching, or outside academe	primint – coded 1:heavily to research to 4:heavily to teaching. Recoded 0:research and 1:teaching prevrwk – 7 category variable recoded to 1:outside academe, 2:academic non-teaching and 3:teaching
Collegial Relations	Aggregated responses of variables having to do with faculty perceptions and feelings about their colleagues and work environment.	Combined variable -- Satisfaction with the competency of colleagues (Satis09), collegial relationships with colleagues (Satis07), and social relationships with colleagues (Satis08). Coded 1:not applicable to 5:very satisfied. Faculty perception that their research is valued by department (InsOpn14): coded 1:disagree strongly to 4:agree strongly
Student quality	Aggregated responses: students are well prepared academically to engage in college-level work	Insopn03 – coded 1:disagree strongly to 4:agree strongly
Institution Level Variables		
Institutional type	Collapsed Carnegie classifications Also created dummy variables for each classification with 1=class and 0=others	1=Research Universities 2=Doctoral Universities 3=Comprehensive Universities 4=Baccalaureate Colleges

Model Construct	Operational Definition	Variables and Scales Used
Individual Level Variables		
Gender		Male = 0, Female = 1
Race/ethnicity		White = 0, Non-white minority = 1
Faculty rank		1=lecturer/instructor 2 = assistant professor 3 = associate professor 4 = full professor
Prior work		prevrkw – 7 category variable recoded to 1:outside academe, 2:academic non-teaching and 3:teaching
Personal Focus		primint – coded 1:heavily to research to 4:heavily to teaching. Recoded 0:research and 1:teaching

Outcome Variable

I conducted a confirmatory internal consistency analysis to ensure that the variables in the 1998 data set showed the same inter-correlation as those in the 1993 data used by Antony and Boatsman (1994). The 1998 variables had a Cronbach's alpha of .78, very similar to that of the 1993 variables (.77). Table 3 contains comparative statistics on the 1993 data and the 1998 data subset used for this analysis (n=13,222).

Table 3

Comparative Item Correlations for Outcome, 1993 and 1998 Data

Item	Corrected Item-Total Correlation		Alpha if Item Removed	
	1993*	1998	1993*	1998
Cooperative Learning (small groups)	.61	.62	.72	.73
Group Projects	.56	.59	.73	.74
Student Presentations	.56	.59	.73	.74
Class Discussions	.41	.44	.76	.77
Student-Developed Activities	.35	.38	.77	.78
Student-Selected Topics	.45	.42	.75	.77
Student Evaluations of Each Other's Work	.52	.54	.74	.75

Note: Alpha 1993 = .77, Alpha 1998 = .78

*1993 statistics from Antony & Boatsman, 1994

Overall, item-total correlations and alphas for the 1998 data are slightly stronger than for the 1993 data. This indicates that the combination of variables remains a relatively highly reliable construct, even when applied to data collected in a different cycle.

Individual Level Variables

Individual level variables in the model included rank, gender, race/ethnicity, personal focus on teaching or research, and work prior to the current position. They represent variables that have been explored in past research. They are included in the model as controls when looking at department and institution level variables. Rank is variable that has not predicted teaching and research productivity well by itself, but seems to interact with other variables. Both its main effects and interaction effects are tested in this analysis. Antony and Boatsman (1994) found that faculty who “leaned toward” teaching, but did not claim to “lean heavily” toward it in preference reported the highest use of active and collaborative teaching approaches. Those who reported they “lean heavily” toward teaching reported the second highest use of such approaches. Those results guided the decision to collapse the variable “primary interest” into a dummy in which 0 = research and 1 = teaching.

In addition to the variables named above, individual level measures of the variables used at the departmental level were tested for their effects on active and collaborative teaching. They are discussed below.

Departmental Level Variables

I used two types of departmental variables – objective departmental characteristics and climate constructs. Variables representing the teaching obligations of

departments were created from the number and kinds of classes faculty report teaching, and the amount of time they reported spending in class and on preparation. These variables are averages of the data reported by respondents in each department.

A score for disciplinary use of active and collaborative teaching (high, medium, low) was assigned to departments based on Fairweather's (2002) typology for disciplinary differences in teaching. Confirmatory ANOVA with post-hoc tests for homogeneity supported the disciplinary categories Fairweather identified in general, with a few alterations to accommodate slightly different discipline assignments and groupings in the HERI data set. Table 4 contains a breakdown of the disciplines assigned to each category of the variable.

Table 4

Categories of Disciplinary Use of Active and Collaborative Teaching

Disciplinary Use		Frequency	Percent of Sample
Low Use	Biological Sciences	846	16.5
	Engineering	625	12.2
	Math/Statistics	817	15.9
	Physical Sciences	1103	21.5
	Social Sciences	1501	29.2
	Other Technical	240	4.7
	Total	5132	100
Medium Use	Agriculture / Forestry	207	12.1
	Business	737	43.2
	Health Sciences	762	44.7
	Total	1706	100
High Use	Education	1061	16.6
	English	1129	17.7
	History/Political Science	998	15.6
	Humanities	1271	19.9
	Fine Arts	1315	20.6
	Other	610	9.6
	Total	6384	100

Because this variable was constructed based upon differences in the outcome, it has an automatic association with approach to teaching, and should be viewed with some caution. In fact, it makes the test of the influences of departmental characteristics on active and collaborative teaching slightly more conservative since it very likely explains more variation in the outcome than other measures of discipline not based on the outcome would explain. I found it the most efficient way to address disciplinary influences in the model.

Compositional constructs representing departmental level dimensions of climate for teaching include: rewards and recognition for teaching and research, primary interests of the department (teaching or research), collegial relations, student preparedness for college level work, and engagement in teaching improvement. These variables were created by averaging the responses of department members. The variable “perceptions of collegial relations” is a composite of three questions on a four-point scale: satisfaction with the competence of one’s colleagues, satisfaction with professional relationships with colleagues, and satisfaction with personal relationships with colleagues. Cronbach's alpha reliability measures on the construct were strong ($\alpha = .78$; α if item removed from scale not less than .74).

Two elements proposed in the model—departmental leadership and resources—do not have good corresponding variables in the HERI data set, and could not be tested in the quantitative model. I address these factors in the qualitative case study analysis.

Data

The data to test this model were derived from the 1998-99 Faculty Survey conducted by the Higher Education Research Institute (HERI) at the University of

California at Los Angeles. This data set is uniquely well suited to testing cross and multi-level models of organizational influence on individual faculty outcomes. Faculty surveys can be nested within departments within specifically identified institutions, because individual surveys are coded for institutions, and respondents are asked to identify the department (rather than discipline) in which they work. The hierarchical nature of the relationships of faculty to their departments and institutions is therefore accurately reflected. Respondents can be grouped within departments within institutions, a conceptual and analytical assumption of this study. Other data sets, primarily the National Survey of Postsecondary Faculty (NSOPF), are designed to be nationally representative and contain variables similar to those of the HERI faculty survey. The NSOPF, however, does not contain the levels of institutional and intra-institutional specificity of which the HERI data set is capable. NSOPF respondents can only be identified by the type of institution and broad discipline within which they work.

The complete survey data set contains 33,785 responses from full-time faculty members at 378 two- and four-year colleges and universities across the United States. For this analysis, I created a purposeful sample retaining departmental and institutional structures by following a multi-step process. First, full-time faculty at public and private four-year colleges and universities who reported teaching undergraduates were identified. This eliminated faculty from two-year and specialty colleges, as well as those who have no undergraduate teaching responsibilities. Second, I selected institutions with the highest average faculty response rates within their Carnegie classification. Next I excluded individual faculty cases based on missing data on key variables and

departmental groups of less than three respondents. Finally, I excluded institutions with fewer than two departments to compare.

The final sample for this study included 13,222 faculty in 2176 departments at 115 institutions – 13 Research universities, 14 Doctoral universities, 48 Comprehensive universities, and 39 Baccalaureate colleges (See Appendix C for details). The overall institutional response rate of the data set is 40%. Average response rates for each institutional group were 30% for research institutions, 39% for doctoral, 53% for comprehensive, and 68% for baccalaureate. Final institution group sizes averaged 115, with a minimum of 17 and a maximum of 522. Institutions had between 4 and 55 departments, and averaged 19. Department respondent group sizes ranged from 3 to 39, and averaged 6.08. 75% of department groups had 7 or fewer respondents.

Table 5 contains comparisons of the original and final data sets. Examination of the final sample compared to the total data set indicated that proportions of faculty ranks, gender, and race were representative, and multiple departments from all disciplines were included. I also examined key variables and found them to vary only slightly between the original and final samples. I also compared the final sample with that of the 1999 National Study of Postsecondary Faculty, which is nationally representative. The original and final HERI samples do not differ radically from the national proportions of faculty. White faculty appear to be over-represented, as are full and associate professors. There are slightly fewer women in the sample than reported nationally. Overall, the final sample retains the proportions of the original, as well as frequencies, means, standard deviations on the outcome and key predictors proposed for this study.

Table 5

Characteristics of Original and Final Data Sets Compared to NSOPF 1998 Data

Variable	All 4-year Institutions (N=31,477)	Final Data Set (N=13,222)	NSOPF 1998 Public and Private 4-year institutions
	Percentage	Percentage	Percentage
Gender			
Male	67.00	65.2	63.7
Female	33.00	34.8	36.3
Rank			
Professor	36.9	35.2	30.7
Associate Professor	28.7	29.6	23.6
Assistant Professor	25.1	25.5	22.3
Instructor/Other	9.3	10	15.9
Race			
White	91.5	91.8	85.1
Non-White	8.5	8.2	14.9
Engaged in Teaching Improvement Workshop	56.5	54.0	
Prior Work			
Teaching	37.8	37.9	
Academic, non- teaching	39.3	39.5	
Outside Academe	22.8	22.5	
Primary Interest in Teaching	66.3	68.3	
	Mean / SD	Mean / SD	
Use of Active / Collaborative Teaching	2.08 / .59	2.09 / .59 (prior to recoding)	
Total Number of Courses Taught	2.95 / 1.2	2.87 / 1.19	
Faculty Rewarded For Good Teaching	1.86 / .65	1.85 / .65	
Students Well Prepared Academically	2.17 / .86	2.16 / .87	
Collegial Relations	3.81 / .76	3.78 / .76	
My Research Valued By Faculty In My Dept	2.92 / .90	2.90 / .89	

Note: data for All 4-year schools taken from Sax, Astin, Korn & Gilmartin, 1999. Data for 1999 NSOPF taken from Zimble, 2001.

Analytical Approach

Hierarchical Linear Modeling (HLM) was used to test the research questions driving this model of departmental climate for teaching and its influence on faculty teaching practices (Raudenbush & Bryk, 2002). HLM was designed specifically for

analyzing cross-level research models, in which relationships of dependent variables at the individual level and independent variables at the same and higher levels are explored (Hofmann, Griffin & Gavin, 2000; Snijders & Bosker, 1999). The direct effects of higher level variables on the individual level outcome, and the moderating effects of those higher level variables is tested through a series of equations. The first equations regress the teaching practice outcome on the individual level variables of interest, and then use the slope and intercept of that equation as dependent variables in regressions on the department level variables. In turn those slopes and intercepts are used as outcomes for institution-level variables (Raudenbush & Bryk, 2002).

Prior to testing with HLM, I tested the levels of the constructed departmental climate variables to ensure that aggregating them to the group level was valid. This test follows from the requirement of consensus to justify measuring climate as an organizational attribute. Aggregation of data collected at the individual level to a different level is considered valid when there is homogeneity within groups and variance between groups (Bliese, 2000; James, Demaree & Wolf, 1993). Positive F-tests on One-way ANOVAs indicate that there is significantly greater between-group variance than within-group variance. The percentage of variance in each predictor found at the individual, department, and institution level can then be calculated using an Intra-class correlation (ICC(1)) statistic. This procedure also examines the assumption that the outcome variable is sufficiently varied at the individual and higher level to proceed with HLM.

HLM operates on a number of methodological assumptions that closely parallel the levels perspective. Lower level units (e.g., individuals) are assumed to be nested

within identifiable higher-level units and are exposed to and influenced by those higher-level units (Raudenbush & Bryk, 2002). The outcome variable is assumed to be measured at the lowest level of interest, and to vary both within the lower-level units and between higher-level units. Therefore, it is assumed that faculty teaching practices vary not only from individual to individual, but from department to department as well. This assumption can be tested in the process of HLM analysis, but can also be examined prior to analysis. HLM also requires a large number of groups with ample members. The recommendation is that 30 groups of 30 be used, but evidence suggests that an increase in group number can support a decrease in group size. Having 115 institutions and 2176 departments meant not having to eliminate units with smaller numbers of faculty. HLM 5 software offers results with robust standard errors that correct for non-normal distributions and unequal group sizes (Raudenbush & Bryk, 2002). Given the range of institution and department sizes, I used these corrected variances rather than results with standard errors that assume normal distributions and equal group sizes.

Case Study Analysis

The qualitative analysis explores in detail *how* departmental climates affecting faculty teaching practices are created and influenced by or mediate factors from other organizational levels (individual, college, institution, extra-institution). I used a multiple case study approach (Merriam, 1998; Yin, 1994) to create and compare in-depth descriptions of departments within different universities.

Case study methodology is best suited for questions of “how” and “why” about contemporary events over which the investigator has little or no control (Yin, 1994). Its particular strength is its “ability to deal with a full variety of evidence – documents,

artifacts, interviews, and observations” (p. 8) beyond what might be available with other methodologies. Cases are used when a researcher wishes to create a particularistic, descriptive, and heuristic account of a situation or setting (Merriam, 1998). A case study is particularistic and descriptive in that it focuses on specific situations, events, or processes and describes them in detail. In this study, the case analysis focuses on the policies, actions, and other factors that create and influence departmental climate for teaching. The case “subjects” are different departments, but the cases are built from the perspectives of faculty and administrators. I constructed profiles of departmental teaching climates through the explanations given by individual faculty and administrators about learning priorities for students, teaching practices they engage in to meet those priorities, departmental influences on their teaching, collegial activity around teaching and learning, rewards and resources for teaching and research, and leadership by department chairs. I then analyzed policies and other factors at individual, institutional, and extra-institutional levels for insight into how departmental climate is influenced. The analysis is heuristic in that it attempts to interpret the processes described and give the reader a framework for understanding them.

The use of multiple departmental cases increases the interpretive and heuristic value of the qualitative stage of the study (Merriam, 1998; Yin, 1994). Merriam (1998) notes that the more cases included in a study, and the greater the variation across cases, the more compelling are interpretations from the study. Yin (1993) refers to the “replication logic” (p.34) in multiple case studies: choosing cases in the hopes of replicating certain findings, rather than in the hopes of representing the universe (as is often the goal of other methods). If replications are found for several cases, one can have

more confidence in the results. The strength of those results, however, refers to the theory or framework being explored, not to the greater population. Therefore, findings from the multiple departmental cases in this analysis refer to the process of influence on teaching practice, not to the greater populations of academic departments.

Case Analysis Data

Data for this case study analysis is part of a larger study, “Enhancing Faculty Contribution to Learning Productivity,” funded by a US Department of Education’s Office of Education Research and Improvement (OERI) Field Initiated Study grant. I was a graduate research assistant on this project for its entirety. In that role, I conducted site visits to four of the nine universities participating in the study (including the three used in this analysis), read and coded transcripts, and undertook analysis of the data. Although this current analysis can be considered secondary – the issue of the creation and influence of departmental climate for teaching was not the focus of the original study – my familiarity with these data leads me to believe that they are well suited to an exploration of departmental climate. The individual responses of faculty and administrators range from personal attitudes, feelings, and actions to perceptions of colleagues and departmental and institutional leaders, departmental and institutional structures and resources, and policies and issues at the departmental, institutional, and state level. Project staff found that careful analysis and comparison of these individual responses can yield richly detailed descriptions of departments and institutions. The questions regarding climate proposed in this study, however, were addressed by any of the researchers involved in data collection. The next section describes the data collection process used. I then describe my analysis strategy in detail.

Data Collection and Coding

For the larger study, three states with distinct policy environments for higher education were selected. For example, Ohio represented a state with direct legislative mandates on faculty work, Tennessee represented a state with incentives for specified student outcomes, and Texas was chosen as a state without apparent state-level legislation or policy related to faculty teaching or student learning. In each state, a public research university, public masters-level university, and private liberal arts college were invited to participate for a total of nine institutions in three different states.

Research teams composed of one faculty member and one graduate research assistant conducted a total of 338 interviews with administrators, faculty, and students at the nine universities. We interviewed the chief academic officer and other central administrators with responsibilities for undergraduate education. Each team also interviewed faculty, chairs, and deans from four departments (if such existed) selected for disciplinary variation according to Biglan's (1973) classification. The departments included Business Management (soft-applied), English or Romance Languages (soft-pure), Engineering (hard-applied), and Physics (hard-pure). Department chairs were asked to nominate at least nine faculty to be interviewed based on variation in rank and on their assessment of the nominated faculty members as either a high performing teacher, researcher, or both. Table 6 provides details on the institutions visited, the departments selected, and the number of participants interviewed.

We used semi-structured interview guides to elicit faculty members' responses to questions about their priorities for student learning, their teaching practices, and about how institutional and department management strategies and state policies enhanced or

constrained their opportunities to contribute effectively to student learning. Interviewers asked chairs, deans, and central administrators about their perceptions of faculty teaching practices, how their own managerial strategies influenced faculty teaching, and how institution and state policies, actions, and circumstances influenced the ways they worked with faculty on issues of teaching and learning.

Table 6

Interviews Completed for "Enhancing Faculty Contributions to Student Learning Productivity"

State/Institution	Ohio				Tennessee			Texas		
	OSU	YSU	WU	UTK	TT	FU	UTA	UTS	AC	TOT
ROLE GROUP										
Central Administrators	3	2	1	3	2	2	2	2	2	19
Deans	4	4	0	4	2	0	4	3	3	24
Chairs & Associate Deans	4	4	4	7	4	3	4	8	2	40
Faculty										
Business	8	9	4	8	9	3	4	9	4	58
Eng / Lang	9	9	2	9	9	4	8	8	5	63
Engineering	8	3	3	9	9	0	9	5	0	46
Physics	8	5	6	8	7	3	7	2	1	47
Lecturers, instructors	0	0	0	3	0	2	5	0	0	10
Student focus groups	4	4	3	4	4	3	3	3	3	31
Total	48	40	23	55	46	20	46	40	20	338

OSU = Ohio State University
YSU = Youngstown State University
WU = Wilberforce University
UTK = University of Tennessee – Knoxville
TT = Tennessee Technological University
FU = Fisk University
UTA = University of Texas – Austin
UTS = University of Texas – San Antonio
AC = Austin College

All interviews were transcribed verbatim, and a coding scheme developed to categorize responses using NUD.IST qualitative software. An initial coding scheme was developed to follow the interview guide, and codes added as issues and themes emerged. The result is a database of individual interviews, nested within departments and institutions, which can be explored for multiple issues and grouped to look for patterns of

similarity or difference at multiple levels. Table 7 lists the issues the interview questions addressed in the interviews, and the initial breakdown of codes. Appendix A contains the semi-structured interview protocols.

For the present analysis, I profile 10 departments and one college in three institutions in the state of Tennessee. At the public research university, University of Tennessee at Knoxville, the departments of Physics, Civil Engineering, and Romance Languages, and the College of Business participated in the study. The College of Business did not have enough tenure-stream faculty in any one department teaching undergraduates at the time of our visit to meet our sampling scheme. We therefore interviewed faculty from multiple departments within the college. At Tennessee Technological University, a public comprehensive university, we interviewed faculty, staff, and students from the departments of Physics, Mechanical Engineering, English, and the Decision Sciences within the College of Business. At Fisk University, a private liberal arts college, the departments of English, Physics, and Business Administration participated. That school has no engineering department. This sample provided parallel disciplines but different missions and institutional types within the same state higher education context.

Table 7

Interview Topic Areas from "Enhancing Faculty Contributions to Student Learning Productivity"

Demographic Information
Years teaching
Years at this institution
Teaching load and types of courses taught
Teaching and research awards received

Grads learning (What new graduates should have learned) Content Learned Skills Learned Integration Learned Application Learned Attitudes Learned	Most Effective Teaching (Faculty contributions to learning) Courses Pedagogical styles General Lecture Discussion Group Work One-on-one Other styles Context/relevance Assignments Evaluation/feedback Classroom Climate
Personal influences on faculty teaching Teaching Strengths Knowledge Teaching skills Attributes Experience Values	Areas of Teaching That Need Improvement Knowledge Teaching skills Attributes Experience External obstacles
Teaching balanced with other responsibilities Ability to balance Difficulty / Ease of balance Strategies	Changes in teaching practice Extent of effective teaching Changes in teaching behaviors Existence of change Influences for change Personal Dept. formal policies Dept. informal rules State policies Technology Other
Institutional & Dept. Influences (on faculty teaching) Formal Policies That Promote Teaching and Learning Governance Administrative structure Faculty participation Resources Budget Facilities/equipment Training Staff Policies Workload Class size Incentives/rewards Evaluation Enrollment/student support Formal policies don't promote learning	Formal Policies That Constrain Teaching and Learning Governance Administrative structure Faculty participation Resources Budget Facilities/equipment Training Staff Policies Workload Class size Incentives/rewards Evaluation Enrollment/student support Formal policies don't constrain learning

Informal Rules		Informal Rules
Informal Rules That Promote Teaching and Learning		Informal Rules that Constrain Teaching and Learning
Norms		Norms
Dept. culture		Dept. culture
Recognition		Recognition
Values		Values
Reward for research = less teaching		Reward for research = less teaching
Faculty autonomy		Faculty autonomy
Informal Rules don't promote learning		Informal Rules don't constrain learning

Case Analysis Strategy

I constructed the 11 cases (10 departments and 1 college) through an iterative analytic process that started with individual interview responses, broadened to departmental themes, returned to individual responses for insight into influences on departments, and finally expanded to institution and state level influences. I began by reviewing, by department, individual responses to interview questions regarding priorities for undergraduate learning, teaching approaches, and influences on teaching. I paid particular attention to the organizational level referenced or implied by interviewees in discussing influences on their teaching approaches, changes, and attitudes, as well as to factors found important in the quantitative model. I used contextual information about the institutions from faculty and administrator responses to create institutional descriptions, and to explore institutional level influences that emerged as important to departments or individual faculty. Finally, I compared department and institution profiles for similarities and differences (Merriam, 1998; Miles & Huberman, 1994), and for evidence of how departmental climates are created and sustained, and whether and how they mediate institutional influences. I used the results of this cross-departmental and institutional analysis to speculate on the administrative and policy levers that might

influence departmental climate for teaching to support faculty engagement in active teaching practices.

Limits and Delimits of the Study

Any study using secondary analysis is necessarily limited by the data available.

The HERI data set did not contain questions that could be used to operationalize some the constructs the model of departmental teaching climate proposed. Response rates for some of the institutions chosen for inclusion in this study were lower than would be ideal. The qualitative data set was collected to answer different questions than those posed in this study, and therefore did not address some issues and factors that the model proposed. Both sets of data had limitations in terms of their use in the present study. Fortunately, each set offered information that was missing from the other.

One of the assumptions inherent in HLM analysis is that individuals are nested in higher level units that influence their behavior. Given the heterogeneity of departmental arrangements within higher education institutions, this assumption might be problematic for some departmental groups I identified. Large departments might have programs, centers, and other sub-groups that influence individuals more than do their departments. The data available did not allow differentiation between departments that are subdivided in meaningful ways and those that are not.

This study does not exhaust the possible dimensions of climate for teaching that could be operationalized and tested, nor does it exhaust the individual and institutional factors that could be tested for influence on active and collaborative teaching. Other dimensions of effective teaching could have been used as additional outcomes – use of technology for teaching and incorporation of diversity issues into courses are two. The

study focuses on key organizational influences on a teaching and learning outcome that has been widely advocated as effective for student learning.

Summary

The mixed methods of this study design – cross-level quantitative model testing and in-depth multiple case studies – address different research questions arising from the problem of influencing faculty teaching practices. The cross-level quantitative analysis explores the existence and relative influence of departmental climates for teaching and other organizational influences at different institutional levels in colleges and universities. The multiple case studies delve into how departmental climates for teaching are created and sustained. The combination of quantitative analysis using a large, national data set and qualitative case study offer a more balanced portrait of the levels of influence on teaching among departments and institutions than either approach alone could. This study design should result in findings that can be applied to general theory about organizational influences on faculty work and detailed policy recommendations.

CHAPTER 4

RESULTS OF QUANTITATIVE MODEL TESTING

This chapter addresses the questions: Is there evidence of a department-level effect on individual teaching practice, and if so, how important is it relative to individual and institutional characteristics? The first section contains results of preliminary analyses that explore the variables used in the study and test the assumptions necessary to aggregate variables to the department level and proceed with HLM. The second section details the results of tests on the cross-level model of departmental climate for teaching. The third section discusses those results and their implications for the subsequent case study.

Results of Preliminary Analyses

Preliminary analyses were run on the outcome variable and predictors prior to testing the cross level model. These analyses determined the overall “shape” of the data, the level of correlation among predictors, the amount of variance in each predictor at individual, department, and institution levels, and the appropriateness of aggregating individual level variables to the department level.

Outcome: Use of Active and Collaborative Teaching Approaches

Overall, faculty used active and collaborative teaching and learning approaches in some, but not most, of their courses. The mean of the outcome variable, an average of seven items representing classroom practices such as group work, discussion, and peer evaluation, was 1.10 on the re-coded scale of 0 to 3 (0=none, 1=some, 2=most, 3=all). The distribution of responses was quite positively skewed; 75% of respondents had

scores below 1.5. To explore whether there were particular factors skewing the outcome scores, I calculated quartiles of responses for the outcome, and compared characteristics of respondents in the top 25% with those of all respondents. Table 8 contains these comparisons.

Table 8

Reported Use of Active and Collaborative Teaching

Characteristics	Top Quartile (N=3105)	Full Sample (N=13,222)
Institutional Type		
Research	23.3%	25.5%
Doctoral	15.5%	16.8%
Comprehensive	42.6%	39.5%
Baccalaureate	18.6%	18.2%
Discipline		
Agriculture/Forestry	1.2%	1.5%
Biology	3.4%	5.9%
Business	8.4%	5.8%
Education	14.0%	8.3%
Engineering	3.3%	4.8%
English	13.5%	7.9%
Health Sciences	7.5%	6.0%
History/Political Sci	4.0%	7.3%
Humanities	9.1%	10.0%
Fine Arts	14.8%	10.0%
Math/Statistics	1.6%	5.6%
Physical Sciences	2.7%	8.0%
Social Sciences	8.5%	11.8%
Other Technical	1.4%	2.0%
Other	6.6%	5.2%
Gender		
Male	58.8%	65.2%
Female	41.2%	34.8%
Rank		
Instructor	12.9%	9.6%
Assistant Professor	33.1%	25.5%
Associate Professor	28.5%	29.6%
Full Professor	25.5%	35.2%
Race		
White	92.2%	91.8%
Minority	7.8%	8.2%

All 115 institutions were represented in the top 25% of active and collaborative teaching, as were all disciplines. Research and doctoral institutions were slightly less represented in that group than in the overall sample, comprehensive universities slightly over-represented, and baccalaureate colleges to an equal degree. English, Education, Business, and Fine Arts were among disciplines with higher proportions in the top quartile, and Math/Statistics, Physical Sciences, and Social Sciences were among disciplines with lower proportions. Women were more highly represented in the top 25% than in the general sample, as were Assistant Professors. The racial breakdown of those who reported high use of active and collaborative teaching remained constant between the two groups.

These comparisons confirm that there are differences among faculty who use active and collaborative teaching, but that the top quartile of responses does not differ dramatically from the overall sample in terms of gender, race, rank, discipline, or institutional type. To ensure that systematic bias did not exist in active and collaborative teaching because of inordinately strong effects of outliers in the data, I calculated a log of the outcome and tested the final model with both the original scale and the log of it. Taking a log of the outcome normalizes it, and controls for the effects of outliers. Comparing the results of the two models (using unlogged and logged outcomes) showed no significant differences in the predictors or magnitude of effects.

Individual Level Predictors

Proportions of the variables gender, race, rank, prior work, primary interest, and engagement in teaching enhancement were reported in Table 5 (Chapter 3). Means and

standard deviations (Table 9), and correlations (Table 10) were also run for individual level predictors proposed for the study.

Table 9

Means and Standard Deviations of Individual Level Predictors

	Minimum	Maximum	Mean	Std. Deviation
Students Well Prepared Academically	1	4	2.17	.87
My Research Valued By Faculty In My Dept	1	4	2.90	.89
Satisfaction of Teaching Load	1	5	3.49	.91
Collegial Relations	1	5	3.78	.76
Number of Remedial Ed Courses Taught	0	5	.04	.34
Total Number of Courses Taught	0	14	2.87	1.19
Number of Gen Ed Courses Taught	0	5	.65	1.04
Hours Spent Weekly Teaching And Prep	1	18	8.27	2.03
Faculty Rewarded For Good Teaching	1	3	1.86	.65

Faculty across all institutions and departments reported that they spent on average 8.27 hours per week in class and preparing to teach, and taught an average of 2.87 courses. They were somewhat satisfied with their teaching loads, and felt their research was somewhat valued by their departments. Faculty were not uniformly enthusiastic about students' preparedness for academic work; the mean of the variable was 2.17 on a scale of 1 to 4. 63.9% of faculty disagreed or disagreed strongly to the statement that students are well prepared. 29.2% agreed somewhat, and only 5.7% agreed strongly.

Faculty were more positive about the rewards they perceived for good teaching. 55% of respondents felt that the statement "faculty are rewarded for good teaching" was somewhat descriptive of their institution, 15% felt it was very descriptive, and 29% felt it was not descriptive.

Table 10

Correlations for Individual Level Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Gender	1.000	.001	-.053**	-.080**	.004	.047**	.037**	.162**	-.109**	-.191**	.013	.117**	.020*	-.003	.036**
2. Students Well Prepared Academically	1.000	.164**	.152**		.013	.094**	-.031**	.031**	.000	-.011	-.035**	-.026**	.113**	-.002	.013
3. My Research Valued By Faculty In My Dept		1.000	.174**		.022*	-.067**	-.081**	-.032**	.034**	-.071**	-.040**	-.059**	.090**	.003	-.012
4. Satisfaction With Teaching Load			1.000		.025**	.075**	-.201**	-.046**	.050**	.109**	-.080**	-.198**	.049**	-.014	-.017*
5. Race					1.000	.086**	-.004	.022*	.001	.062**	-.004	.015	.003	.003	.007
6. Primary Interest						1.000	.175**	.066**	-.076**	.117**	.083**	.183**	.005	.025**	.086**
7. Total Courses Taught							1.000	.196**	-.046**	.022**	.329**	.332**	-.040**	.050**	.035**
8. Disciplinary Use of Active/Collab Teachin								1.000	-.080**	.008	.159**	.063**	-.004	.021*	.020*
9. Rank									1.000	.134**	-.035**	-.050**	.023**	-.056**	-.116**
10. Age										1.000	-.038**	-.033**	-.013	.005	-.028**
11. Number of Gen Ed Courses Taught											1.000	.165**	.019*	.022*	.032**
12. Hours Spent Weekly Teaching And Prep												1.000	.015	.008	.048**
13. Faculty Rewarded For Good Teaching													1.000	-.015	.036**
14. Number of Remedial Ed Courses Taught														1.000	.019*
15. Attended Teaching Enhancement Workshop															1.000

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

Several of the correlations between predictors were significant, not unexpectedly given the size of the sample and the sensitivity of correlation statistics to sample size. The magnitude of the correlations was generally low; only those between total courses taught, general education courses, and total hours spent on teaching were above .2 ($r = .33$ for each).

Departmental Level Predictors

Preliminary analysis on predictors aggregated to the department level indicated that all proposed departmental level variables were justified. I completed One-way ANOVAs on the predictors with individual departments as the grouping factor to determine if the variance between departments was significantly different than zero. All predictors were significant, confirming they varied between departments as well as between individuals. I then completed unconditional three-level HLM models with each predictor variable as the outcome. This procedure is equivalent to one-way ANOVA, but accounts for both department and institution level variance simultaneously. I calculated Intra-Class Correlations (ICCs) using the variance values at each level (sigma squared for individual level, Tau (π) for department level, and Tau (β) for institution level) by dividing the variance at each level by the total variance accounted for in the model. Table 11 lists the results of the one-way ANOVA tests, the variance values derived from the unconditional HLM models, and the amount of variance in each predictor at each level.

Percentages of the variance at the individual level ranged from 66 to 96 percent. Departmental level variances ranged from two to 19 percent, and institutional variances

ranged from less than one percent to almost 25. These values confirmed that there is sufficient group-level variance in the variables to justify aggregation to the department level. A non-zero ICC(1) value indicates that group membership affects or is related to lower-level outcomes (Bleise, 2000). These values also supported the use of HLM to account for errors dependent within departments and institutions; even a small intraclass correlation can inflate error rates in analyses (Bleise, 2000).

The institution-level variance (24.9%) in the predictor “perceptions of student preparedness” indicated that important effects for that predictor on individual teaching practices might exist. I created an institution-level aggregate of perceptions of student preparedness and tested it with the institutional-level predictors proposed in the model.

Table 11

Results of ANOVA and ICC(1) calculations for Predictors

Item	F-test on One-way ANOVA	sigma squared	Tau (pi)	Tau (Beta)	Indiv Level Variance	Dept. Level Variance	Inst. Level Variance
Student Preparation for College work	4.089 /p<.000	0.49521	0.06187	0.18317	66.90%	8.36%	24.74%
Satisfaction with Teaching Load	1.939 /p<.000	0.719	0.05225	0.06198	86.29%	6.27%	7.44%
Primary Interest	2.212 /p<.000	0.17692	0.01276	0.02228	83.47%	6.02%	10.51%
Total Courses Taught	3.489 /p<.000	0.98982	0.19209	0.24406	69.41%	13.47%	17.12%
Prior Work	1.369 /p<.000	0.54633	0.02347	0.01215	93.88%	4.03%	2.09%
Collegial Relations	1.739 /p<.000	0.51615	0.04793	0.01587	89.00%	8.26%	2.74%
General Education Courses Taught	2.955 /p<.000	0.82357	0.20857	0.06167	75.29%	19.07%	5.64%
Total Hours Spent Teaching	2.196 /p<.000	3.43175	0.29914	0.34533	84.19%	7.34%	8.47%
Perceived Rewards for Teaching	1.789 /p<.000	0.37407	0.00885	0.04691	87.03%	2.06%	10.91%
Remedial Courses Taught	1.092 /p<.004	0.10192	0.00391	0.0002	96.12%	3.69%	0.19%
Attended Teaching Enhancement	1.493 /p<.000	0.22942	0.00968	0.00979	92.18%	3.89%	3.93%

Means, standard deviations, and correlations for the Level-2 aggregated variables are listed in Table 12. Several variables that were significantly but slightly correlated at the individual level were also significantly but slightly correlated at the department level. The highest correlation was between departmental collegial relations and departmental perceptions of research value ($r = .52$). Departmental satisfaction with teaching load was negatively correlated with total courses taught ($r = -.32$) and positively correlated with primary interest (teaching vs. research) of the department ($r = .37$). Average total courses taught in the department was negatively correlated with disciplinary use of active and collaborative teaching ($r = -.29$) and positively correlated with hours spent on teaching ($r = .27$). Because many variables are tested in the HLM model, some of these correlations could be of concern. Standard errors were carefully tracked as variables were added to the model to ensure that combinations of variables are not collinear.

Table 12

Means, Standard Deviations, and Correlations Among Level-2 Variables

	Mean	SD	1.	2	3	4	5	6	7	8	9	10	11	12	13
1. Collegial Relations	3.78	.426	1.000	.516**	.020	.145**	-.040	.206**	.108**	.013	.154**	.058**	.059**	.032	-.029
2. Research Valued	2.92	.486		1.000	-.085**	-.103**	.055**	.174**	.162**	-.123**	.186**	-.009	-.027	.005	-.055**
3. Hours Teaching	10.47	1.64			1.000	.225	-.050*	-.012	.233**	.272**	.039	.115**	.191**	.061**	.089**
4. Primary Interest	.699	.275				1.000	-.149**	.146**	-.056**	.368**	.011	.183**	.155**	.062**	.155**
5. Prior Work	2.16	.386					1.000	-.096**	.041	-.056**	.086**	-.061**	.062**	-.066**	.144**
6. Student Preparedness	2.16	.596						1.000	.195**	-.062**	.231**	.058**	-.050*	-.017	.095**
7. Satisfaction with Teaching Load	3.49	.521							1.000	-.322**	.095**	-.060**	-.159**	-.073**	-.051**
8. Total Course Load	2.91	.787								1.000	-.085**	.120**	.387**	.086**	-.292**
9. Rewards for Teaching	1.87	.370									1.000	.082**	.043*	-.022	-.010
10. Teaching Enhancement	.545	.258										1.000	.085**	.035	-.087**
11. General Education Courses	.66	.65											1.000	.022	.152**
12. Remedial Education Courses	.395	.15												1.000	-.047*
13. Disciplinary Use of Active Teaching	1.92	.93													1.00

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

Results of Cross-Level Model Testing

The research questions driving the quantitative model testing were: a) What is the relative influence of departmental climate for teaching on individual faculty teaching practices? and b) What is the relative influence of factors at particular levels (individual, college, institution) of higher education organizations on individual faculty teaching practices, and departmental climate for teaching? I examined these questions through a series of hierarchical models in which the variance in the outcome – active and collaborative teaching – was assessed without predictors, and with predictors at the individual, departmental, and institutional level.

The first HLM model tested, an unconditional three level model of the outcome without predictors, was used to determine the amount of variance in active and collaborative teaching that can be attributed to each level of the model. This served as a benchmark with which to compare the variance explained in subsequent models.

Table 13 contains the results of the model. They show significant departmental variance in individual faculty use of active and collaborative teaching approaches. A X^2 test on the residual variance of the model indicates whether the level-2 and level-3 variance is significantly different from zero. Both X^2 tests were significant at $p < .000$. ICC(1) statistics indicated that 81% of the variance in the outcome is found among individuals within departments, 17% lay between departments within institutions, and 2% lay between institutions. In other words, much of the variance in faculty teaching approaches not attributable to individuals can be found in their departments.

In sum, there is evidence of departmental-level variance on individual active and collaborative teaching, as well as individual and institution-level variance. Next I tested

models of effects on teaching – with predictors at the individual level, at the departmental level incorporating individual-level predictors, at the institutional level with no lower-level predictors, and incorporating all levels – to better understand the relative influence of factors at each level.

Table 13

Unconditional Model of Active and Collaborative Teaching

Fixed Effect		Coefficient	se	t-ratio
Average use of Active and Collaborative Teaching, γ_{000}		1.110891	0.0119	93.340
Random Effect	Variance Component	df	X ²	p value
Individual Faculty, e_{ijk}	0.28331			
Department, r_{0jk}	0.06074	2010	4214.45	0.000
Institution, u_{00k}	0.00834	114	2656.20	0.000
Variance Decomposition (Percentage by Level)				
Level 1	81%			
Level 2	17%			
Level 3	2%			

Individual Level Model of Influences on Active and Collaborative Teaching

Successive three-level models incorporating individual-level variables but no predictors at the departmental and institutional levels were tested to determine the individual demographic, experience, and perception variables that influence a faculty member's use of active and collaborative teaching approaches. Individual variables were added to the model one at a time to test for main and random effects, interactions with other Level 1 variables, and collinearity. The final model for individual influences is detailed in table 14. Of the individual level predictors in the hypothetical model, eight were significant and retained in the HLM model. I omitted non-significant predictors in all tables reported in this section, to ease presentation and interpretation of results. I

present effect sizes and variance explained by each individual predictor for the final model, after testing predictors at all levels for significant associations with the outcome and fitting the full three-level model.

Table 14

Model of Individual Influences on Active and Collaborative Teaching

Fixed Effect	Coefficient	se	t-ratio	df	p value
Average use of Active and Collaborative Teaching, γ_{000}	1.188584	0.03242	36.661	114	0.000
Gender	0.057709	0.01307	4.416	114	0.000
Rank	-0.078593	0.00662	-11.875	11796	0.000
Total Courses	0.027058	0.00641	4.218	11796	0.000
General Education Courses	-0.013162	0.00634	-2.076	11796	0.038
Perception of Student Preparedness	0.018007	0.00782	2.304	11796	0.021
Primary Interest	0.035460	0.01240	2.860	11796	0.005
Perception of Rewards for Teaching	0.018602	0.00881	2.111	11796	0.035
Engagement in Teaching Enhancement	0.180273	0.01390	12.972	11796	0.000
Random Effect	Variance Component	df	X ²	p value	
Individual Faculty, e_{ijk}	0.27008				
Department, r_{0jk}	0.05409	2010	4121.12	0.000	
Institution, u_{00k}	0.00676	114	219.97	0.000	
Gender	0.00335	114	141.85	0.039	

Race, age, remedial courses taught, total hours spent teaching, perceptions of research being valued, and perceptions of collegiality were not significantly related to active and collaborative teaching. They entered the model as non-significant, and were not changed when other variables were added. Prior work and satisfaction with teaching load entered the model as significant predictors, but were rendered insignificant when rank was entered.

Gender and rank were significantly associated with use of active and collaborative teaching. The positive slope for gender indicates that women are more likely to use active and collaborative teaching practices than their male colleagues. In addition to these main

effects, the effect of gender on the outcome varied randomly at Level 3 of the model. This random variation indicated that there might be variables at other levels which moderate the effects of gender and could be modeled. Rank had a negative slope, indicating that as one's rank increases from instructor to full professor, one's use of active and collaborative teaching decreases. The total number of courses a faculty member taught in one semester was significantly positively associated with that person's use of active and collaborative teaching, but the number of general education courses one taught was negatively associated with the use of such approaches. These results could be artifacts of disciplinary influences and class sizes. Faculty in disciplines categorized as "high-use" of active and collaborative teaching in this study also tend to have higher course loads (Fairweather, 2002). General education courses tend to be larger than other undergraduate courses.

Individual engagement in teaching enhancement and a faculty member's perceptions of student preparedness for college-level work were both significant, positive predictors of use of active and collaborative teaching. Likewise, faculty members who indicated that their primary interest is in teaching engage in such practices more than their colleagues who indicated that their interests are in research. The greater a faculty member's belief that good teaching is rewarded, the greater his or her use of active and collaborative teaching approaches. This variable became significant only after rank was entered into the model. Its significance value (p) went from .09 to .003.

Model of Departmental Influence on Active and Collaborative Teaching

A three-level hierarchical model was used to test the effects of departmental influences on individual use of active and collaborative teaching methods above and

beyond individual level measures of these variables. The first level contained significant predictors from the prior model. The second level contained the departmental level aggregated variables. The third level contained no predictors.

Departmental level variables were added to the model one at a time paired with their group-mean centered individual level corresponding variables. They were also added to the slope models of level-1 predictors to test for possible interactions. Because the Level 2 aggregated predictors had significant corresponding variables at the individual level, to avoid collinearity, Level 1 variables were group-mean centered and Level 2 variables were uncentered, when both were tested. Group-mean centering compares an individual's scores with the mean of the group (in this case, department) rather than with that of the entire sample. Conceptually, this comparison measures the influence of a Level 1 variable on an individual's active and collaborative teaching relative to others in their department. Level 2 aggregated variables measure general departmental effects on the outcome. The two effects do not conceptually or statistically overlap.

Disciplinary variables were added to the model last because their probable high association with the outcome could mask important behaviors of other variables. This approach made it possible to assess the effects of other departmental variables, and then to trace their interaction with discipline. Table 15 contains the final model of departmental influence.

Several department level variables were not significant when added to the model: departmental average of general education courses taught, group perception of faculty members' research being valued in their departments, and group perceptions of the

rewards for teaching. These predictors entered the model as insignificant, did not appear to interact with other variables at the departmental level, and did not interact with Level 1 variables.

Table 15

Model of Department Level Effects on Active and Collaborative Teaching

Fixed Effect	Coefficient	se	t-ratio	df	p value
Average use of Active and Collaborative Teaching, γ_{000}	1.328711	0.08948	14.849	114	0.000
Level 2 Predictors					
Department Collegiality	-0.016621	0.01742	-0.954	2116	0.340
Dept. Student Preparedness	0.030197	0.01678	1.800	2116	0.071
Satisfaction with Teaching Load	-0.032082	0.01483	-2.164	2116	0.030
Teaching Enhancement	0.349546	0.03576	9.776	2116	0.000
Remedial Education Courses	-0.088039	0.03872	-2.274	2116	0.023
Low-use Disciplines	-0.117115	0.02545	-4.601	2116	0.000
High-use Disciplines	0.150776	0.02613	5.771	2116	0.000
High-use Disciplines* Department Collegiality	-0.099956	0.03895	-2.566	114	0.011
Level 1 Predictors					
Gender	0.034662	0.01337	2.592	114	0.010
Rank	-0.073039	0.00668	-10.932	11787	0.000
Total Courses	0.016951	0.00639	2.654	11787	0.008
General Education Courses	-0.016311	0.00635	-2.571	11787	0.010
Student Preparedness	0.017813	0.00787	2.264	11787	0.024
Primary Interest	0.025213	0.01186	2.126	11787	0.033
Rewards for Teaching	0.017298	0.00885	1.956	11787	0.050
Teaching Enhancement	0.181543	0.01413	12.853	11787	0.000
Interactions Level 2 /Level 1					
Dept Teaching Enhancement * Gender	-0.102563	0.05019	-2.043	11787	0.041
Random Effect	Variance Component	df	X ²	p value	
Individual Faculty, e_{ijk}	0.26999				
Department, r_{0jk}	0.03076	1888	3233.61	0.000	
Institution, u_{00k}	0.00697	114	147.66	0.000	
High-use Disciplines*Dept. Collegiality	0.19378	114	119.65	0.018	
Gender	0.06259	114	146.13	0.023	

The departmental proportion of faculty who engage in teaching enhancement was a significant predictor of individual use of active and collaborative teaching, as was

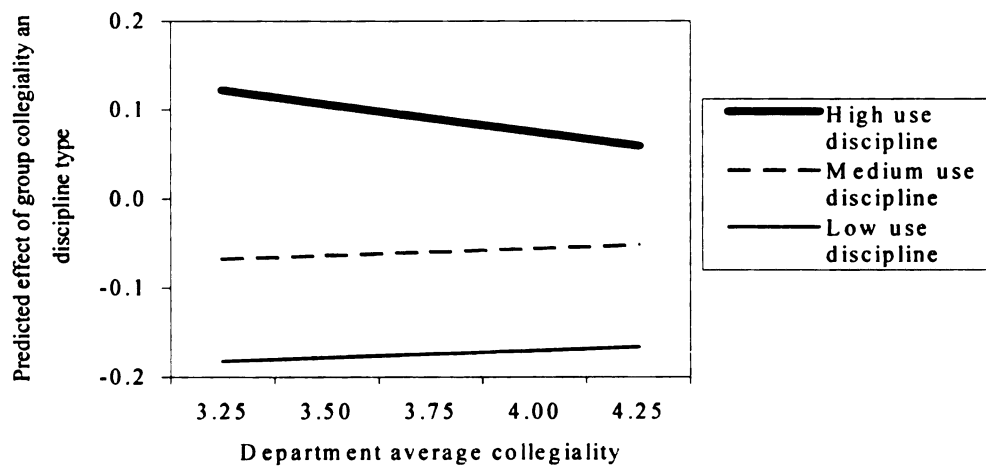
department membership in disciplines that generally have high usage of such practices. Departments labeled low in usage of active and collaborative teaching had a significant negative slope, indicating that faculty in those departments used active and collaborative teaching approaches in fewer of their courses than faculty in medium or high use discipline departments. A department's collective perception of students' preparedness for college level work was also a significant predictor; higher department perception of student preparedness is associated with higher use of active and collaborative teaching. Departmental average of remedial courses taught is a significant negative predictor; as the average number of remedial courses goes up, use of active and collaborative teaching goes down.

When added to the model, disciplinary use of active and collaborative teaching caused some previously significant departmental variables to drop out, and interacted with others. Departmental average of total courses taught, departmental focus on teaching or research, and the departmental average of time spent on teaching were significant positive predictors until the discipline dummy variables were added. The effects of departmental satisfaction with teaching contained significant random variation at the institutional level until discipline was modeled, and departmental average of remedial education courses was not significant. This result indicates that discipline is an important part of departmental differences, but that other effects on collaborative teaching exist between departments in the same institutions that are not discipline-based.

Departmental collegiality approached significance ($p = .069$) as a predictor in the model until the disciplinary variables were added, at which time its significance dropped ($p = .340$). Interaction terms were created for low-use disciplines and departmental

collegiality (D1INT) and high-use disciplines and departmental collegiality (D3INT) to explore this same-level interaction. When added to the model, the low-use discipline interaction variable was not significant whereas the high-use interaction variable was significant. The main effect of departmental collegiality remained non-significant when these interactions were modeled with the other departmental and disciplinary predictors.

Figure 2 contains the interactions between disciplines and departmental collegiality. Because Medium- and Low-Use disciplines were the “other” categories in the disciplinary dummy, their slight positive slope may not be different than zero. Their distance from High-use disciplines, however, is accurate. The negative slope of High-use disciplines in interaction with departmental collegiality indicates that as collegiality in departments belonging to the High-use category goes up, use of active and collaborative



teaching declines.

Figure 2. Interaction Between Disciplines and Departmental Collegiality

One department-level variable interacted with Level-1 predictors. Departmental engagement in teaching enhancement interacted with individual level gender. Males in departments with high engagement in teaching enhancement were more likely to use active and collaborative teaching practices than males in departments with low engagement. The cross-level interaction between departmental faculty development and gender is graphed in Figure 3.

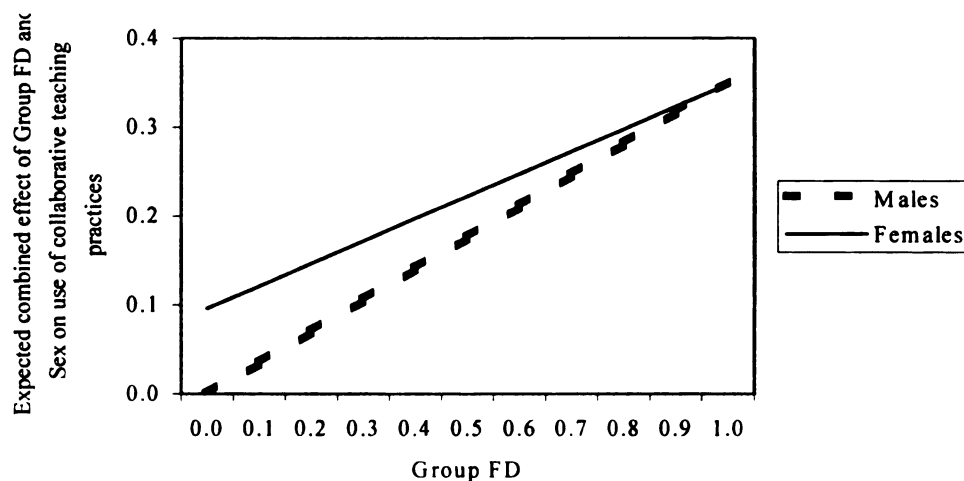


Figure 3. Interaction Between Departmental Faculty Development and Gender

The graph illustrates that men in departments with a high proportion of faculty reporting recent attendance at teaching workshops used active and collaborative teaching approaches in more of their courses than men in departments with less engagement in faculty development. This pattern also holds for women, but men have a lower starting point and a more dramatic rise in active teaching practices. The main effect of gender on the outcome is positive; women generally engage in active and collaborative teaching to a greater extent than men. Department faculty development interacts with gender such that

men's use of active and collaborative teaching approaches and meets that of women in departments engaged in teaching improvement.

Institution-Level Model of Influence on Active and Collaborative Teaching

A model containing only the outcome variable and a level-3 variable for Carnegie classification was run to test the effects of institutional type influences on faculty use of active and collaborative teaching methods. Table 16 contains the results of the analysis.

Table 16

Institutional Influence on Active and Collaborative Teaching

Fixed Effect	Coefficient	se	t-ratio	df	p value
Average use of Active and Collaborative Teaching, γ_{000}	1.150821	0.01671	68.882	113	0.000
Carnegie Classification, γ_{001}	-0.034932	0.01059	-3.298	113	0.001
Random Effect	Variance Component	df	X ²	p value	
Individual Faculty, e_{ijk}	0.28334				
Department, r_{0jk}	0.06064	2010	4260.03	0.000	
Institution, u_{00k}	0.00725	113	245.92	0.000	

Consistent with the findings of Einarson (2000, 2001) and Fairweather (2002), Carnegie classification was significantly associated with active and collaborative teaching use. The direction of the slope for the variable indicates that as classification goes from Baccalaureate through Comprehensive and Doctoral to Research, use of active and collaborative methods goes down.

Based on this result, I tested a set of dummy variables for Baccalaureate, Comprehensive, Doctoral, and Research universities to explore whether there is systematic significant difference in influence among all institutional types. When each dummy variable was modeled alone with the outcome, all were significant at $p < .000$.

Tables 17, 18, and 19 contain the results of model-testing using sets of dummy variables of separate institutional types. The analyses partially supported a systematic difference in the association of institutional type with active and collaborative teaching. Although research universities were significantly different from comprehensives and baccalaureates, they were not statistically different from doctoral institutions. Likewise, baccalaureate institutions did not differ significantly from comprehensives.

Table 17

Institutional Influence on Active and Collaborative Teaching, Dummy Set I

Fixed Effect	Coefficient	se	t-ratio	df	p value
Average use of Active and Collaborative Teaching, γ_{000}	1.138926	0.02023	56.294	111	0.000
Research Universities, γ_{001}	-0.088489	0.03171	-2.790	111	0.006
Doctoral Universities, γ_{002}	-0.088480	0.04109	-2.152	111	0.031
Comprehensive Universities, γ_{003}	-0.006280	0.02692	-0.233	111	0.816
Random Effect	Variance Component	df	X ²	p value	
Individual Faculty, e_{ijk}	0.28333				
Department, r_{0jk}	0.06056	2010	4264.17	0.000	
Institution, u_{00k}	0.00716	111	245.07	0.000	

Table 18

Institutional Influence on Active and Collaborative Teaching, Dummy Set II

Fixed Effect	Coefficient	se	t-ratio	df	p value
Average use of Active and Collaborative Teaching, γ_{000}	1.050437	0.02442	43.014	111	0.000
Doctoral Universities, γ_{001}	0.000009	0.04333	0.000	111	1.000
Comprehensive Universities, γ_{002}	0.082209	0.03019	2.723	111	0.007
Baccalaureate Institutions, γ_{003}	0.088489	0.03171	2.790	111	0.006
Random Effect	Variance Component	df	X ²	p value	
Individual Faculty, e_{ijk}	0.28333				
Department, r_{0jk}	0.06056	2010	4264.17	0.000	
Institution, u_{00k}	0.00716	111	245.07	0.000	

Table 19

Institutional Influences on Active and Collaborative Teaching, Dummy Set III

Fixed Effect	Coefficient	se	t-ratio	df	p value
Average use of Active and Collaborative Teaching, γ_{000}	1.050446	0.02954	35.558	111	0.000
Research Universities, γ_{001}	-0.000009	0.04206	-0.000	111	1.000
Comprehensive Universities, γ_{002}	0.082200	0.03431	2.396	111	0.017
Baccalaureate Institutions, γ_{003}	0.088480	0.03667	2.413	111	0.016
Random Effect	Variance Component	df	X ²	p value	
Individual Faculty, e_{ijk}	0.28333				
Department, r_{0jk}	0.06056	2010	4264.17	0.000	
Institution, u_{00k}	0.00716	111	245.07	0.000	

In sum, faculty in research and doctoral institutions were not engaged in active and collaborative teaching to the same extent as faculty in comprehensive and baccalaureate institutions.

When I modeled Research and Baccalaureate dummies with the outcome, only the Research dummy was a significant predictor ($p = .036$). The Baccalaureate dummy was insignificant ($p = .296$). I tested all Carnegie Classification dummy variables in the final model with Level 1 and Level 2 predictors in the event that cross-level interactions changed their behavior.

Final Model of Individual, Department, and Institution Influences on Active and Collaborative Teaching

A three-level model incorporating the predictors from Levels 1 and 2 with Level 3 institutional-type variables was run as the best test of whether or not departmental climate mediates the influence of institutional type on active and collaborative teaching. If this were the case, the significance of the Carnegie classification variables would diminish or

shift when added to the model that contains departmental and individual predictors. I ran models with combinations of institution-type dummy variables – only the final model is shown here. In testing this model, I also examined interactions between institutional type, departmental climate variables, and individual variables, by adding Carnegie classification dummies to the slope models of departmental and individual variables at Level 3. The results of the model testing are contained in Table 20.

When added to the third level of the prior departmental model of teaching climate, the institution type dummies were significant in different combinations than found previously, and reversed effects. I ran each dummy as the only Level-3 predictor, as I had done with the prior Level 3 models. None of the dummy variables run by themselves were significant predictors of active and collaborative teaching. When run in combinations, Comprehensive institutions were not significant in any model. When modeled together, neither Research universities nor Baccalaureate colleges were significantly associated with active and collaborative teaching. These outcome indicate that, when departmental and individual factors are accounted for, institutional types do not behave in the same way that the prior Level-3 models illustrated. It also indicates that interactions between institutional type and departmental factors might exist.

Interactions between Level 3 institutional variables and Level 2 predictors were tested by adding institution variables to the slope models of Level 2 predictors. The main effects of both Baccalaureate and Research institutions were grand-mean centered so that the interaction terms could be uncentered. This process simplifies the interpretation of interactions between levels.

Table 20

Final Model of Institutional, Departmental, and Individual Effects

Fixed Effect	Coefficient	se	t-ratio	df	p value
Average use of Active and Collaborative Teaching, γ_{000}	1.1312714	0.09136	14.368	112	0.000
Level 3 Predictors					
Baccalaureate Colleges	0.436683	0.15431	2.830	112	0.005
Research Universities	0.462046	0.16287	2.837	112	0.005
Level 3/Level 2 Interaction					
Baccalaureate * Dept Collegiality	-0.111045	0.03906	-2.843	2116	0.005
Research * Dept Collegiality	-0.136491	0.04278	-3.190	2116	0.002
Level3/Level1 Interaction					
Baccalaureate * Gender	0.097128	0.03232	3.006	11781	0.003
Research * Gender	0.104107	0.02977	3.497	11781	0.001
Level 2 Predictors					
Dept Collegiality	-0.015481	0.01690	-0.916	2116	0.360
Student Preparedness	0.033820	0.01672	2.023	2116	0.043
Satisfaction with Teaching Load	-0.029883	0.01505	-1.986	2116	0.047
Teaching Enhancement	0.352352	0.03520	10.011	2116	0.000
Remedial Education Courses	-0.083427	0.09395	-2.118	2116	0.034
Low-use Disciplines	-0.114791	0.02534	-4.530	2116	0.000
High-use Disciplines	0.146401	0.02568	5.700	114	0.000
High-use Disciplines * Dept. Collegiality	-0.077978	0.03803	-2.050	2116	0.040
Level2/Level 1 Interaction					
Dept. Teaching Enhancement * Gender	-0.099828	0.05061	-1.973	11781	0.048
Level 1 Predictors					
Gender	0.041161	0.01325	3.107	11781	0.013
Rank	-0.072771	0.00672	-10.830	11781	0.000
Total Courses	0.016725	0.00640	2.612	11781	0.009
General Education Courses	-0.015832	0.00627	-2.525	11781	0.012
Student Preparedness	0.017593	0.00783	2.246	11781	0.025
Primary Interest	0.024371	0.01167	2.088	11781	0.037
Rewards for Teaching	0.017043	0.00893	1.909	11781	0.056
Teaching Enhancement	0.182066	0.01402	12.985	11781	0.000
Random Effect					
	Variance Component		X ²	df	p value
Individual Faculty, e_{ijk}	0.27044				
Department, r_{0jk}	0.03023	3205.99		1888	0.000
Institution, u_{00k}	0.00488	180.85		111	0.000
High Use Disciplines	0.00670	138.63		113	0.051

When added to the slope model of Departmental Collegiality, the Research and Baccalaureate variables were significant both as interaction variables, and as main effects, reversing their prior non-significant effects. The slopes for the main effects Research and Baccalaureate institutions were both positive, reversing the direction of the slope of Research institutions found in the Level 3 dummy models. The interaction effects of institutional type and departmental collegiality were both negative. The interactions between institutional types and departmental collegiality were graphed to get a better sense of how all of the variables were behaving (Figure 4). The graph illustrates an interesting and unexpected interaction between institutional type and departmental collegiality. At both Baccalaureate colleges and Research universities, higher levels of departmental collegiality translate to lower levels of active and collaborative teaching.

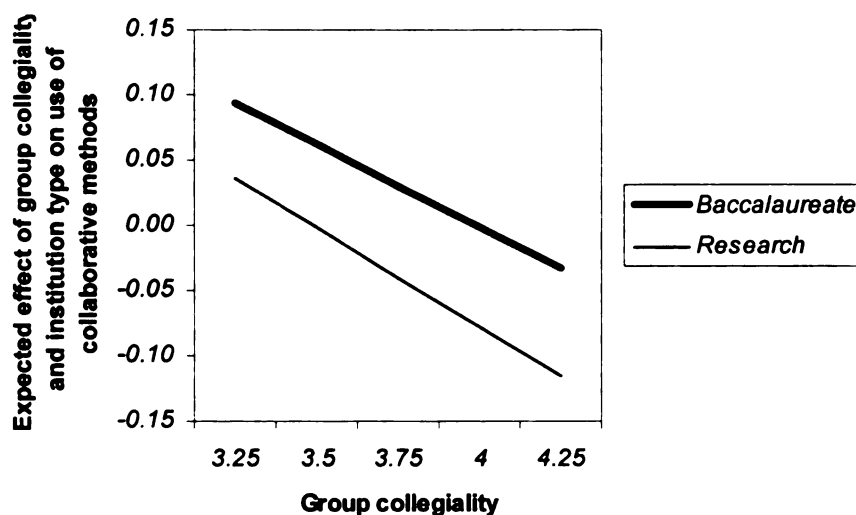


Figure 4. Interactions Among Institutional Types and Departmental Collegiality

Research and Baccalaureate institutions also interacted with gender at Level 1. Their interactions were nearly identical to and seemed to augment the main effects of gender. That is, women in these institutions were more likely than men to engage in active and collaborative teaching. No other interactions were found. The collective institutional perception of student preparedness for college level work was not significant.

The final model of influence on active and collaborative teaching included main effects at the individual and departmental levels, and moderating effects on individual level variables from the departmental level. It also contained institution-level main and moderating effects on departmental and individual level variables, and effects at the departmental level that mediate the influence of institution-level variables on the outcome. In addition, the variable high-use disciplines varied randomly at the institution level, indicating that this predictor acts in unpredictable ways between institutions above and beyond its systematic variance between departments within institutions. Attempts to model systematic variance or interactions in high-use disciplines at the institutional level yielded no useful results.

Variance Explained by the Final Model and Effect Sizes of Predictors

To better understand the practical significance of the results of the final model, I calculated the unique variance explained by each predictor, as well as the amount of variance in the outcome explained by the model at each level. The formula for assessing unique variance is the difference in variance explained by the model with each predictor absent versus present divided by the variance explained by a model containing no predictors at that level ($\text{Var}(\text{without}) - \text{Var}(\text{With}) / \text{Var}(\text{Open})$). I also calculated effect sizes of the predictors on the outcome of the final model to determine the magnitude of

each predictor's influence. That formula multiplies the standard deviation of the predictor by its coefficient in the final model, and divides that product by the standard deviation of the outcome at each level of the model ($SD_{\text{predictor}} * \text{Coefficient} / SD_{\text{outcome}}$). Both sets of calculations measure the importance of predictors within the level of the model at which they reside, maintaining the hierarchical nature of the final model. Table 21 contains a breakdown of the calculations for unique variance explained by each level.

The final model explains 43% of the variance in active and collaborative teaching present at the departmental level. This substantial amount of variance explained by the aggregated predictors further supports the hypotheses that departmental climate for teaching influences individual practice. Of that variance, departmental engagement in teaching enhancement alone commands the greatest proportion (11%), and in interaction with gender accounts for another 3%. Low and High-use disciplines accounted for four and six percent of the variance at the departmental level. Other significant departmental predictors each uniquely explained around 2% of variance.

The model explained 5% of the variance at the individual level. This small amount of variance explained is to be expected since this study was not designed to exhaust the possible variables at the individual level that may influence faculty teaching practice. Of the significant predictors, individual engagement in teaching enhancement (2.6%) and rank (1.3%) explained the greatest amount of variance.

At the institutional level (which comprised 2% of the variance in the outcome), Baccalaureate colleges explain approximately 6% of the institutional variance in active and collaborative teaching practices. The unique variance explained by Research

institutions was much smaller. Overall, institution-type variables and their interactions with lower level predictors explain 30% of the institution-level variance in the outcome.

Table 21

Unique Variance Explained by the Final Model

Predictor	Variance (With)	Variance (Without)	Variance (Open)	Proportion Unique
Institution Level	0.00488		0.00697	0.2998
Baccalaureate	0.00469	0.00513	0.00697	0.0631
Research	0.00469	0.00475	0.00697	0.0086
Baccalaureate / Dept Collegiality	0.00473	0.00502	0.00469	0.0290
Research / Dept Collegiality	0.00473	0.00470	0.00469	-0.0373
Baccalaureate / Gender	0.00483	0.00481	0.00469	-0.0148
Research / Gender	0.00483	0.00476	0.00469	-0.0254
Department Level	0.03076		0.05409	0.4313
Dept Collegiality	0.03081	0.03196	0.05409	0.0213
Dept Student Preparedness	0.03081	0.03207	0.05409	0.0233
Dept Satisfaction with Teaching Load	0.03081	0.03202	0.05409	0.0224
Dept Remedial Ed Course Load	0.03081	0.03206	0.05409	0.0231
Dept Teaching Enhancement	0.03081	0.03697	0.05409	0.1139
Low-Use Discipline	0.03081	0.03300	0.05409	0.0405
High-Use Discipline	0.03081	0.03406	0.05409	0.0601
High-Use Discipline*Collegiality	0.03081	0.03223	0.05409	0.0262
Dept Teaching Enhancement / Gender	0.03076	0.03081	0.03081	0.0016
Individual Level	0.27008		0.28331	0.0467
Gender	0.27008	0.27045	0.28831	0.0013
Student Preparedness	0.27008	0.27023	0.28831	0.0005
Primary Interest	0.27008	0.27016	0.28831	0.0003
Total Courses Taught	0.27008	0.27010	0.28831	0.0001
Rank	0.27008	0.27364	0.28831	0.0126
General Education	0.27008	0.27020	0.28831	0.0004
Rewards	0.27008	0.27017	0.28831	0.0003
Teaching Enhancement	0.27008	0.27748	0.28831	0.0261

Table 22 contains details of the effect sizes of each predictor. Effect size is the increase in the outcome accounted for by an increase of one standard deviation in a predictor. Generally, effect sizes in the social sciences range from .20 to .50. Below a size of .10, they are not considered important.

Table 22

Effect Sizes and Unique Variance Explained by Model Predictors

Predictor	SD Predictor	Coefficient	SD Outcome	Effect Size
Institution Level				
Baccalaureate	0.48	0.462046	0.08351	2.5100
Research	0.32	0.436683	0.08351	1.7705
Baccalaureate / Dept Collegiality	0.48	-0.111045	0.06953	-0.7666
Research / Dept Collegiality	0.32	-0.136491	0.06953	-0.6282
Baccalaureate / Gender	0.48	0.097128	0.06876	0.6780
Research / Gender	0.32	0.104107	0.06876	0.4845
Department Level				
Collegiality	0.43	-0.015481	0.23258	-0.0286
Dept Student Preparedness	0.60	0.033820	0.23258	0.0872
Dept Satisfaction with Teaching Load	0.52	-0.029883	0.23258	-0.0668
Dept Remedial Ed Course Load	0.15	-0.083427	0.23258	-0.0538
Dept Teaching Enhancement	0.26	0.352352	0.23258	0.3939
Low-Use Discipline	0.33	-0.114791	-0.23258	-0.1629
High-Use Discipline	0.49	0.146401	0.23258	0.3084
High-Use Discipline*Collegiality	0.21	-0.077978	0.23258	-0.0704
Dept Teaching Enhancement / Gender	0.26	-0.099828	0.23258	0.1210
Individual Level				
Gender	0.48	0.041161	0.59	0.0335
Student Preparedness	0.87	0.017593	0.59	0.0259
Primary Interest	0.46	0.024371	0.59	0.0190
Total Courses Taught	1.19	0.016725	0.59	0.0337
Rank	0.99	-0.072771	0.59	-0.1221
General Education	1.05	-0.015832	0.59	-0.0282
Rewards	0.65	0.017043	0.59	0.0188
Teaching Enhancement	0.50	0.182066	0.59	0.1543

Although the effect sizes for the predictors in this model are generally small, a few are important influences on active and collaborative teaching. Baccalaureate colleges have an effect size of 2.5 and Research Universities an effect size of 1.77, indicating that faculty at those institutions have average active and collaborative teaching scores over a standard deviation above the mean scores of faculty at other institution types. Their interactions with departmental collegiality and gender are also substantial. High use disciplines have an effect size of .30, indicating that members of these

disciplines have average scores half a standard deviation above their colleagues in medium or low use disciplines. Low-use disciplines have a negative effect size of .16, half that of High-use disciplines, but still sizable.

Departmental engagement in teaching enhancement raises individual faculty teaching scores by almost a half a standard deviation (.39), greater than and separate from individual engagement in teaching enhancement, which has an effect size of .15.

Departmental teaching enhancement's interaction with gender is also important. Its effect size of .12 indicates that males in departments with high engagement have teaching scores significantly above males in other departments.

Discussion

The models tested in this study confirm important influences on active and collaborative teaching at individual, departmental, and institutional levels, which interact in complex ways (as would be expected).

Individual effects supported prior research that asserts differences between genders, ranks, and personal focus on teaching (Antony & Boatsman, 1994; Einarson, 2000). The results also indicate that faculty who teach more courses use more active and collaborative approaches (Einarson, 2001; Fairweather, 1997), and that those who teach more general education courses than other colleagues within their departments may find it challenging to incorporate such approaches into their teaching practice (Fairweather, 1997). As noted previously, these results may be indicative of disciplinary differences in teaching loads and class size issues. Unlike other studies (Einarson, 2001; Fairweather, 1997), this analysis did not find an association between the number of hours faculty spent on teaching and their use of active and collaborative teaching. Faculty concerned enough

about their own teaching excellence to attend faculty development workshops recently also incorporate such practices more than colleagues within their own departments who have not engaged in teaching enhancement activities. Finally, faculty who perceive that their efforts toward teaching excellence are rewarded by their institutions are more frequent users of active and collaborative teaching (Fairweather & Rhoads, 1995). The non-significance of race as a predictor of teaching approaches confirms some prior findings (Einarson, 2001; Fairweather, 1997) and contradicts others (Milem & Wakai, 1996 a, 1996b).

The individual level results were generally weak when effect sizes and unique variances are considered. Only rank and individual engagement in faculty development had effect sizes large enough to be considered important. They also explained the greatest amount of variance at Level 1. The other individual level variables, while significant, all had small effect sizes and individually explained little of the variance present at Level 1 of the model.

Departmental Effects

The departmental effects modeled explained a relatively large proportion (45%) of the variance in the outcome attributable to Level 2. The importance of departmental climate for teaching as an influence on individual teaching approaches is supported by this analysis. Disciplinary effects were strong in departments, as was expected, but did not comprise all effects on faculty members' teaching practices. Departmental engagement in teaching enhancement had the largest effect size and explained the largest amount of the variance present at the departmental level. Faculty in departments with a high proportion of members who attend faculty development workshops use active and

collaborative teaching in more courses than faculty in departments with low proportions. This is especially true of male faculty, who overall report lower use of these approaches than female faculty. In departments with high engagement in faculty development, male faculty report using such approaches at a rate much closer to that of their female colleagues.

Low and High use disciplines followed faculty development in magnitude of effects and unique variance explained by their presence in the model. Although the other departmental level variables fell below the threshold of practical importance, their significant presence in the model and the direction of some of their effects are of interest. A department's collective perception of the preparedness of students for college-level work positively predicted use of active and collaborative teaching. As the collective assessment of student preparation increased, individual faculty use of such practices increased.

Faculty in departments that taught more remedial courses than other departments used active and collaborative teaching in fewer courses. Taking the individual level effects of general education into account with this departmental level effect suggests that class type and size affect the use of active and collaborative teaching. Individual faculty teaching general education courses and faculty in departments with remedial education obligations are less likely than colleagues who teach upper-division major courses to incorporate innovative instructional practices.

Collective departmental satisfaction with teaching loads was a negative predictor of individual-level teaching practices. The average faculty member's use of active and collaborative teaching goes down as their department's average satisfaction with teaching

load goes up. The effect size is not strong, but the direction of the effect is counter to the direction I proposed. It is possible that this phenomenon is an indirect measure of climate for teaching associated with discipline. Teaching loads are generally lowest in departments and disciplines that engage heavily in research and are categorized as “low-use” for active and collaborative teaching. Satisfaction with teaching load may be higher in these departments because teaching loads are generally small. This is a phenomenon on which the qualitative case analysis might shed light.

Institutional Effects

When modeled in isolation, institution-level effects on active and collaborative teaching took an expected direction. Research and doctoral institutions were negatively associated with the outcome, and comprehensive and baccalaureate institutions were positively associated with it. When modeled with department and individual level predictors, however, the effects of institutional type were more complex. Institutional types were only significant as main effects when their interaction with departmental collegiality was also modeled. Those main effects were different than the individual models of institutional type influence. Baccalaureate colleges remained positively associated with the outcome, but Research universities reversed from a negative to a positive predictor. This indicates that much of the significance seen in institutional types modeled with no predictors at lower levels may be attributable to department level variables in interaction with institutional types or other institutional variables not modeled.

The interactions between departmental collegiality and high-use disciplines, as well as that between departmental collegiality and different institutional types, were not

in the direction predicted by my model. I proposed that departmental climate dimensions such as collegiality would predict active and collaborative teaching such that faculty in departments with higher collegiality would have a greater use of such practices. The main effects of this predictor were non-significant after disciplinary variables were added to the model, and the direction of both main and interaction effects was negative.

Combined with disciplines and institution types, higher departmental collegiality was associated with lower active and collaborative teaching. It is possible that the measures of collegiality I used (respect for colleagues, professional and social engagement) were not measures that predict teaching behavior well. More specific measures of collegiality focusing on interactions around teaching and learning may yield different results (Massey, Wilger, & Colbeck, 1994). It is also possible that the relationship of departmental collegiality with the outcome, and in relation to disciplines and institutional types, might be curvilinear in nature. Collegiality might enhance individuals' teaching among all departments to a point, and beyond that point may no longer be predictive of individual level teaching approaches. I will explore the relationships among departmental collegiality, discipline, and institutional type in the case analysis.

This hierarchical analysis yielded interesting and important influences on faculty teaching practices, some of which were counter to my assumptions when proposing the model of departmental climate for teaching. Faculty development clearly plays an important positive role in faculty use of active and collaborative teaching. Departmental collegiality plays a much more complex role, as do disciplines in interaction with it. The inclusion of qualitative case analyses in the study was meant to explore such complexities, as well as to offer a richer contextual portrait of how the influences found

in the hierarchical analysis were created and changed. I gave special attention in the case analysis to factors in the model that were counterintuitive or complex, as well as factors that could not be included in the hierarchical model, primarily leadership and resources at the departmental and institutional level. The next two chapters address the case profiles and cross-case analysis. The final chapter discusses the findings of both quantitative and qualitative analyses.

CHAPTER 5

CASE STUDY RESULTS

The qualitative analysis in this study explores *how* departmental climates affecting faculty teaching practices come to be created and influenced by or mediate factors from other organizational levels. Organizational climates are the collective perceptions of organizational members, which can be influenced and changed by many factors. The collective perceptions of departmental climate for teaching, the focus of this study, in particular may be influenced by department-level factors, disciplinary ideas about teaching and learning, institution-level policies and practices as well as missions and history, or extra-institutional factors such as accrediting standards and priorities.

Multiple case studies (Merriam, 1998; Yin, 1994) of academic departments within three different universities were created and compared for insight into these processes (See Table 6 in Chapter 3 for an overview of the departments and institutions studied). The research question driving the analysis was: How are departmental climates for teaching created, and what actions, policies, or other factors – at the individual, departmental, and institutional levels – might be taken to influence these climates?

This chapter sets the state and institutional contexts for the departmental case studies, profiles the departmental climate for teaching within each case, and explores influences on climates. Chapter 6 compares and contrasts departmental profiles for themes and insights, discusses the major findings of the case analysis, and addresses each element of the research question.

Each profile contains information about departmental size (in terms of faculty and students), programs offered, teaching loads, service teaching obligations, financial health,

and predominant teaching approaches. Further, the profiles describe departmental climate for teaching as well as influences from within the department, the institution, and outside the institution. When direct quotes are used, the type of respondent (faculty, administrator, student) is noted, but individual identifying codes and text block numbers were eliminated to ease readability and protect respondent confidentiality.

It is important to remember that the cases are time-specific; interviews were conducted in 1997-1998. If we were to revisit the institutions and departments profiled here, we would likely find very different situations. Although institutions and departments are named, the cases are meant to describe a phenomenon and process, not to critique specific institutional circumstances.

State Context: Tennessee and Higher Education

Tennessee historically has invested modestly in higher education. The state regularly ranks low among the states in the amount of support it provides public colleges and universities (39th in per capita expenditures, 34th in per personal income expenditures) (Center for the Study of Educational Policy, Illinois State University, 2000). State revenue is based on a sales tax; the state does not have an individual income tax. Consequently, the relatively strong national economic climate during the time of our site visits (1997-1998) was not reflected fully in state revenues. According to numerous knowledgeable respondents, the two public universities in this study experienced substantial declines in state funding during the years of this economic upturn.

In 1997-98, colleges and universities in Tennessee were funded primarily by an enrollment formula. This formula differentiates undergraduate and graduate enrollments, but does not differentiate by discipline. Nor does it include the full range of cost

elements, such as equipment, faculty development, student assistantships, and the like. Performance Funding, purportedly an incremental funding formula for rewarding teaching and learning and promoting accountability, accounts for a modest percentage of total state funding for higher education – less than 6 percent. The state had not fully funded its main formula in years. Central administrators of both the University of Tennessee-Knoxville and Tennessee Technological University, therefore, considered the Performance Funding money a means for addressing some of the budget shortfall (for a fuller discussion of Performance Funding and its impact on the Tennessee institutions, see Colbeck et al, 2001 and Fairweather & Beach, 2002).

The enrollment basis of the funding formula can have unintended consequences for state public universities and colleges. The university leadership at the University of Tennessee-Knoxville decided to limit enrollment to 25,000 to preserve student/faculty ratios and to better ensure a quality education for its students. This decision, however, resulted in a reduction in state funds to the institution.

The state climate for higher education was uniformly described in negative terms. The general consensus of the faculty and administrators at institutions we visited was that the state legislature was hostile to higher education. As evidence of this hostility, they pointed to budget cuts, consistent under-funding of the funding formula for higher education institutions, and comments made by the governor and legislators indicating that they believe higher education institutions to be “fat” and faculty to be over-paid and unproductive.

The University of Tennessee, Knoxville

The University of Tennessee at Knoxville (UTK) is the public land-grant Research I university for the State of Tennessee. The university system includes campuses at Martin (in 1927) and Chattanooga (1969), a medical campus (1897) in Memphis, and a Space Institute in Tullahoma (established 1964). At the time of our site visit, the main campus at Knoxville had 25,000 students, 19,000 of them undergraduates. In-state tuition was \$1,940 per academic year. The student body, half of which was female, was predominantly Caucasian (89 percent), with about 5 percent African-American students, approximately 2 percent Asians, and a small number of Hispanics and Native Americans. The faculty of 1,304 was also only moderately diverse: primarily male (76 percent) and Caucasian (91 percent).

During the 1970's and 80's, former University President Lamar Alexander greatly influenced the mission and focus of UTK. He worked to transform the institution from its then-regional university profile to one of a nationally respected research university, the equivalent of the University of North Carolina – Chapel Hill. He focused on increasing the research productivity and visibility of the faculty. Research is now increasingly emphasized, particularly among new hires. UTK's mission, however, remained committed to teaching and learning, especially in some departments.

The state funding formula was the base of institutional resources. The university suffered through budget cuts over the previous decade, and its infrastructure at the time of our visit was not as strong as comparable universities. Buildings and laboratory spaces were in need of repair and up-dating. Until the university instituted a \$100 per-student technology fee in 1996, there were no funds to upgrade the technology infrastructure of

the university (these are not part of the state's appropriations). Many academic buildings were not connected to the ethernet, and technology for teaching and research depended heavily on the wealth and initiative of individual departments. Departments with large external research contracts (primarily in the sciences and engineering) had more and better computing capabilities than the humanities and business. The technology fee was instituted to bring the entire campus up to a standard for computing and connectivity.

Department of Physics at UTK

The Department of Physics had 34 faculty, some with shared positions at Oakridge National Laboratories, a national research facility nearby that houses the research of many faculty. The proximity and lucrative nature of the lab allowed the department to create a bifurcated faculty – the majority teach very little or exclusively at the graduate level, and a minority teach a great deal (service and undergraduate courses) and do not engage heavily in research. The chair asserted that the proximity of Oakridge has been a key for attracting quality faculty in the hard sciences, and that without Oakridge, UTK would be “a third ranked university in the sciences.”

Among the departments we studied at UTK, Physics and its faculty most resembled that of the prototypical “research university.” They had more funded research monies, lower teaching loads, and greater emphasis on graduate programs and faculty scholarship than the other departments examined. Research was the primary focus of the department. Teaching loads for the faculty (even those primarily teaching undergraduate service courses) were very low by university standards (by which a full time teaching load is 9 credits as semester). Most faculty teach one course (3 credits) a semester. The teaching instructor taught two per semester (with a class size of around 200). Many

faculty were only hired for partial time at the university and spent the bulk of their time at Oakridge.

The department provides service courses in physics, astronomy, and engineering physics for the general university curriculum, but had only ten declared physics majors, according to the chair of the department. The Director of Undergraduate Laboratories surveyed the students and thought there were approximately 48 undergraduate majors, many of whom had not declared themselves.

The faculty, chair, and students were almost unanimous that the physics major prepares students to go on for graduate work. It was not an applied degree, and students did not expect to get jobs with their bachelor's degree. There was discussion in the department about combining physics with other disciplines such as business or medicine to create a more "salable" undergraduate degree. There was already an Engineering Physics major that moved toward that ideal. Faculty indicated that there was considerable departmental inertia against changing the focus of the major to be more integrative and applied.

Predominant teaching and learning approaches

Teaching in the department consisted largely of lectures and homework problems. Although faculty, administrators, and students talked at length about Physics being a problem-solving area and degree, these problems were addressed primarily through individually-oriented homework and testing. Little group work was designed or assigned. Students were not involved in planning or negotiating their work, or in evaluating each other's work. Faculty kept students engaged in lectures by using interactive question and answer, providing interesting analogies and explanations for

concepts, delineating the historical progression of concepts, and by relating the concepts or topics to business or “real world” applications. They considered one-on-one interaction between faculty and students the most effective learning approach. Students go to faculty for help individually or in small groups when they are “stuck” on a problem. Students we interviewed were also of the opinion that this was the way they best learned physics – by working on problems and seeking help when they could go no further. They added, however, that many students do not approach faculty outside class, and these students do not do well in courses or over the course of the degree. Students were not discouraged from working together. Nor did faculty seem to actively promote collaboration among students in or outside the classroom.

Students appreciated classes that require group projects and project presentations for their different learning outcomes, such as research methods, collaboration, and slide creation. Students also believed that professors who verbally express how much they dislike teaching undergraduates and how sub-standard they believe the students to be should not be teaching. Instances were very few but their impact was great – students dreaded these classes and wondered why the department allowed this kind of teacher to continue.

Students stressed the importance of out-of-class experiences. In addition to seeking faculty consultation on class work, they saw their summer research and outside projects with faculty as a primary means of learning:

You need to be doing some kind of research. You learn so much, this research project might look small and doesn’t cover much but then you find out to do that you need to learn more about other areas. You learn so much doing these little research projects. I think any serious student really needs to do that.

Faculty also stressed out-of-classroom experiences to help students understand their course content. The chair and lab director were increasing efforts to employ undergraduates as lab assistants and research assistants. There is a feeling, however, that only the best and most motivated students were sought out and included.

Departmental climate for teaching

Undergraduates had been what one faculty member termed the “stepchildren” of the department for quite a long time. Faculty labs were not very accessible, being primarily at Oakridge, and undergraduates did not have study space in the department. The chair and lab director were working on ways to focus more on undergraduate majors and include them in the department. Until they surveyed potential undergraduate majors, the department did not know how many majors it had.

Since the teaching load in Physics was small – two courses an academic year on average for those involved in research – faculty did not feel a conflict between their teaching and research priorities. Many expressed satisfaction with their teaching loads.

The distance to the lab, and the hiring of faculty with research interests that took them there, created a split climate in the department. Some faculty were around quite a bit, while others spent the bulk of their time at Oakridge. One faculty member summed the situation up: “Its a big enough department that there are some people who love to teach and don’t do any research, and some who are almost the opposite, who teach as little as they can.”

Evidence of rewards for teaching in the department were sparse – the most recognized and rewarded activities were research and graduate-level teaching and mentoring. One faculty member summed up the sentiments of all: “you can get

teach[ing] awards . . . but that doesn't get you much, very far. . . . that is just the reality of it.”

Influences on departmental climate

The department chair was instrumental in beginning to shift the climate of teaching in the department toward a more undergraduate student-centered focus. His role was mentioned by faculty and students alike as a strong influence on what they saw as a changing climate around undergraduate teaching. He was enthusiastic about the potential directions in which the major could be taken to integrate it into other areas, and the faculty were “behind him” in his role as chair.

Within the department, the inequality of salaries between newly hired faculty and long-term faculty was mentioned as an influence on teaching and morale. Those who had been on the faculty longest had relatively lower salary ranges than their colleagues hired during the push for research and in the current competitive climate. The attitude expressed was “Why bother trying?” when new faculty were hired in at close to what long-term faculty were making.

Institutional resources and fee structures affected the climate for teaching. There was a pervasive sense of not having enough resources to accomplish teaching the way it could be done. The university’s policy of not charging lab fees had hindered the department’s ability to maintain and replace lab equipment, and to implement new experiments that require equipment not already on hand. Lack of a sabbatical leave program (the state prohibited sabbatical leaves) hurt the department’s ability to help teachers innovate by giving them scheduled time away to improve their skills. The number of faculty within the department who would be interested in such an opportunity,

however, did not appear to be very great. The lack of computer and network resources across campus was also noted as a hinderance to teaching and learning. Faculty trying to adapt their classes to the web were concerned about limited student access to networked computers across campus. The chair stated that the university did not have the leadership until recently nor the resources to support faculty and department innovation. “So we had nowhere to shoot from. Now with the technology fee there is the money. I think probably the university has seen the light about technology.”

Faculty noted that state-level funding and budgets cuts resulted in larger classes, fewer part-time faculty, and more teaching for faculty in the department. While the department’s relationship with Oakridge National Laboratories helped buffer it financially from state funding cuts, some faculty expressed reservations about relying so heavily on a resource that itself is susceptible to federal cuts. Many expressed the opinion that the state legislature and the governor were not supportive of higher education in general, and the university in particular.

Students were aware of this state climate for higher education. They mentioned that they had seen many staff disappear in the last few years, and that retiring faculty were not being replaced. Students saw an impact in the kind of courses offered. Elective courses not part of the core curriculum were offered and then canceled or not offered at all. “The ones that aren’t required classes, they will be in the catalog but they just won’t be taught.” Students spoke at length about the courses in the catalog that they would have liked but were never actually offered. They attributed this to lack of finances – “there has been a Philosophy of Science course in the catalog for several years. Our

philosopher of science retired 10 years ago and they . . . won't give the department money to replace this person.”

The department's relationship with Oakridge also had an influence on the climate for teaching. Because that relationship supported and encouraged research and graduate education, and so many faculty had primary appointments in these areas, it appeared difficult for the department to foster collective attention to undergraduate teaching and learning.

College of Business Administration at UTK

The College of Business Administration was nationally recognized and ranked, and spent considerable effort in the past decade improving programs. It was divided into six departments: Accounting, Economics, Finance, Management, Marketing and Logistics, and Statistics. All departments contributed faculty and curricula to the MBA program, which was the center of the college and its most lauded achievement. The MBA program had an innovative, cohort-based block design in which students worked collaboratively on large cases that encompassed numerous specialty areas.

The college had 105 tenure-line faculty, and several adjuncts. The dean mentioned that there was a “trend recently to downsize our faculty in terms of the permanent tenure track faculty and to increase the other people who teach on a pretty regular basis but are . . . not tenured or they're not on a track to become tenured.” There were approximately 650 undergraduate students in any semester who wanted to major in business. Students were “progressed” through a core curriculum prior to formal application to the college and specific programs. The college had an 85% admission rate on formal applications to the school.

The undergraduate business degree was described as 60% liberal arts and 40% business. Faculty and students expressed their belief that a broad-based education was key to the success of business majors. Advising was required of faculty every term – students saw their advisor to have courses approved. Faculty believed this policy gave them an opportunity to engage in one-on-one interactions with students not possible in the classroom. Faculty advisors did not engage in class choice level advising, but talked to students about their career goals, internship ideas, interests, and future plans. The advising center in the college managed course-by-course advising.

The degree was uniformly described as applied. Students were expected to be able to gain entry-level (or above) employment upon completing the degree. Much of the curriculum was geared toward helping students gain the knowledge and skills necessary to be attractive job candidates.

Many faculty members were involved almost exclusively in the MBA program. So many, in fact, that no one department had enough faculty involved in undergraduate teaching for us to interview the requisite nine. The average course load for faculty members in the college who engaged in research was two per semester. Those not engaged in research generally taught three courses per semester, and more often taught courses with large numbers of students. Many faculty members involved with the integrated MBA taught in blocks at certain times in a semester. The faculty was somewhat bifurcated – one chair mentioned they like to make certain there are two or three faculty in each department who teach exclusively at the undergraduate level.

Predominant teaching and learning approaches

Predominant classroom teaching methods used in undergraduate courses in the college included lecture/discussion, and group projects and presentations. Most faculty members included at least one major group project in each of their courses to build communication and collaboration skills. An interesting unintended consequence of the college faculty's enthusiasm for team projects was what students and faculty described as "group project overload." Students voiced their frustration with spending what they described as inordinate time and effort trying to coordinate multiple projects outside class. One faculty member indicated that he and others were trying to bring the group process into the classroom, making time for groups within class periods, and having groups work on problems or projects that could be addressed in the course of a class period.

Faculty and administrators acknowledged that the college and individual departments did not do a good job of helping students integrate the various classes they take into a holistic body of knowledge.

We confuse the hell out of students a lot. Because I think each professor has his or her own three hour block class. Where they go in and teach, and do for the most part a marvelous job, is teaching these content areas that they want to teach. But then the student walks out of, you know somebody's marketing 430 class and walks into my marketing 440 class and I may be using different terminology . . . who knows what different types of things that we do. And we don't do a very good job of coordinating that within our department.

Similar concern was voiced about college level collaboration. An administrator acknowledged:

We do all our principles of marketing management finance, business law, we do all that at the junior level, and they are not connected in any way. Those faculties don't really work that closely with each other in terms of saying this is our business core and there is a reason for that . . .

The MBA program was built around semester-long cases that required teams of students to integrate learning from a number of specialty areas. Faculty members from all departments involved in the MBA coordinated their teaching to present a unified focus to students. Many faculty and administrators indicated that they would like to take the lessons learned in the MBA about integrated case-based learning and apply them to undergraduate curricula and class work.

Some students mentioned that their internship or work experiences taught them more than classes did. They gained valuable understanding of class material through their jobs, however, and were able to use their work as a laboratory for applying principles and techniques they learned in class. One administrator of the college did not believe that the college provided adequate internship opportunities to students.

College climate for teaching

Because we interviewed faculty from different departments in the college, the picture of one department's climate for teaching was difficult to construct. What was clearer from this case was the ways that college level climate and policies may influence departments and individual faculty.

The loss of full-time faculty over time, increase in part-time and non-tenured positions, reliance on part-time faculty and graduate students for teaching the business core, and focus on the MBA program appear to create a relatively weak climate for undergraduate teaching within the college. Most departmental climates for teaching did not seem to counter this college level climate – no faculty or administrators we spoke with indicated that their department differed from others in the college in their focus on, engagement in, or attention to teaching undergraduates. Faculty in Accounting, however,

spoke more about discussing courses with colleagues and of feeling that their department takes care of them and values their teaching. The dean of the college indicated that departments had their own priorities, specializations, even endowments, which influenced faculty more than did the college-level initiatives. “And so, I think you influence faculty more indirectly through department heads and more by, oh, I don't know what to call it, persuasion, maybe, than by power.”

For the most part, lecturers, instructors, and graduate students taught the “business core” – the large, lecture-based courses in the first two years of the degree that students must pass in order to be accepted into the major. Even higher-level business courses were larger than they had been in the past, and faculty struggled to address diverse student learning needs within those constraints. The dean of the college acknowledged that dynamic:

To some extent . . . you still have faculty . . . who are teaching some pretty big classes so that's a workload issue, I think and it really makes it difficult for those faculty, in particular, to do some of the things that they might like to do with undergraduate students but they're almost precluded from doing because of class size, you know, you call it teaching loads but with us it's more driven by the numbers of students they might have than it is the number of courses they might teach.

Faculty saw their departments as open to teaching, allowing faculty to teach in the manner they desired. The predominant answer to questions of departmental influence on their teaching was that faculty had freedom to teach as they chose.

[W]e get together and maybe we we're all doing a similar project and that kind of thing , but other than that you know it's each to his own in the classroom and no one tells me I have to do group work. I do some group things in class that some of the other teachers are not comfortable with at all and don't do. So I'd say the department is very open to creativity. [If I] want to try something different they support it, if I needed something and it didn't cost a whole of money, they'd pay for it . . .

Faculty were concerned about confusing students with different terminology and not integrating courses. They indicated that a greater degree of collaboration among faculty could improve student learning. The dean of the college confirmed that informal engagement among faculty in sharing ideas about teaching varied among departments.

Faculty were generally satisfied with their teaching loads – the few that had concerns about balancing their teaching with other responsibilities were assistant professors concerned about tenure and promotion expectations for research. When asked about the importance of and rewards for undergraduate teaching, faculty and administrators had conflicting perceptions. On the one hand, most said that teaching is important and valued. On the other hand, all said that research and teaching at the MBA level and above were rewarded most in the college. Administrators and faculty indicated that the college's focus was consciously on promoting the MBA program since national rankings come from quality and recognition at the MBA level. "In the college we make some choices that our number one priority in resource users should be in the graduate program."

Faculty members recognized the rewards associated with teaching in the MBA program, not least of which was the block time instructional load that left more time free for research. Faculty respondents also noted that even an excellent teacher would not be promoted or tenured without having a research record.

The dean felt that, though tenure and reward systems were built largely around research, the expectations for faculty were more balanced than they had been in the past.

I don't know that there's any of a lesser expectation on research than there ever was, in fact I think there's not a lesser expectation, but I do think that there [is] more balanced expectations and I think there were times at this school when an individual who really was pretty weak on the teaching side could be promoted . . .

and I don't think that's true anymore. But, I think the teaching expectations are higher.

Young faculty in the college expressed their sense that their research competed with their teaching and that their tenure depended on research, even if they care deeply about teaching. One thought the loss of full-time faculty increased the service and advising load (as well as numbers of students in classes), making the departmental expectations for the amount of research young faculty could or should accomplish unreasonable. Another in a different department had a more positive view of the process:

As far as promotion to tenure goes, I like to believe that this department and this college does in fact reward excellence in teaching. Not above all else, but I think it is taken into account when promotion and tenure decisions are made. I think it is a compensatory....it is to some degree a compensatory model here. . . . for someone who is a leader in the teaching side of things I think that the decider may not be quite as high as it would be for someone who has not been.

College influences on teaching climate

The college, and each department, had its own endowment, largely funded through alumni giving, which supported travel, computers for faculty, some faculty development activities, and some college level teaching and research awards. The dean noted that formal teaching engagement and enhancement systems at the university level had been dismantled because of budget cuts. Faculty and administrators believed that this endowment was crucial to faculty performance.

All respondents agreed that the physical plant of the college was a constraint on their teaching. The building in which faculty taught was uniformly despised as outdated and under-equipped. Numerous faculty indicated that they would engage in more active and collaborative teaching and teaching with technology if they had teaching space that supported rather than hindered those endeavors.

Salary inequities were of concern in the college, as they were in the Department of Physics. Faculty in Business Administration hired more recently were offered nationally competitive salaries. Senior faculty salaries had compressed due to state policies restricting merit increases and limiting cost-of-living raises. Those with compressed salaries looked for other compensation, resulting in less emphasis on teaching. A recently hired faculty member commented:

There's a real salary inversion process. I'm pretty sure that my salary is higher than most of my senior colleagues. And so what do they do? They spend their time in activities that will supplement their income. And undergraduate education wouldn't do that.

The future directions of the college will be influenced by the advice of its foundation. The foundation provided the college with a grant to review and revise its undergraduate programs. The Dean was instrumental in fashioning the grant to focus on undergraduate programs, and described the work of the task force it funded. “[T]hat . . . has been in business for about a year and I think they are going to come out. . . certainly with some scenarios that is to see if we can figure out a way to take what we have learned about integrated learning in the first year of the MBA.”

The dean of the college was noted by his administrative colleagues as a leader of change and vision, one who kept a focus on undergraduate teaching and learning. However, several of his initiatives, including the task force examining undergraduate programs, seemed to operate outside of the sphere of faculty. No faculty respondents mentioned such initiatives or the leadership of the college in discussing their teaching or their departments.

The college also monitored teaching and workloads of faculty, class sizes, and majors. “We're looking at the majors we offer and whether it's efficient to offer as many

different majors as we do or whether consolidation of some of those majors might make sense. Now, that's not all driven by state budget but it's certainly part of it, you know.”

The Accounting Department restructured its program in response to a state legislative move to increase the number of years of education required to take the CPA exam. The department had to downsize to accommodate the extra year of education without adding more faculty or increasing class sizes.

Department of Civil Engineering at UTK

The Department of Civil Engineering was among the oldest in the university – civil engineering has been taught since the mid-1800's. The department offered undergraduate emphasis areas in Construction Engineering, Environmental Engineering, Geotechnical and Materials Engineering, Structural Engineering, Transportation Engineering, and Water Resources Engineering. There were 29 faculty in the department and about 330 undergraduate students, 120 masters and 20-25 doctoral students. The department had little in the way of service teaching, and did not have to cover large introductory classes with its faculty or graduate students.

The department had more resources than most departments outside the sciences because of substantial research funds generated by its faculty. This situation of recovery was unique to the College of Engineering. Most departments on campus did not operate on recovered monies.

Nine hours a semester was considered a full teaching load by the College of Engineering, but because faculty were expected to recover salaries through funded research many faculty “bought out” of teaching. That is, they used the money for salaries provided by their grants to pay other faculty to teach one or more of their courses, leaving

them more time to work on the granted projects. The faculty we spoke with generally taught three courses a year – a mix of undergraduate and graduate. Some taught two courses a semester. None that we interviewed actually taught the 6 courses constituting a full annual load.

Predominant teaching approaches

For the delivery of what faculty saw as “content” – theories and fundamental principles – lectures and interactive lectures were often used and considered the most effective and efficient approaches. Laboratory experiences, small classes, and group projects were named as common and essential approaches to helping students go beyond the information found in their books or presented in lectures.

A department administrator estimated that approximately 40% of the Civil Engineering students were involved in a formal co-operative learning and working arrangement. Other students arranged internships through Career Services or their own contacts. Respondents saw the senior capstone design course as a means for students to integrate the content and skills from their other courses. Many projects for that course were commissioned by local industries and required students to work with students in other engineering sub-specialties to complete the project. An administrator explained the capstone course concept:

An industry or a faculty member working with an industry group will identify a real world problem and then there will be a team of engineers put together student engineers and go work on that stuff and so that becomes a senior class, a design problem, so the whole class will be putting in whatever time it is working on that particular problem posing a real solution, crafting an appropriate report, taking that report to the site and making an argument in that here is what your problem really is and here is how we go about solving that.

The department was also in the process of instituting a “freshman experience” intended to prepare students to work in an integrated fashion throughout their undergraduate years by combining basic engineering subjects with chemistry, math, computers, and skills such as collaboration, communication, and team-building.

A few faculty respondents expressed concern about potential loss of technical content if group projects, team work, and interactive approaches were made a priority: “something would have to give.” They saw internships and Co-op experiences as the best way to address the need for students to be able to apply their class learning.

There are still some who are opposed to the fact that you know the way they have been doing this and various faculty are going to do it that way. And in some cases it is a hard argument because there is evidence that a high degree of learning does occur in their classes. They are using a mode they are comfortable with and for them that is a long time.

A few faculty discussed having experimented with collaborative learning techniques and finding that they had more disadvantages than advantages. This attitude may be connected to the dean’s observation that many faculty believed that integrating collaboration and other skills into classes meant that technical content would be cut.

Perceptions of student preparedness

The chair and a senior faculty member noted that students were working at jobs outside of their educational commitments while simultaneously taking courses more than they had in the past. They felt these demands on student time and attention hindered learning. Students were not available to form continuous cohorts over semesters or participate in group projects, while working part- or full-time. Many students echoed this sentiment. They further mentioned they did not choose the formal co-op because of its schedule: one semester in school, one semester at work. Students preferred to spend an

entire academic year in school and then another working, or working at a co-op job while also being enrolled.

Departmental climate for teaching

The department fostered a strong climate for undergraduate teaching, going beyond the generally strong college climate for teaching. The faculty uniformly expressed the belief that teaching was a primary activity in the department.

We are not letting teaching taking second fiddle to anything. And there are departments where I don't believe that's true. That there are faculty members that are a little jaded, and they don't see or care that much about their students. Civil engineering here is not like that. Civil engineering here does in fact place a high priority on the students.

Faculty all related that undergraduate teaching and learning were discussed constantly at departmental meetings. Faculty and administrators mentioned the departmental atmosphere of open conversation about teaching and commitment to student learning.

Faculty also took notice of their colleagues' teaching, and shared ideas with each other.

When you find that particular faculty member is doing something that seems to be integrative, effective... [we] compliment them...maybe you ask them, do you mind if I find out a little more detail? I'd like to do that myself. That kind of intra-college conversation about teaching, can be very supportive.

Comments made by faculty and administrators suggested that this was not the situation in other departments in the college, some of which were experiencing resistance to the collaborative and change-oriented climate the college was trying to foster.

The chair of the department was highly regarded by the faculty as fostering and promoting teaching and learning.

We've been very fortunate here, I think, in the kind of leadership we've had . . . I think he probably is the ideal of what a department head should be like. He doesn't minimize the need to do research. But he is very conscious of what is going on in the classroom. He looks at the student reviews of everybody's

courses, each term, and makes comments to us about what he sees. So there's always in front of us the teaching aspect of what we are doing.

The chair designated a senior faculty member no longer actively engaged in research to serve as principal undergraduate adviser. The chair made this move because of the faculty member's interest and because he could free time for research for other faculty members. The appointed undergraduate adviser said:

It's tough [balancing teaching and research]. And something suffers usually I think. One of the things that suffers in the process I think is what you might generally would call advising a student. The kind of student time that takes place outside of the classroom. I think that that is one of first things to go because if you're pressed for time you are just not going to make yourself that available to students to just drop in and talk about what's on their minds. That's one of the roles I'm trying to play since I'm not getting into research, I can afford to do this, and I feel like somebody needs to do it.

The chair put mechanisms in place to recognize good teachers. A departmental teaching award was given to any faculty member who averaged a four or higher on the five-point rating scale used in teaching evaluations for courses. The chair explained the rationale for the award:

. . . rather than just saying "the top teacher will get a reward this year" it struck me that we had several very fine instructors who therefore would not get recognized but once every so many years because of that. So while we still have an outstanding teacher award that is selected based on student input, I thought it would also be good for faculty and the students to see that there are several people who are in a very high category.

Although quality teaching was expected and valued, research was still perceived as the most important element of a tenure and promotion portfolio. Faculty and administrators were pragmatic about those priorities. "The last thing I'm going to really slack off on is my research, because – and this is a typical faculty perception at most schools – this is the thing that's going to have the most to do with my advancement." Despite the commitment on the part of the department to undergraduate teaching and

learning, which was seen as their “bread and butter,” the realities of their financial situation, disciplinary expectations, and positioning in a research university necessitated that research play a primary part in tenure and promotion.

Influences on departmental climate for teaching

Administrators and faculty talked at length about the funding of the department and the college, and the demands it placed on faculty. Undergraduate education was funded by state dollars, which were not sufficient to run the undergraduate programs at a quality level the department and college considered necessary. The college and its departments, therefore, operated in a “soft money” situation that other colleges and departments in the university did not.

Our college when we get our allocation of state funds, . . . the money that comes over to our college will not quite cover salaries. . . . State money, will not quite cover the salaries. Now we haven't talked about paying the phone bill and the Xerox paper or anything. Will not quite cover salaries. So we are in a situation where we must have recoveries. That is not a well-understood concept through most of the University. We are in a situation where we simply must have faculty recovering a portion of their salary from research contracts. Then we turn around and take that salary portion and put it back in the operating budget and then we get to the end of the year, whew!, we have paid the bills. Now, those are constraints because we have those commitments, we have to pay attention to those. So I am going to say to you that undergraduate instruction is our bread and butter but I am also telling you and that is where we put our state money, we basically say to our faculty that graduate education and research is your responsibility to pay for that.

The faculty felt the effects of this necessity to recover salaries in their attention to teaching and in the kinds of research they pursued.

There are substantial demands for us to recover our academic year salary. I'm sure other people have mentioned that. That means that there are things that you do that perhaps, you wouldn't take on otherwise that if you weren't concerned about that issue only you have the support of a graduate student, perhaps you would let certain things go. That affects teaching. Whenever there's a demand for fifteen percent of your time it's going to affect other things.

The College of Engineering tried to serve as a collaborative anchor for departments in the areas of curriculum, pedagogy, and resources. The college, through the technology fee instituted by the university, received a million dollars to upgrade its undergraduate teaching laboratories in 1997-98. According to one of the deans,

Rather than break up the funds into chunks too small to benefit each department separately, they went together to design a space that would benefit all and move forward the college's integrating goals . . . That money is ear-marked for a substantial inter-disciplinary industrial laboratory designed by three different departments in the college.

An industry advisory board influenced the larger changes in curriculum objectives and pedagogical approaches by the department and college. Advisory board members indicated the skills and areas of study they felt students lacked.

That Board of Advisors is predominately industrial people, corporate vice-presidents and so on and so forth . . . these people are not at all hesitant to share with us. We ask them, given the fast paced change in American industry and the practice of engineering, . . . how ought an engineer be prepared to come to the work place, to enter the work place of a BS graduate these days.

Further, the college studied the high attrition rate of students within the first two years of the engineering program (up to 45%) and found that its curricular focus on fundamental concepts and prerequisites precluded students from becoming familiar with what engineers actually do until well into their second or third years. The attrition rate was interpreted as a reflection of student frustration. A committee consisting of college faculty, industry representatives, and educational specialists was asked to work on curricular changes that would engage students in engineering problems and practices early in their programs. The result was the freshman experience being piloted at the time of our visit.

The Civil Engineering program is accredited by the Accrediting Board for Engineering and Technology (ABET). Many of the initiatives to improve collaborative

learning in the department were undertaken as a result of ABET's recommendations and requirements. The department used the "ABET 2000" deadline for new standards for undergraduate engineering education as a reason to start re-evaluating and revising their curriculum.

I [the chair] decided that we didn't want to wait until the last minute so I got the process started about two years ago (in 1995) before many people in this college were even saying much about ABET 2000.

The College set the stage for strong departmental climates, and sought to influence them. College leaders did not see equal commitment on the part of all departments to attend to undergraduate teaching and learning issues. The Department of Civil Engineering was seen as exemplary in this respect.

Department of Romance Languages at UTK

The department of Romance Languages consisted of 4 programs: French, Spanish, Portuguese, and Italian. Twenty-five tenure-track faculty were assisted by approximately 35 teaching assistants/instructors, who taught the first and second year students.

UTK required all students to either take two years of a foreign language or pass a test demonstrating that level of competence. As a consequence, the department had a major service role in the College of Arts and Sciences, which provided 95% of the general education courses in the university. This service role dominated the department's total enrollments. It was also at odds with the preferences of many faculty, who would rather teach literature courses to advanced undergraduates and graduate students.

Approximately 1800 students were enrolled in the first and second year programs as part of their general education requirement. In contrast, the French program had about 25 majors and 25-40 undergraduate minors or concentrations.

The Department of Romance Languages fared worst of all of the departments we visited at UTK as a result of state and institutional budget cuts. Several faculty positions had not been refilled as people left or retired, and workloads had increased as a result. Courses had been cut, and departmental course offerings scaled back. With few opportunities for large external grants and no alumni foundation, the department could not supplement its funding from the state the way that the other three departments did. It operated strictly on student-number generated funds. The lower-division service language courses required of all students were the mainstay of the department. Little money existed for travel or professional development. The department was close to crisis due to the loss of tenure-line positions.

The department faculty were split in their perceptions of the purpose of an undergraduate language degree. Many saw it as preparation for graduate school. Some expressed concern over the ethics of encouraging students to go to graduate school in a depressed academic job market. Others saw the degree as part of a liberal education that qualified students to engage in a variety of careers that required a broad-based education and language skills. The department also had a joint language and business program (World Business), which was practically oriented. It was meant to help students use a foreign language as a business tool or skill, and was seen as a degree that could be used immediately upon graduation. The majority of language majors did not go on to graduate school, instead taking jobs in business, government or secondary teaching. For majors in

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the World Business program, language preparation was considered a basic skill rather than the focus of their degree.

Predominant teaching approaches

Faculty in the department used a wide variety of teaching approaches – e.g., interactive and immersion techniques for language acquisition, discussion and small group work for literature-based courses, and computer-assisted drills for grammar, vocabulary, and composition. Video and audio material were heavily used, as was journal writing in target languages. Students were asked to work with each other in conversation and presentations. Some courses (especially conversation and business language courses) were applied in nature, and incorporated real life situations into lessons. Faculty also had students work on internet research or the creation of web-sites in their languages. Class sizes at the upper levels were small, averaging 12 students. These class sizes were considered crucial in supporting the interaction of faculty and students.

Study abroad was mentioned often as the most effective way to teach students to integrate their language and cultural knowledge, and to learn how to apply language in their careers and lives. World Business majors were required to take an internship, either abroad or in the US, which involved the use of their language. The faculty estimated that 40% of students in other majors had experiences abroad. There were also several of out-of-class offerings through which faculty tried to help students apply their learning. They mentioned poetry readings, language tables in the cafeteria and at local restaurants, plays, and a failed attempt at creating language-oriented dormitories.

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When asked how they had changed their teaching in the last five years and why, faculty stressed the increased use of technology. Video, CD-ROM, and interactive computer modules were all being used to help students learn. Many more faculty were interacting with students by e-mail, and having students e-mail each other letters in their target languages as practice. Faculty also mentioned using more interactive pedagogies in the classroom; moving away from language “drills” and student-to-teacher interactions toward student group interactions. Reasons cited for changes included the influence of other faculty, workshops on innovative techniques, student needs, and experience.

Faculty identified external obstacles to teaching the way they wanted. Some felt the make-up of the courses and demands for large classes at the lower levels left students unprepared for higher-level work in literature and conversation. Classrooms lacked permanent audio-visual equipment – faculty had to check it out for use from a central office and wrestle it up stairs. The department lacked the technological infrastructure to support computer-based or internet-based teaching and learning. Faculty did not have ethernet connections in their offices. Those interested in using technology were hampered by their inability to access university servers and the computer lab.

Departmental climate for teaching

The prevailing attitude of faculty and the chair was one of perseverance under great strain. In relating the number of faculty in the department, the chair quipped, “Let's see, let's see we used to have a space problem with offices here (laughing), we don't have that problem anymore. It is scary, it really is.” Staff losses and budget concerns affected the climate of the department, giving it a siege mentality. One faculty member's statement sums up the climate for teaching in the department:

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I would just like to say that I feel . . . we do a really good job given all of our shortages and limitations and I honestly don't know how we do it. I don't even know how we staff our classes because we are so short. I guess other people have told you that we lost all these positions. . . . and it creates, I think, a real pessimism at times because we have a lot of good ideas and a lot of people who are creative and could be doing so many interesting things and we're just constantly trying to plug all the little holes.

Despite this fiscal environment, the faculty all agreed that the department supported teaching, that they had complete control over how they taught, and that the priority in the department was undergraduate education.

The primary reason we are here, and the reason we are getting our paychecks is not because they have a book to write on the university press or whatever. And that is a nice thing they get to do on the side, but students come first. And we talk about that in department meetings.

The chair and faculty felt that the message about the importance of teaching was quite clear. Some faculty respondents felt that the department's and college's expectations about research were not as clear. Some felt that publishing was more important than teaching, while others felt that they were not getting direction about how much and what kind of research they should carry out.

The department is supportive of good teaching, like they do value good teaching, however, they make it real clear that teaching should not take the place of research and they're unclear about how you're supposed to balance that. There's no real guidelines for what you're supposed to do.

The chair also believed that the higher teaching load for faculty should be offset by different college expectations for faculty productivity. He acknowledged that the college's tenure and reward system was geared toward scholarship rather than teaching.

No one here objects to teaching at all, but I think that we . . . want to know what it is that we need to do and how we are going to evaluate it. And we know in the end that the promotions, the pay increases, and all of that are going to be based on what is on your CV. Not how many students you have advised, not how many classes you have taught and all that other stuff. And we will continue to be like that, because it is more quantifiable.

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The overwhelming consensus among faculty and administrators was that balancing **teaching** and research demands was extremely difficult. Many indicated that they simply **could** not do it all well, and had to choose where to put their effort, or be resigned to not **working** to their highest potential.

The department had various low or no-cost approaches to supporting faculty. It **instituted** a course “banking” system by which faculty taught a third course in a number **of** semesters, and then were given a semester completely off from teaching. Faculty who **had** yet to achieve tenure were protected somewhat from undue committee work to free **up** their time away from teaching for research. The chair of the department was noted as **being** sensitive and responsive to the need for faculty to protect some of their time for scholarship, and to recharge.

Well, I think the departmental administration is particularly conscious of the need for the non-tenured faculty to not get overwhelmed with, particularly with service activities which, often times, are the kinds of things that are assigned to younger faculty so number one, they do, they are, you might say, taken care of in terms of getting them an occasional semester of time off for doing their research so that they can meet the university expectation for that.

When hiring faculty, the department required both the traditional “job talk” about a candidate’s research and a demonstration of teaching, usually in a mid-level course. This approach gave the hiring committee a chance to evaluate a candidate’s teaching skills and sent a “very clear signal from the beginning that we value teaching as much as we do research.” The chair’s impression was that this practice was not common among other departments in the college. The chair of the department encouraged faculty to attend workshops on teaching techniques and strategies both within and outside the department. Many faculty respondents mentioned gaining ideas for their teaching from

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such experiences. Some mentioned, however, that implementing those ideas was difficult. The image of “plugging holes” came up again.

I think we could do a better job in teaching if we could improve certain things right now that we can't improve and a lot of that is related to money but some of it too is probably related just to having a little bit of time, I think, to brainstorm and come up with better ideas. Right now most of us, I think, feel like we're just trying to plug holes.

The department's view of how the university perceived it was powerful. There was a common perception that although things might be bad for the whole university, the department was more overlooked than others.

I [do] think that there's a prejudice at the university that the humanities don't need technology or we don't use it or something because I think that we'll probably be the last building to get wired. . . . [O]ther colleges, other departments where they're perceived as people plugged into technology, they get the stuff they need and we're always regarded, I think, as part of like these mediaeval people who sit around with quills and ink or something . . .

Overall, the department climate for teaching was focused and strong. Unlike the climate for teaching in Civil Engineering, however, where the department was working within a positive and proactive college climate for teaching, Romance Languages was “circling the wagons” and “plugging holes.” In many other ways the department was attempting to make the best of or counteract what it saw as unsupportive climates at the college and institution level.

Influence on departmental climate

Most influences on the climate for teaching of the department came from the College of Arts and Science or the institution level. The department did not have an accrediting body or advisory board overseeing or advising it. National reputation for graduate work was the strongest extra-institutional influence on the department.

Although faculty believed they graduated well-prepared doctoral students, the programs

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were not nationally ranked. Achieving national ranking was not a priority of the department at the time of our visit.

Of all the departments we visited, the department of Romance Languages was most dependent on the college in which it was situated, and on the institution's central decision-making process, for its survival. The College of Arts and Sciences housed 26 departments, 14 interdisciplinary programs, and around 15 centers and institutes. Departments were as disparate as Computer Science, Physics, History, Religious Studies, and Romance Languages. According to the Dean, the sustained reductions in state allocations had cut into the university's, and in turn, the college's ability to sustain themselves at the caliber of Research I institutions. All money for equipment coming from the college to departments was removed in 1992, and until the new university-wide technology fee was instituted departments had to budget for equipment on their own. The dean indicated that the college had bumped up class sizes to deal with rising enrollment pressures and the loss of faculty resulting from a university-wide hiring freeze.

It was within this college and institutional context, with little to no buffer, that the department of Romance Languages was situated. The contrast in the department's climate to that of the Physics department, which was also within the college, was stark. Both Romance Languages and Physics had a heavy service course load and relatively few majors compared to non-majors. Both identified a lack of university resources and technology infrastructure as a hinderance to teaching. Romance Languages, without lucrative research contracts, could not hire faculty and had to spread the work of lost faculty over those remaining, had no funds for professional development, and had to

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work around the college and university systems to provide faculty any compensating rewards: a semester off after teaching overload, no pressure to teach summer, and a reduction in committee work. In contrast, the connections Physics had with Oakridge provided the department with the ability to pursue its own agenda, hire the faculty it needed, and operate somewhat at a distance from the college.

The Associate Dean of Arts and Sciences saw variation among departments as either a natural outgrowth of their different disciplines or as a function of their climates or cultures.

We have recognized up here that that is appropriate and reward them I think accordingly. You have other departments, so that those are the extremes, I guess, when I mentioned Computer Sciences, Religious Studies and Classics. In between you have the departments where the culture varies for less obvious reasons. . . .So it varies a lot from department to department and a lot with as I say the cultural of the department.

The Vice Chancellor of the university “came to the conclusion that I am too far away” from teaching as it goes on in the classroom to influence and impact it the way he wanted to upon taking the position.

It has to be the department head, because that is where the reward structure is. Now, the upper administration has to take a lead and provide the impetus and keep the pressure on. But if [departments] don’t bother to reward instruction, it won’t get rewarded. It is the department.

Both college and university level administrators saw departments as having the greatest influence on faculty teaching. The cases of Physics and Romance Languages support this perspective.

Summary

Institutional mission – both historical and current – and institutional finances had a significant role in shaping the climates for teaching at college and departmental levels

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at UTK. Departments also were heavily influenced by their disciplinary norms. Physics would fall into a category of “low use of active and collaborative teaching” and plainly did so. Romance languages was most interactive and collaborative. Business was somewhat engaged in active and collaborative teaching, but employed a limited range of methods. Civil Engineering as a department was more engaged and proactive in its use of active and collaborative teaching than one would expect from a disciplinary standpoint. All departmental climates were influenced by the institution and by factors within their own departments and from outside the institution.

Tennessee Technological University

Tennessee Technological University (TTech) is the only technological university in the state. It is located in Cookeville, 82 miles east of Nashville, 109 miles west of Knoxville, and 96 miles north of Chattanooga. Cookeville has a population of 25,000 and is considered the center of the “Upper Cumberland” region of middle Tennessee. The student body is around 8200; 7200 undergraduate and 1000 graduate. The university had 368 full time faculty at the time of our visit, and offered over 70 undergraduate degree programs and 30 graduate programs. The university offered one Ph.D. degree – in Engineering. Engineering specialties made up 25% of the majors in the university. In-state tuition for 1996-97 (the year we visited) was \$1,890 for the academic year.

The university had a dual mission because of its location in the state, and the two parts of this mission can come into conflict. It attracted highly qualified and prepared students to its technological programs. It also served regional, rural students, often the first members of their families to attend college. Some of these students were not adequately prepared for college-level work, which required TTech to provide significant

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resources for remedial courses. An administrator explained, “We have almost two different groups. We have the strong students coming to TTech because of engineering and those kinds of programs. Then we have the [regional] students that we are the primary university site for.”

Providing these services disadvantaged TTech in two ways: (1) the state did not provide additional resources for college-level remedial courses and (2) the state’s Performance Funding formula rewarded institutions whose students scored high on standardized examinations. The institution could have raised its admissions standards, but this approach would have meant turning away many of the students that the university saw as its primary responsibility.

The university’s state board, The Tennessee Board of Regents, set salary levels for faculty in public colleges and universities in Tennessee in part by comparing each institution with a set of peers. The selection of peer institutions by the board was based on degree level – masters-level institutions – rather than on the focus of the degree programs. Unfortunately for TTech, few of its selected peers offered the same high cost technical programs in engineering and the sciences. This state policy led to budget benchmarks underestimating the salaries and infrastructure required for TTech to maintain operations and remain competitive.

TTech experienced an operating budget decrease of 32% between 1990 and 1997. This decrease necessitated that additional funds made available through Performance Funding go into general expenditures rather than into targeted enhancements. The limited state investment, even during a time of economic expansion, affected most university operations.

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The state board mandated that TTech faculty members teach a 15 credit hour load per semester “or equivalent.” In practice, this load was adjusted to take into account advising and service responsibilities. In general, faculty members not actively engaged in research taught 12 credit hours a semester. Faculty members negotiated their assignments with their chairs and deans each academic year – designating the percentage of time devoted to teaching, research, and service. This contract served as the basis for the annual faculty review. A senior administrator described the faculty work context as one in which each department might have a highly productive researcher or two, but the majority of faculty were oriented toward teaching undergraduates and engaged in scholarship and research “as a form of intellectual enrichment, as a way of kind of keeping alive intellectually so that they can teach well.”

Department of Physics at TTech

Physics was the elite department in the College of Arts and Sciences. The department had nine faculty members: six full professors, two associate professors, and one assistant professor. All were Nuclear Physics specialists, and received their doctoral degrees from prestigious research universities. The department did not have a graduate program. Faculty and students pointed to this factor as important to the quality of undergraduate education offered. There were approximately 22 majors at the time of our visit, predominantly male. All were among the highest performing students on campus. The department had among the highest percentage of its students going to graduate school.

The department emphasized research to a degree beyond other departments we visited at the university. All of its faculty members were involved in externally funded

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research, which included adjunct arrangements with other universities, contracts with Oakridge National Laboratories, or arrangements with other research centers. That said, the department chair mentioned that with teaching loads averaging 9 credit hours a semester in the department, faculty members were not expected to have a research output seen at Research I universities.

Faculty respondents estimated that roughly half of their majors planned to go on to graduate school, and half to get jobs in industry. Some faculty members encouraged students not interested in teaching to obtain masters degrees in a specialty, such as nuclear medicine, that would allow them to work in industry. Others saw the degree primarily as preparation for graduate work, and focused their teaching and advising toward that outcome.

Faculty members generally taught three courses a semester – a mix of service and major courses. With relatively few majors at any one time, the Physics faculty primarily taught non-majors and service courses for engineering, teacher education, and pre-medicine. Some took on an extra course or number of labs for three semesters in exchange for taking a subsequent semester off from teaching. The most innovative teaching within the department was connected with introductory Physics for teachers – it was part of a national project to improve educators' competency and comfort with the sciences.

Predominant teaching approaches

The department had no graduate teaching assistants; the faculty taught all courses the department offers. Faculty members and students believed that students were selected, either by themselves or by the faculty, for degrees in Physics. They felt that this

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selection process resulted in students being attuned to the standard way physics was taught, which then required little pedagogical adjustment by the faculty:

We kind of selected out the people who learn the way we teach already. So, the people who are there right now, I think the technique that we use are pretty much okay with standard lecture, homework, all that.

Faculty members believed that learning physics involves reading and listening to explanations of concepts, working problems, getting stuck, getting help, and moving on. The primary instructional method was lecture, although both laboratories and out-of-class research opportunities were used. Faculty encouraged students to come to them for one-on-one or small group consultation. Most believed that laboratories and separate research experiences were as, if not more, important learning experiences than classroom instruction.

One of the things we try very hard to do, especially those who are experimentalists, is to include our undergraduates in the research in the research. Then it is all part of the teaching. They learn things there that you never teach in a classroom. We really emphasize that as part of our program.

Few faculty members used group projects or computer-aided instruction. Most faculty respondents were not trained to use instructional technology. Nor did the department have sufficient funds to computerize the laboratories. Many faculty and administrator respondents expressed ideas for integrating technology into their teaching should the resources become available. Some faculty respondents were considering learning new teaching techniques, but most faculty members were not preoccupied with integrating collaborative or innovative pedagogy into their teaching.

Departmental climate for teaching

Because the department did not have a graduate program, the faculty focus on undergraduate teaching and learning was strong. Faculty included undergraduates in their research, had a universal open-door policy, created space in the department where majors

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could gather and study, and saw undergraduate teaching as their top priority and the reason their department existed. The faculty as a group were very aware of the strengths of the department and what they could offer students:

We offer the students attention...At a large school, (laugh) at a large school the professors do not have time to give, you know, they have office hours. We don't have office hours. I keep my door open here. They can come in anytime they want...The only advantage we offer is that the standards are as good as nearly any one at a State university but the teachers are accessible.

The focus on undergraduates was seen by faculty as an attraction for both faculty and students:

In terms of lack of graduate program, there has been discussion among us internally, and at least, one person who was here some time ago, that he would rather deal with very good undergraduates, which we have, rather than the mediocre graduate students. Which is more or less what is realistically we would be likely to [attract]...

That said, faculty did not indicate that they discussed teaching and learning issues often or that they were working on teaching and learning issues as a group. “[W]e communicate . . . very well in the sense we will trust each other to do a good job. But on the other hand, I don’t think we look very closely at each other to see whether we are doing a good job.” The few faculty involved in the collaborative course for teaching majors were known and their work noted and admired, but few other faculty were eager to translate the work going on in that course into their own teaching.

The department had a clear and strong sense of collegiality among faculty and the chair. All noted this element of the departmental environment, and saw it as a strength. Two faculty members summed up the expressions of all:

There is plenty [of collegiality] in this department. We are sort of known on campus for that. That we actually talk together and have lunch together. In some ways, that is the way I like it. I like making department policy out in the hall. That is just the way I am. That is just sort of an unwritten rule.

I feel fortunate to be in a department where we all are relatively compatible. We don't have the factions or the department politics that I see going on in other departments on campus. And I am thankful for that.

The homogenous nature of the department (all nuclear physics) contributed to this strong collegiality. Faculty indicated that the chair also contributed to collegiality through his leadership and support of their needs. The Chair considered his primary job to be protecting faculty by taking care of the administrative details and by making decisions as informally as possible so as not to bog them down with committee meetings.

The department had higher expectations for faculty research productivity than did other departments in the university. Although teaching remained the primary consideration in promotion and tenure,

I don't think we will give tenure to someone who shows no inclination towards research and hasn't done anything at all. But we haven't had to face that particular question either. We make it clear when we hire that we are expecting to see some research components.

The chair and faculty saw few ways that the department, college, and university could offer incentives or rewards for outstanding performance – either in teaching or research – because there had been no discretionary money for merit increases in years. The university did have teaching awards, but those recognized only a few people yearly. Excellence in and attention to teaching was seen as a point of pride, and a function of the type of institution and students, rather than a performance for rewards. The chair believed that the predominance of lecture as a teaching approach was at least somewhat tied to resources.

Obviously, it varies widely from faculty to faculty. To a significant extent, our standard mode of teaching is still lecture. . . . I think that is largely driven by available resources. I think we all have some things that we like to do, but haven't been able to obtain funding to do them. I have a grand scheme to improve our lab by computerizing it. I think it will improve it significantly. But so far, I haven't been able to get funding to do it.

Overall, the department faculty were satisfied with their teaching loads, with their students, with each other as colleagues, and with the way they taught. The only constraints they complained of were the lack of resources available to them from the university for technology upgrades and equipment maintenance.

Influences on departmental climate

Most Physics faculty believed the senior administration made a strong and visible commitment to undergraduate teaching that set the tone and expectations for the university:

I feel like within the university that there is a strong commitment to effective teaching from the President down, the Vice President, the Dean of Academic Affairs, the Dean of the College, and the department. It feels like there is.

Beyond this institutional commitment, the dominant perceived influence from institutional and especially state levels on teaching and learning concerned resource constraints. The departmental budget had no travel or equipment funds, and those available at the university level were sparse. The department was expected to provide those resources through research grants, release time money that may come with university level grants, or end-of-year surplus funds, if any existed.

And, now, here is the problem. And that is money. Space we are not doing too badly on. Although, things are getting a little tight now with our lab space. But, money to upgrade is very difficult to get right now. This goes all the way to the State legislature and the State Governor. This is not that the university doesn't want to see us develop our [program]. I think money is just tight. The university is just having to make do on a rather limited budget that we have been forced to cut in a lot of areas.

The department's research contracts, which were substantial compared with other departments in the university, helped it provide faculty with professional development funds. Equipment resources were still hard for the department to put together.

Department of Decision Sciences and Management at TTech

The Department of Decision Sciences and Management (DSM), in the College of Business Administration, had four undergraduate degree programs: Management Information Systems, Management, Personnel/Labor Relations, and Production and Operations Management. DSM had 14 faculty members— 6 full professors (one endowed), four associate professors, and four assistant professors. Faculty were predominantly male (12 of 14).

The department had more than 250 majors. The majority of them (58%) were in the Management Information Systems program. Another 25% were in the General Management program. Business students were tracked through a lower division curriculum before being allowed to apply for admission into a specialty program. Admission to a specialty program was competitive; standards exceeded those for the university as a whole.

The department is part of The College of Business Administration, which is made up of the Departments of Accounting and Business Law, Decision Sciences and Management, Economics, Finance, and Marketing, the Division of MBA Studies, and the Division of Basic Business. The latter coordinates the curriculum of, and serves as an advising center for, lower division business students. There were approximately 800 students enrolled in the Basic Business curriculum in 1996-97. The College of Business Administration actively pursued national accreditation as part of its effort to enhance its prestige and attract top faculty and students. The American Assembly of Collegiate Schools of Business (AACSB) first granted accreditation to TTech's undergraduate programs in 1978, followed by accreditation of the Division of MBA Studies three years

later. The College achieved special elective accreditation in Accounting in 1985. The Division received special commendation from the AACSB in 1997 for exceptional service to students.

The college and its departments benefited greatly from a foundation developed by the dean to solicit money and support from alumni and area industries. No other college at TTech had a foundation of such scope and magnitude. College and department members indicated that the additional resources available through the foundation made it possible to attract faculty, achieve and maintain accreditation, and provide assistance to regional industries. Funds from the foundation provided travel and professional development money for faculty as well as internal research grants. Respondents strongly indicated the importance of the foundation in creating a quality work environment for the college.

The normal teaching load in the department was three courses (nine credits) per semester. Although a few faculty members taught out of courses with external funds, most taught the full load. The Division of Basic Business advised all non-declared and lower-division business majors; DSM faculty members advised only their own majors. Departmental faculty members viewed teaching as their primary duty. Although respondents acknowledged that research was necessary for tenure and promotion, many admitted that they came to this teaching-oriented institution to teach, not to conduct research or consult.

Predominant teaching approaches

Faculty employed a wide range of teaching approaches, but emphasized the use of cases, role-play, and group projects taken from real business settings. Faculty members

increasingly adopted technology into their classroom teaching; many used presentation software in their classes regularly, and encouraged students to use it in projects. Some respondents talked about having students participate in teaching courses. Most made use of student feedback to change their teaching approaches. Students appreciated the seminars with past graduates and local business people held each semester to talk about jobs available and the kinds of work students could expect to do when they graduated.

Departmental climate for teaching

Interest, high energy, enthusiasm, access, and respect for students marked the climate for teaching in the department. The general attitude of faculty toward teaching was best described by the following two faculty respondents:

I asked for extra courses, and if one comes up, I'll take it every time. I love being in the classroom. Love working with my students... And one of things I think you'll find that the faculty as a whole here is that there is a very, very good rapport between the faculty and the students. This time of year, and I'm not the only one, but since you're interviewing me I can speak for myself here, most evenings there'll be from one to three student groups at my home office working on projects.

We've managed to create an environment, and I say we, because it's the university, it's the college, it's the department, and inside the classroom, have created an environment where the students will do much more than I ever expected them to every semester. They start doing it for pride. I've had a lot of them say "You know after about three weeks, I quit doing it for a grade. It's for pride.

The faculty agreed that the atmosphere in the department was positive and encouraging. Many self-selected this teaching-oriented situation. They reported getting along well with each other, and feeling well supported by the college. They also pointed to the positive contributions of teaching schedules that permitted faculty members to block time for research (grouping classes into two or three days a week), reasonably-sized classes, and

faculty development money. Decision Sciences received the university departmental-level teaching award shortly before our site visit.

The primary responsibility of faculty was teaching, and the reward system in the department and college supported that priority.

We don't expect the faculty to have the same type of funded research that the engineering school would have. We got NSF grants in the college, but a faculty member could get through five years here in a tenure track and never bring in a grant. . . . But, there is not a lot of incompatibility between what we expect and what the university uses in promotions they do.

Faculty members were closely evaluated, especially during the pre-tenure years. Students were given the chance to evaluate the program as they left. The chair held exit interviews with students to identify problems and seek solutions.

The college and the department had better resources – in terms of computers for students and faculty, travel and professional development money, and internal research grants – than the other departments we studied. Faculty respondents saw these resources as a key factor in their teaching, and acknowledged that the Foundation had everything to do with the quality of their professional lives.

Okay. We could not afford this at TTech University if we relied on state funding We'd be what's analogous to teaching water safety instruction without a pool. . . . And that's not the only thing that the foundation does. They help us with the technology, they help us with scholarships, they help us with networking to get students jobs. And not just jobs. And when I say jobs around here, we're talking about jobs that lead you to a career. And there's, to me there's a tremendous difference.

Leadership in the college and department helped keep resources and faculty attention on teaching and learning. Faculty all described the chair and the dean as strong leaders who influenced and supported their work. One administrator talked about protecting the quality they all worked to achieve:

One of the things we have tried not to do is go beyond our reach in the sense of, we are a fairly small faculty with the goal of maintaining the highest accreditation we can and maintaining a strong faculty. So, that means we have steadfastly refused to offer education at branch campuses, which a lot of the rest of the university does. We don't travel our faculty on credit courses at all. So, we have tried to say, let's stay focused and stay reasonably good at what the core processes are and not get out there and play.

Influences on departmental climate

The foundation created by the Dean of the College was instrumental in supporting the college's, and department's teaching and learning needs. The Dean described the way the foundation operated:

There are 153 members of that foundation and they are all active. They come in here every Tuesday...we keep them very active with us and they do a lot more than fund raising for us. They are in the classroom every weekThey are just a key partner to everything that we do. But, they also raise, I have a 4.5 million-dollar endowment in the business school, which is the largest, for this university for any of the units Business schools at technological universities are usually fairly far down on the food chain when it comes to new technology. So, but again, business schools are supposed to be entrepreneurial. And, before we can even teach it, we better be able to do it . . .

The foundation protected the department from many of the resource constraints felt by other departments around the university, even those in the College of Engineering. The foundation could not, however, support salary increases or merit pay – rewards that the chair of the department would have liked to use to promote faculty excellence:

We have not had, in recent years, merit pay money. So it has been very difficult from the point of view of rewarding faculty and discriminating between those that had done an outstanding job versus those that have done an acceptable job. So, I see that as one of the negatives. I don't think that has affected the faculty's commitment to do an outstanding job, but it has affected our ability to reward people for it.

The state and university funding shortages also negatively impacted hiring. The department was at the time not able to hire new faculty, which in turn impacted students.

So that hurts. The way that's showing up, like I said, we can't hire people now. You have to have a really good case to just replace what you lose, who you lose. How it's affecting our students is in the manner of offering electives.

For the most part, the department's strong positive teaching climate was fostered, supported, and influenced by the strong climate and better financial situation of the college. Few larger institutional or state level factors negatively impacted the department, except in the case of funding issues such as hiring and merit raises that could not be addressed with foundation money.

Department of Mechanical Engineering at TTech

The department of Mechanical Engineering had 17 full-time tenure-line faculty members with one position vacant (a search was pending when we visited). Nine were full professors, three were associate professors, and five were assistant professors. Most faculty members were male (15 of 17), with several nationalities represented. Prior to our visit, the department had slipped 14% in enrollments to approximately 396 undergraduate majors.

Faculty teaching loads were variable. The average instructional load was five courses per academic year. Faculty members could buy out of a course with monies from research grants. Departmental faculty divided the advising load of undergraduates, each taking responsibility for between 25-45 students at any one time.

The department was situated in the largest and most prominent college in the university. At the time of our visit, the College of Engineering had 62 full-time and 17 part-time tenure-line faculty, and 33 teaching assistants. The college also housed three state-funded research Centers of Excellence: Center for Electrical Power, Center for Manufacturing Research and Technology Utilization, and Center for the Management,

Utilization, and Protection of Water Resources. The centers and the graduate programs made possible by their funding set the college on different financial standing from other colleges in the university. Faculty assignments were correspondingly different, ranging from 60 or 70% research to 60 or 70% teaching, a much greater variation than in other colleges. The college dean believed strongly in undergraduate education but emphasized the importance of research funding in achieving high quality undergraduate programs.

Predominant teaching approaches

Faculty respondents varied in their instructional approaches. The most innovative faculty members used peer teaching, student engagement in debate and mock-trials, and brainstorming. A larger group of faculty members relied on more traditional methods, primarily lecture, quiz, and examination.

So our modes for operation vary quite a bit, but in terms of methods, we are still pretty much the in blackboard lecture mode at this point I guess I am open-minded enough to wonder if there is a better way of delivery in today's environment. We still deliver to a large extent the way it was delivered to us I think half of us are open to try new things if we really knew what it was supposed to be.

Some faculty respondents used presentations and group projects to enhance students' communication and teaming skills. ME faculty also viewed laboratories as important learning experiences. Students mentioned the usefulness of their internships and Co-op jobs. Some faculty members assigned open-ended problems that required students to incorporate elements they would find in projects in industry

Most discussion of instructional "change" focused on changes in content or process, not teaching approaches. For example, a faculty member who taught computers used to spend time teaching students how to create their own programs. Now this faculty member used software for the same purpose. Others discussed efforts to meet students outside of class, or

to make their lecture materials more accessible. Although most faculty members continued to use “traditional” chalk talk and lecture formats in class, the most common pedagogical change in the past decade was increased use of student teams and incorporation of technology into labs.

Most teaching innovations in ME resulted from external pressure to integrate design and technology into the curriculum and classroom. This pressure was brought to bear by ABET, local industry, and the College of Engineering Advisory Board. Faculty respondents also found the new generation of students and their level of preparedness required adjusting class content and pedagogy. For example, several faculty respondents added mathematics to their courses because students were not well prepared in this area. In general, faculty respondents were aware of “new” teaching approaches and the external pressure to incorporate them. Some had already done so, but overall this effort was limited in comparison with many other colleges and universities.

Departmental climate for teaching

All agreed that the department was supportive, and that teaching was considered an important function in the department. Faculty disagreed, however, on some of the recommendations coming from ABET and other accreditation organizations regarding active and collaborative teaching and learning. As noted earlier, the department was described as having basically a “blackboard teaching” approach. Some faculty seemed reluctant to consider new ways of teaching. The department was moving forward in considering ABET recommendations to incorporate design throughout the curriculum (it was incorporated predominantly at the senior level). There was a sense that faculty had been accustomed to

working independently on their teaching, and that these new criteria were forcing them to consider changes they would not have made on their own.

Some faculty in the department saw the chair as supportive of teaching in terms of time allocation, resources for teaching, and funds for conferences and professional development. Others thought that he had a rather thankless job:

And that's a lot of responsibility and virtually no authority. Times when money is short, there is no money to pass around for anything, let alone raises and so forth. . . . It is not a pleasant position. And I don't know how other [chairs] have dealt with this. But it is hard . . . It is hard to be a strong voice and give a lot of direction for the program from that position.

The chair echoed this opinion, for many of the same reasons:

But, I think in terms of modifying behavior patterns, probably my only avenue of success would be persuasion. So, if you are not a persuasive person, and can take a jolt to the arm and say, "Joe don't you think it would be better if you did this and that?" Then, I don't think that with some faculty I probably I have that influence. I think with maybe some of the older senior people, I may not have much influence.

The Dean confirmed the difficulty in changing faculty attitudes and practices, and saw it as an evolution:

Change is hard to come by in faculty. "I've done it this way forever, why do I have to change?" . . . But I think as we bring in younger faculty members, if we get the message across to them at the very beginning, then we won't have that problem ten years from now.

Despite the reluctance on the part of the faculty as a whole to change its teaching approaches, the department had an open door, student-oriented climate. Many faculty respondents mentioned that, when in their offices, they expected to be approached by and respond to students. There was significant informal activity in support of teaching and student learning. For example, one senior faculty member took on more courses to help new faculty get established in their research programs. Faculty and administrators were

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involved in extra-curricular activities with students, such as design competitions, field trips, etc., and felt there was strong informal support for them.

[W]e're a small school, the fact is there is more time to pay attention to these students. We spend lots of time with them and we take that very seriously and I think you can probably talk to the students and they would probably tell you that. That there is this kind of engagement between students and faculty and we can afford to do that because of the size of our school, the nature of our mission, if you will, and not too many distractions here.

Students were impressed with the availability of the faculty, their willingness to help, and the faculty members' obvious commitment to student learning. A few students felt strongly that faculty members cared personally about whether or not students were learning. One student expressed these beliefs and experiences as follows:

I spent three years at another school. And the biggest thing, the biggest advantage that this school has, that the professors here have, is their attitude towards teaching and the students. I can honestly say, in every class that I've had, that my professor honestly cares whether or not I pass. He...or she takes a genuine interest in my personal success. They make me feel like they want me to succeed.

Mechanical Engineering was the department most concerned about specific preparation of students for college-level work. Faculty respondents mentioned the lack of mathematics preparation of even their brighter students as a constraint to their teaching. One noted that they "have to spend . . . almost two years to bring them up to the level so we can really teach the materials." University officials echoed this concern. Students arrived at TTech with limited math skills, and many, despite remedial course work, never achieved a level of proficiency sufficient for studying engineering. Many faculty respondents attributed this lack of preparation to the quality of high school education in the Upper Cumberland region.

When I look at some of the records of our freshmen coming in and the result that they get in the math, because . . . they, in many cases they're not prepared very well. And you can lay the blame on high school, and I think there is a lot of truth in that, but.... So in the past, we've, I think tried to come up with some remedial

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courses to help some of these students get over that, but the Tennessee Board of Regents frowns on four year universities taking on that responsibility. So, you know, I don't know. I don't have a solution to that.

Tenure and promotion policies at TTech formally emphasized a balance in teaching, research, and service. Most ME respondents believed that good teaching was prominent in achieving tenure, whereas scholarship was more important in the promotion to full professor:

I think the tenure promotion policies still are oriented towards the fact that you need all elements - you need teaching, you need research, and you need service. I think to get promoted that last step to a full professor, you really have to show all of those elements. And I guess the emphasis would be to get promoted to full professor you need technical publications, all of these kinds of things. That would be associated with not only good research but transferring that information back to the undergraduates or the graduates for that matter. So as far as going from say, assistant to associate professor, I don't see that there's a major push from the upper administration saying you've got to have this many publications, this many papers.

That said, most faculty respondents in ME did not believe that excellent teaching was sufficient to gain tenure.

The chair noted that faculty sought research opportunities through summer programs hosted by different agencies (e.g., NASA) and universities. He felt that the level of externally funded research across the department could be higher. The chair's inability to reward productive faculty with merit increases was a constraint in his own eyes – a disincentive for faculty to be productive in funded research. To assist junior faculty in getting a proper start on their careers, the department provided them with course reductions, some start-up research monies and mentoring, and annual feedback on their teaching and research.

As with other departments in the university, lack of resources was the most prevalent complaint among faculty and administrators regarding influences on teaching. While some faculty mentioned that they were able to put together the teaching labs they

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needed, and especially computer-based labs, others noted that those labs continued to run only because of faculty willingness to improvise equipment acquisition, and to care for and maintain the equipment they had.

[W]e sink or swim together and we have chosen to swim which means there are a lot of people on the faculty who will come in and will do a lot of things that normally would be done by others. For such things as equipment repairs on equipment that ought to be replaced and things of that nature. There's a lot of work done around here that keeps things [going].

Nevertheless, the College of Engineering, with its substantial state research monies and its own foundation, was in better shape financially than most colleges at TTech.

Influences on departmental climate

Most faculty respondents were acutely aware of the state budget cuts and the under-funding of the university. Many mentioned the lack of funds for merit salary increases. According to respondents, faculty members had not received a real increase (beyond cost-of-living) in salary for several years. The state's funding formula, and the way the university used the money, were also topics of discussion in terms of the kind of funding the Engineering College received to keep up equipment and improve teaching resources. Faculty mentioned that it falls on them to bring in the money to cover those costs.

I think the resource thing is the most prevailing concern that we are all frustrated with in the sense. But, it is not just Engineering. . . . When I talk to colleagues in Math, Physics, English, you know, good friends of mine, people I go to church with, they have the same problems. Chemistry people say they don't have enough money to buy glass beakers. They say, "how do you run a chemistry lab"? Well, chemistry is important to image too. So, the resources...[are] a problem."

The university's three Centers of Excellence, all housed in Engineering, focused and supported faculty work in research and graduate study, and helped boost the prestige of the undergraduate programs. Given the significant budget cuts from the state over the

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course of 10 years, the Centers were an important element in the viability of TTech as an institution. The state matched grant funds generated by the Centers, allowing the college and university to encourage and support faculty grant-writing and externally-funded research.

Influences on the way Mechanical Engineering faculty taught that lay outside of the department, institution, and college level included the accreditation criteria of ABET, the feedback faculty and administrators receive from industry, and the preparation of students. ABET 2000 criteria specify areas of skills and knowledge graduating engineering students should have, but differed from previous criteria in that they did away with the minimum requirements for certain courses or materials in favor of outcome measures. Administrators and faculty stated that ABET influenced past curricular and pedagogical decisions significantly, and expected the new criteria to have a similar influence.

The College of Engineering's Advisory Board also influenced what and how faculty taught by giving the college feedback on the skills needed in baccalaureate majors. The board also identified the strengths and weaknesses they saw in TTech graduates. The college and departments within it paid close attention to the advice of this board.

English Department at TTech

The English Department felt itself in a unique position in a university so focused on technological degree programs. The department largely served the university's needs for general education and advanced composition while maintaining a small baccalaureate degree program (enrollment of majors at the time was about 60). The degree was seen as

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immediately applicable to students seeking jobs that required good communication and critical thinking skills. Most English majors did not go to graduate school in English, although faculty respondents described one or two “stars” with pride during our interviews. The department was cultivating an internship program in business and industry for students not interested in graduate school or teaching certification. The internship was seen as a way to demonstrate to students the usefulness of their degrees and the career opportunities that would be open to them. The department chair summarized the roles of the department as follows:

We have some students who are going on to graduate school and we feel that they should be educated with a good basis to go on and start a master's degree in English. And then, there are the rest of the people who are going to stop with their bachelor's degree. And, we have been emphasizing that there are lots of things you can do with an English degree that don't have a thing in the world to do with literature. It really has to do with your being able to write to express yourself to assimilate and organize material and to learn.

The department offered degrees in English, English Journalism, and Technical Writing (Business Communication). It employed 24 full-time tenure-line faculty and several term-employed instructors. Normal teaching loads for the college and department were four courses (12 credits) per semester. A few faculty members had their load reduced to three courses per semester to carry out university service activities. None had research contracts that provided course buy-out.

Several faculty noted that few of their majors started out in English. They tended to come to the university in pursuit of other majors and changed to English after a year or two of classes. As a result, many did not have the prior exposure to literature that faculty would generally expect of students enrolling for degrees in English. This dynamic, as well as the homogeneity of the students, influenced the way faculty approached teaching.

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Predominant teaching approaches

Faculty in English spoke almost as much about content as they did about teaching approaches. They were unanimously concerned with exposing students to new ideas and a diversity of perspectives. Some talked about the need to teach literature in its cultural context, and to help students who had experienced little outside of their region understand other cultures. The technological focus of the university was reflected in literature courses that addressed the role of technology in society. Faculty tried to adjust the content of their courses to meet the greatest student interest and need.

In terms of teaching approaches, faculty taught “every way you can imagine,” according to the chair.

We have people who do straight lecture, almost exclusively. I don’t think there is any class that there isn’t some kind of discussion or other going on. We have other areas in which the teachers organize the courses around a series of presentations. And, in the last few years, access to the web . . . has started to make dramatic changes.

Writing instructors used interactive software and workshops with peer editing and portfolio evaluations. Other faculty incorporated group research projects and team projects posted on a class website. The department had no capstone courses for senior students, and was considering them in preparation for curriculum revisions.

Departmental climate for teaching

Respondents indicated that teaching was the top priority in the English department. Faculty agreed that, in general, they are in control of what they teach and are not “bothered” by administration. The small number of majors allowed the department to do things for them that a larger department might not. Students had a lounge in which to gather and talk or study, and one advisor who took responsibility for all their needs. Students indicated that the

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advisor for the department made a significant positive difference in their undergraduate experience through his attention and concern.

The chair was seen as accessible and very open to supporting the faculty in new teaching or professional development. The dean of the college supported a program by which a few faculty in the university very competent at computer-assisted learning were working intensively with other faculty to help them learn the skills necessary to develop web-based and computer-assisted courses. This was seen as a “seed” program by which the faculty learners would become resource experts for their departments. One faculty member in English was chosen for this project and received release time to participate.

The importance of teaching was emphasized in the hiring process and reinforced in promotion and tenure criteria. The chair mentioned that the message that teaching matters most was a strong part of the interview process. Some faculty saw the focus of promotion and tenure moving back toward teaching, after a period in which research was emphasized more.

Unlike its counterpart departments in Business, Engineering, and Physics, the English Department had few resources available beyond its share of general operating revenues. As a consequence, the department had not been able to replace departed tenure-line faculty members.

We are, as a department, suffering. We've had people retire, we've had people leave, we can't replace them, there's no money to replace them, as a result classes are getting bigger. . . . We had a serious cut last year and the year before. So, what has happened in English, we have lost one line outright that was vacant, but it was taken. And, a second line, which was a vacant chair line, was reduced to an instructorship.

Substantial salary inequities between English and other departments adversely affected faculty morale. A full professor explained:

The salaries here are well below average, by the admission of the university, I am now about \$13,000 less than I should be. They admitted finally that they're going

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to work with national averages. I'm \$13,000 below that, probably \$14,000 to be more precise, and my target salary, which is I'm thinking about \$60,000, I'm about \$20,000 below that now. The engineers and the business people get much more than we do on the notion that it's market demand, supply and demand.

A colleague elaborated:

We don't have merit, we do have equity system in place that we have not been able to use. We have an agreement that there should be some equity pay because obviously in Humanities or people in this college make less than people in Engineering or people in Business and it's not fair.

Funding and salary issues were laid squarely at the feet of the state coordinating board for higher education, the legislature, and the (then) governor. Faculty viewed the university as an ally, doing the best it could with the resources it was given.

Fisk University

In response to the Emancipation Proclamation, Fisk University was founded in 1866 as an independent college to provide “the highest standards, not of Negro education, but of American education at its best” (Fisk University catalog, 2000). From its inception, the institution focused its educational efforts as much on excellence as on providing access to African-Americans. The president of the university asserted that Fisk considered its peers to be top liberal arts colleges rather than other Historically Black Colleges and Universities (HBCUs).

Faculty and students all mentioned during the course of their interviews that there was a sense of history and place at Fisk. Students and faculty felt a sense of pride and legacy in part because of the perception that Fisk prepares students for leadership roles, and has graduated an impressive number of African-American scholars and leaders. Further, many students had family members or friends graduate from Fisk, giving them a feeling of protection for and direct investment in the institution. One administrator

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described it as “standing on the shoulders of giants” such as W.E.B. DuBois (a graduate of Fisk), Booker T. Washington (a member of the Fisk Board of Trustees) and St. Almo Brady (one of the first African-Americans to receive the Ph.D. in chemistry). According to Fisk University published information,

Among currently practicing black physicians, lawyers, and dentists, one in six is a Fisk graduate. In proportion to its size, Fisk continues to contribute more alumni to the ranks of doctorally-prepared African-American scholars than any institution, white or black, in the United States.

Fisk enrolled approximately 800 students, most of them undergraduates. The university employed 63 full-time and 34 part-time or adjunct faculty. Academic programs were placed into one of four divisions: Business Administration, Humanities and Fine Arts, Natural Science and Mathematics, and Social Science. The institution had a very strong history in the sciences, and continued to cultivate those programs. Fisk also had a considerable commitment to music and to the fine arts, although these areas did not have the substantial external funding available to the sciences. The small size of the faculty made it possible to interview all of the faculty members of the selected departments. In all we conducted 16 individual interviews and three focus groups with students.

The core curriculum was described as the integrating force of the university – it was discussed by faculty and administrators in all departments. The President explained that it was meant to instill an interdisciplinary appreciation for “all human knowledge.” The core curriculum was a series of 8 courses that all students were required to take. Courses included Communication I and II: African American Heritage, Mathematics, Literature, Creative Arts, Natural Science , Humanities, and The World and its Peoples.

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The core curriculum received mixed reviews from faculty and students. The college received a FIPSE grant to redesign the core, but at the time of our visit, permanent faculty for the core had not been identified and the full program was not operational. The staff for the core curriculum was not separate from other humanities faculty – people were hired into their departments and “drafted by the core.”

University Culture and Climate

Faculty, administrators, and students uniformly named the culture and climate of the university as collegial, nurturing, caring, and focused on student learning needs. They agreed that the size and culture of the school made relationships between students and faculty much closer than they would be at larger institutions without Fisk’s history. Faculty professed their responsibility to make certain that students receive the support they need to succeed. “We are a nurturing environment. We are very close to our students. We want to fulfill them properly and help them in whatever way we can.” A newer faculty member elaborated:

One of the things that really struck me is that there is a much more interpersonal interaction between the students and the faculty. Given that pool of students, then you have to ensure that they will succeed at whatever level you claim that you want them to be there. So that means if you got to put in extra effort to do the math training, you do it.

Students get individual attention both academically and socially. Students spoke of being ill or having family emergencies, and having multiple faculty members or counselors available to give them support. Students praised that availability as part of the unique atmosphere at Fisk. Faculty and students mentioned that faculty often take a struggling student aside to try to understand what may be happening. If students skip class or

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appear to be engaging in non-productive activities, faculty take them to task in a way they do not believe is possible at larger schools.

One-on-one, that's one of the strengths of Fisk, we give them individual attention. If the student is lacking, say, in the area of writing . . . we have a writing lab and we send that student to it and call the instructor, student so and so is coming, please take note and see what you can do to help him get better. If he doesn't show up, you let me know so I follow up.

Faculty saw themselves both as part of a department and as part of the larger university. When discussing their work, faculty were more likely to refer to the environment of the university than to their departments.

Faculty mentioned that the level of preparation students have coming out of various high schools was a factor affecting their approaches to teaching. English faculty felt that students came unprepared to write critically or creatively. Physics faculty saw students unprepared mathematically to begin the study of Physics at a university level. Most faculty took that into account when planning and implementing courses. Another concern of the Physics faculty was the number of very bright female students who excelled in undergraduate Physics but chose not to go on to graduate school. The Humanities dean noted that the majority of Fisk students were highly career oriented and chose their majors according to job prospects as opposed to graduate school opportunities or intrinsic interest.

English Department

The department consists of four full-time faculty members (three are tenured) and one part-time tenured faculty member. One of the four full-time faculty members serves as the department chair. He teaches a full load of classes. The department has about 25-30 English majors at any one time. Many students use the English degree as a stepping

stone for law, journalism, and other writing-intensive graduate work. The majority of students are African-American, and predominantly female.

English faculty members generally teach three 4-credit courses a semester (12 hours), which is considered a full load at the university. They have few opportunities to buy out of courses to engage in writing. Most faculty members try to complete their research and writing in the summer when few teach.

English faculty members taught the core curriculum English courses as well as those for majors. They felt they did not have as many opportunities to offer elective courses for their majors because of the service load they carried. Because the faculty group was small, many had to be “generalists” and taught content areas they did not concentrate on in graduate school. They sometimes used guest teachers to augment their areas of expertise. Some saw this necessity as a way to enhance their professional development; others saw it as a detriment to themselves and the students.

Classes were small and faculty members felt free to select their own instructional styles. They used discussion as their primary teaching approach, but also utilized role-playing, reading aloud, writing workshops, and peer evaluation of writing. Faculty focussed on issues of interpersonal interactions with students. Several mentioned moving to a conversational or discussion-oriented style of teaching, making certain students understood the rationale behind the material they were studying, and bringing student needs into the process of the class. “I collaborate with students a lot more than I used to. I consult with them. If things aren't going right, I'll ask them, you know, how can we together, what can you do, what can I do to change this.”

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English faculty used a diversity of materials and texts to help students learn that English is a broader field than they might have imagined. Use of texts in dialect, or unexpected or non-“canon” texts helped faculty challenge student assumptions.

Departmental climate for teaching

The department was described as “laid back.” Faculty all agreed that they had the freedom to teach their courses in any way they chose. The chair, who had been in his position for many years, was the faculty member with the greatest amount of time at the university. He was described as “the person with experience in how things work” and very accommodating. The chair described how he acquired his role, and how the department functioned:

At the time, they were looking for someone to be chair because a lot of teachers had left and almost everybody there had about a year experience and was new and I really didn't want to do it, but I did it reluctantly out of more a sense of duty, probably, I sometimes doubt my sanity, but years ago I thought nobody else had had experience even with the department. It's not something that people are dying to do, but we're kind of a, even the chair, we function more or less as a group, you know, parceling things out and almost all major decisions are shared, you know, with the department, . . . and fortunately collegial, in the best sense of the term.

The primary focus of the department was teaching. Faculty and the chair agreed that service was secondary to teaching in importance. Scholarship was third in importance. All faculty mentioned book or research projects they had ongoing, but most also said that they did not have much time for scholarship. They worked on projects as personal enrichment rather than as a career imperative. The department was careful to hire faculty that understood the priorities of the university:

. . .they all have Ph.D.'s, they all have articles or books and, you know, in today's market, I could probably have the whole faculty Ivy League staffed. I've had people apply from Ivy League and sometimes I've even turned them down because I didn't think they'd fit in. Now [we don't need] somebody who can't find a job and written a whole bunch of articles and some books and then they go to

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hop off after a year or two and they find something more that they want to be in. So I want teachers who like to teach who want to be with students who not only like the subject themselves and can communicate that . . .

The size of the faculty necessitated that faculty be able to teach well and fit with the university's culture.

. . .students have a lot of contact with them because you have to use them for more than one class. Of course, if the student doesn't get along with one or more faculty, then it's very claustrophobic. In a big school, you can always escape from a teacher you don't want . . .

The department as an entity separate from the division or the core curriculum program was not well defined or described. The division office housed mailboxes, secretarial staff, and office equipment for all division members. English faculty taught roughly half of their course load in the core curriculum. A relatively new faculty member described the department in contrast to others:

The English Department, in terms of policy, it's not really policy, it is not as unified an entity as it should be. I see some very strong departments where people are encouraged in their teaching and aided in terms of their research, as well, and how people support each other in the process of things. You're doing research here and someone knows you're doing it and there's a culture connection and in those departments, it works really well and you can deal with the policies as need be. Here, they don't really get in the way, they're not supportive or not supportive; they're just kind of vague. So that makes one either you're self-sufficient, or you just go home early.

Influences on departmental climate for teaching

Influences on the department seemed to emanate from its position within the Division of Humanities and from the university. The English department had limited access to external research monies. During our site visit, the departmental faculty complained of paper rationing and other austerity measures. The department did not have its own funds for travel and professional development. Decisions about pay increases,

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travel money, and teaching awards were decided at the Humanities Division level or higher.

Some faculty expressed their belief that the university had little to offer in the way of support for travel, release time, or professional development. "It's pretty much very, very no thrills teaching. It's a lot of teaching, it's a heavy service load, it's a heavy committee load and it's a not a research institution, that's for sure. It's a very under-funded institution and under-resourced, severely."

The lack of library resources was mentioned by faculty and students as a source of frustration. They reported that the university's library was not adequate to carry out research. Students and faculty had extremely limited access to libraries at nearby institutions, such as Vanderbilt University.

[Y]ou've got no journals, got no access to them. So, yeah, it's not like we can just zip over to the library and catch up with what's new; just, you know browse the PN's and PR's and see what's there. You can't do it. So, I would definitely, I would like resources.

One administrative respondent indicated that top administrators found it difficult to provide continuity in improvement efforts at Fisk because of rapid turn-over in deans over the course of the prior 6 years.

Business Administration

Business Administration was a relatively new department, founded in 1988. Like many new business programs, credibility (and future enrollments) was dependent on attaining accreditation from the AACSB. Fisk successfully achieved accredited status two years prior to our visit. The chair and faculty were strongly influenced in their curricular and degree offerings by the accreditation standards.

The department was in transition when we visited. The head of the department was just hired (but had been a part of the faculty). Two faculty positions were open or about to open (all replacement rather than new positions). There were four full-time faculty (three tenured) and one part-time instructor shared with another division.

The division had 160 undergraduate majors. Although Fisk did not offer a graduate program in business, it did have a joint MBA program with Vanderbilt.

Faculty members taught 12 credits per term, almost all in the business program. Few business faculty members taught in the Core Curriculum. The division head received one course release for administrative duties. The director of internships taught only two courses a semester. Because of the small size of the faculty, many taught outside their area of expertise (e.g. teaching business law or marketing when one's degree was in management). The program tried to use experts from the area or Fisk graduates as guest lecturers to address gaps in the faculty knowledge and experience base. The department had a very successful internship program and encouraged students to gain experience in local and in some cases national companies. The program was so popular that students outside the business department had begun to seek its assistance in placement.

The Business Administration division did not heavily emphasize research. The division head said that promotion and tenure considerations weighted teaching 50 percent, service 25 percent and research or scholarly activity 25 percent. The head would have liked to encourage more externally funded research activity, but understood the press on faculty from teaching loads. Faculty saw the university's centralized system of handling grants as a disincentive to engage in funded research:

We don't have much grant money, we've never had any, and I wasn't, I worked with grants, I've done that, I do that, but I won't do that here because they only pay you, there's no incentive there either. You get a two million, three million dollar grant and you get paid at the rate of two ninths of your salary for the summer and that's that. . . . So the incentive to do anything is not here. It's too centralized.

Predominant teaching approaches

Business faculty employed cases and group research projects heavily in courses for majors. One professor mentioned trying to find ways to get students more involved in learning by moving away from lectures and using discussion more prominently. Others talked about re-interpreting the material presented in the textbooks and discussing it from a more personal, experience-based perspective. Faculty mentioned that these approaches sometimes ran up against assumptions on the part of students that make discussion difficult:

[T]he system has accustomed the students to the fact that they will come to class and some of them don't even think they need to buy the book. They will come to class and the instructor will tell them all they need to know to pass. So sometimes they look upon discussion as the instructor doesn't know what he's talking about, doesn't want to do his job.

One faculty member noted that although her overall style (predominantly lecture and testing) had not changed, she never used the same notes from semester to semester, continually re-evaluated the material she used, and sought out new texts and material as often as possible.

Departmental climate for teaching

The division expressed a commitment to teaching and to students. That commitment was exemplified by the internship program with a director charged with helping students. The climate for teaching, however, was difficult to gauge. Few faculty mentioned collegiality or team work among themselves. The number of faculty

vacancies increased the teaching and preparation loads of the remaining group. A few mentioned being rather disengaged from the division and university – concentrating on students and teaching, but not willing to engage in service as much as they had previously.

Influences on climate

Resources entered most conversations regarding influences on the department and individuals' teaching, as did the number of faculty available to teach students.

One of the problems that the typical small university has is not policies, it's a matter of funds, you know. Can you afford to bring in the amount of people that it really takes to run a department and that you want to have there and can you afford to deal with sometimes the fluctuation in students that you might have. Can you keep this guy on when the student load is maybe down this semester, but you know it's going to be up a couple years from now. That sort of thing.

Faculty perceived resource issues coming from the university level. The division did not have an endowment or foundation from which to draw funds, nor did respondents mention an advisory board or other external influences.

Physics Department at Fisk

The Physics department was the largest and best funded of the departments we visited at Fisk, although the number of tenure track teaching faculty was small. The department included several research faculty members who rarely taught undergraduates. In this respect, the Physics department at Fisk University resembled the Physics department at UTK more than it did TTech or other departments at Fisk we visited. The department was able to bifurcate the faculty into those focused only on research and those focused on undergraduate teaching and research.

The research involvement of the Physics faculty was the highest of the departments we visited, and may have been the highest in the university (2.5 million in external funds – NASA funded about half of the amount). The Natural Sciences division produced as many African-American Ph.D.s between 1990-1995 as any other institution nationwide, tied with MIT and Stanford. Research was an expectation in this division and department. The faculty members received more support to develop research agendas than faculty in the other departments we visited.

The teaching faculty consisted of the Natural Science division head, a Physicist, and four faculty members. Two of those were assistant professors hired less than 4 years prior to our visit, one was a tenured professor who served as the department chair, and one was an instructor who served as the laboratory coordinator. Another tenured professor was serving as Executive Vice President of the university, and did not teach.

The Natural Sciences Division, of which Physics is a part, had a dual-degree program in science and engineering with Vanderbilt University. Students in this program took their first three years of courses at Fisk and transferred to Vanderbilt for the final two years. Approximately five students were participating in this program when we visited.

There were 19 physics majors. This relatively small number meant a small advising load for Physics faculty. Over the prior 10 years, about 40 percent of Physics majors had gone on to graduate school.

Physics faculty taught 12 credits a semester unless they had funded research that allowed them to buy-out of a course. Faculty teaching loads, therefore, varied by the amount of grant-funded research in the department. However, unlike their counterparts in

biology and chemistry, faculty members in physics did not teach the natural science core courses. The department was able to grant new faculty a lighter teaching load in their first year to enable them to establish their research programs. The chair received no compensation, release time, or summer salary for the position, which was on a rotating 3-year cycle. The chief challenge to the chair was to find ways to balance work load reductions for new faculty and course buy-outs with departmental instructional responsibilities.

Predominant teaching approaches

The pedagogical approaches of the faculty were typical and traditional to physics – lectures, heavy emphasis on homework problems, labs, and research experiences. The two assistant professors were still learning how to teach and were candid about issues and difficulties they faced in gauging the level of student preparedness, the amount of material they could have students absorb, and how to interact with students. The interaction between faculty and students was very high, and classes small.

Departmental climate for teaching

The department climate was tied to the Natural Science division's and influenced more by it than by the university. The department had a small budget for travel, supplies, and other necessities (not salaries), something that the other departments did not have. The funded research that the department engaged in shaped its climate and agenda.

Influences on departmental climate

The division had the greatest internal influence on the departmental climate. The division set promotion and tenure criteria, and fostered the teaching and research focus of

departments. Teaching was such an expected part of a faculty member's position that the division head believed rewards should focus on other expectations:

[Y]ou're an excellent teacher. You will be given demerit or termination if you're not an excellent teacher, but there we'll be going beyond the expectation of excellence in teaching. That means if you're doing research we'll reward you by giving appropriate merit pay increases . . .

The division head was a strong advocate for faculty, and a strong voice in the scholarly focus of departments in the division. He wanted research to play a larger part in tenure and promotion than it did at the time, and set up incentives for faculty to engage in research.

The department was not responsible itself for hiring and reviewing faculty – a divisional committee made those decisions. The division head made certain new faculty in Physics and Chemistry were given light teaching loads in their first year to foster their research agendas – something the other departments did not have the luxury or the research focus to promote.

Summary of Cases

The eleven cases profiled in this chapter represent different institutional environments, different disciplinary approaches to teaching and scholarship, variable levels of involvement with and obligation to the larger institutional mission, important contributions from external accreditors, advisory boards, and foundations, and unique climates shaped in part by external factors and in part by the convergence of interests, concerns, and expertise of department members. Table 23 presents a synthesis and comparison of the climates for teaching in the cases as a summary to this expository chapter.

Course loads varied both within and between institutions, and were connected to the department's ability and need to have faculty buy out of courses for funded research, consulting, or university service. Departments differed in how they supported new faculty. Some could offer reduced teaching loads to new faculty to help them set up a research program or concentrate on teaching skills. Some offered reductions in non-teaching obligations, such as committee assignments and advising responsibilities.

Table 23

Predominant Teaching Approaches and Overall Climate for Teaching

Case	Average teaching load	Service teaching obligation	Predominant Teaching Approaches	Overall Climate for UG Teaching
UTK	University policy – 9 credits per semester			Historical teaching focus with more recent push for research university status which creates uneven quality/focus in departments
Physics	1 – 3 credit course / semester. Buy out normal	Moderate	Lectures, homework, laboratories, and out-of-class contact	Weak and split. UG teaching has not been a priority. Separate from larger college climate.
Civil Engineering	3 – 3 credit courses / year Buy out necessary	Light	Lectures, Group projects, industry-based design projects, co-ops and internships	Strong on innovation and focused. Fostered by strong college support.
Business Admin.	2 – 3 credit courses / semester if involved in research. Some buy out	Light	Lecture/discussion, group projects	Relatively weak and split. MBA receives more attention and rewards. College does not have strong climate reaching down to departments that Engineering has.
Romance Languages	2 – 3 credit courses / semester. Banking for time off	Heavy	Reading/Discussion, immersion, role-playing, multi-media and computer assisted lessons and projects	Focused but defensive; “plugging holes.” Little sense of support and guidance from college

TTech	15 credits/ semester mandated by state			Strong undergraduate focus. Mission-driven to serve specific student groups. Deeply fiscally constrained
Physics	3 – 3 credit courses / semester Banking for time off	Heavy	Lectures, homework, laboratory, out-of- class contact, research with faculty	Focused and positive but relatively weak on innovation. Separate and privileged in college and university
Mech. Engineering	5 – 3 credit courses / year Can buy out	Light	Lecture, laboratory, out-of-class contact, extra-curricular activities	Weak and somewhat reluctant on innovation, but focused and positive on UG teaching
Business	3 – 3 credit courses / semester Some buy out available	Light	Lecture/discussion, Group projects, visiting experts	Very strong and focused on innovation. Positive climate fostered by college and furthered in department. Separate and privileged in university.
English	4 – 3 credit courses / semester Some reduction for service	Heavy	Reading/discussion, writing portfolios, peer editing, group research projects, Internships	Strong and focused on innovation. Defensive within university technology climate, but some sense of support and guidance.
Fisk University	12 credits / semester overall			Strong historical mission and identity that foster core values and focus. Nurturing and caring for students. Recovering from past fiscal crises.
Physics	3 – 4 credit courses / semester. Can buy out	Light	Lecture/homework, laboratory, out-of- class contact, research	Relatively weak on innovation. Somewhat separate from university due to high funded research
Business	4 – 3 credit courses / semester No buy out	Light	Internships, visiting experts, group projects, lecture / discussion	Interested in innovation but in transition.
English	3 – 4 credit courses per semester No buy out	Heavy	Writing workshops, peer editing, reading/discussion, use of “non-canon” texts	Focused on undergraduate teaching; somewhat innovative. Strongly tied to university climate through core curriculum.

Departmental obligations to service teaching varied by discipline. Business and engineering departments carried no service courses for the larger university community – they taught only their own aspiring majors in lower divisions. English and languages across all three institutions had the highest service obligation. Physics varied in its obligations as a result of university general education or core curriculum requirements, and requirements for other majors. Physics faculty at Fisk had no service teaching obligation because the core curriculum focused on interdisciplinary science themes and was taught from another department. TTech largely served the College of Engineering, since the university did not have a general education requirement for Physics. The Physics department at UTK offered lower division courses to fulfil university general education options, as well as requirements for pre-medicine and engineering degrees.

Predominant teaching approaches all included lecture or lecture/discussion to some degree. That degree varied predictably by discipline, but less predictably by department. Finally, departmental climates also varied by discipline, and by institution to an extent, but also varied due to other factors highlighted above. I will explore those differences in depth in the next chapter.

CHAPTER 6

CROSS CASE ANALYSIS

Important similarities and differences emerged among the three institutions and 11 cases studied. Just as the predominant teaching approaches among different departments in the same institution vary from traditional lecture and testing to more innovative collaborative methods, climates in those departments varied in degrees of their focus on and support for undergraduate teaching. The case analysis was undertaken to answer the third research question in this study: How departmental climates for teaching are created and fostered, what influences them, and how they mediate the effects of factors at other levels on departments and individual faculty. This chapter uses the case profiles presented in Chapter 5 as the basis for a discussion of each part of the question. The first section examines characteristics of departments and their teaching climates, compares their differences, and when possible, traces their origins. The second section explores organizational actions, policies, and other factors that influence departmental climates. The third section discusses how departmental climates mediate other factors in the institution that can affect faculty teaching approaches.

Dimensions of Departmental Climate

The cases illustrated the variety among similar departments in different institutions and different departments in single institutions with regard to undergraduate teaching, commitment to innovation, and key elements of departmental teaching climate.

Academic discipline, leadership, resources, collegiality, teaching loads and obligations, and engagement in teaching improvement were all important, and varied in the ways they affected teaching.

Discipline

Academic discipline was significantly associated with predominant teaching approaches. Physics departments at all three institutions employed homogeneous classroom teaching approaches, largely lectures, homework problems, traditional testing situations. All three relied on student contact with faculty outside of the classroom – one-on-one tutorials for homework or research projects and jobs – for what they considered the “real” learning that students achieve. Business departments all focused on group projects and formal presentations for helping students learn to work in the kinds of settings they will enter after graduation. Engineering departments integrated group design projects into their courses to a greater or lesser degree. English and language departments utilized discussion, peer work, and writing workshops and portfolios.

Differences emerged in the level of commitment to innovative teaching approaches among departments. In this study, Civil Engineering at UTK was much more committed to incorporating design throughout the curriculum than was Mechanical Engineering. Many faculty in the Civil Engineering department used group design projects and other collaborative approaches in numerous courses. In the Mechanical Engineering department at TTech, only the few faculty teaching senior capstone courses were engaging students in group design projects. Faculty in the College of Business at UTK used group projects in many classes, but many were not looking beyond them for other active and collaborative approaches. As a result, students were fatigued by the

repeated use of that one approach, and the out of class time needed for it. One faculty member in Romance Languages had developed computer-based tutorials that students could work on alone or in groups that increased their enthusiasm and proficiency. While her colleagues were using discussion and other peer interactions, few were interested in following in her footsteps. These differences in commitment had less to do with disciplinary norms than with other factors within departments, such as leadership, resources, collegiality, and teaching obligations. Similarities in teaching approaches appeared to be influenced by academic discipline, but differences appeared to be influenced by other factors.

Leadership

Massey, Wilger, & Colbeck (1994) noted the importance of leadership from chairs of departments they labeled collegial. Respondents in departments with the strongest climate for teaching in this analysis described department chairs and heads as catalysts and supporters of that climate. For example, Civil Engineering faculty at UTK indicated that their chair and the college provided strong leadership and support for their focus on innovative undergraduate teaching and learning. The Chair of Decision Sciences in the College of Business at TTech was a visible leader for excellence and innovation for the department.

Leadership also played an important role in departments in which a relatively weak climate seemed to be in transition to a stronger focus on undergraduate teaching and learning. The head of Physics at UTK was noted for his and his associate's efforts to focus on undergraduate majors, even though the department as a whole had not historically given attention to them. They described their roles in terms of refocusing the

attention of largely research-oriented faculty back toward the classroom and toward approaches other than lecture.

Chairs as leaders served as buffers against the negative influences of institutional or state factors that might disrupt the teaching climate of the departments. The chair of Romance Languages at UTK was described as sensitive to faculty needs and stresses under constrained circumstances. He did what was within his power to support faculty teaching in a resource-poor department that did not benefit from substantial college or institutional-level support. The chair of Physics at TTech played a similar role, although he and his faculty felt much more support and leadership from their college.

Lack of leadership from the chair could result in a weak climate for teaching. Business faculty at UTK did not discuss leadership on the parts of chairs in their departments, nor did faculty in Mechanical Engineering at TTech. The chair of that department seemed unable to think of ways to motivate faculty to change. His was the “thankless job” by his own and others’ opinions, rather than a leadership role. The climate for teaching in that department was attentive to undergraduates but unenthusiastic about change.

This is a climate factor not modeled quantitatively; no variables in the HERI data set adequately addressed the issue of departmental or institutional leadership in undergraduate teaching and learning. The cases, however, illustrate the powerful role departmental leaders play in the climate for teaching.

Resources and Rewards

All three institutions had faced fiscal decline and budget reductions prior to our site visits. UTK and TTech were weathering cuts in state funding and the vagaries of state

funding policy. Fisk, which was dependent on tuition dollars and did not have a large endowment, was recovering from enrollment fluctuations. The discussions with all respondents were suffused with references to financial constraints.

Departments within UTK differed greatly in their fiscal health and support from externally funded research and endowments. The same dynamic was evident at TTech and at Fisk. Departments able to harness resources external to the budgets allocated to them by the institution could better support faculty research and teaching, encourage professional development, and provide more instructors to spread the teaching load more evenly. The collective perception in many departments was that these additional resources made the difference between adequate and excellent teaching. Business Administration at TTech used foundation funds primarily to improve undergraduate education and support faculty teaching efforts. Civil Engineering at UTK shifted the burden of supporting graduate education onto faculty while protecting university funds for undergraduate education. The department utilized an unconventional collaborative budgeting process by which a certain percentage of all grant recoveries were pooled and then divided evenly across faculty to give each faculty member a small account within the department. The College of Engineering at UTK also pooled funds that otherwise would have offered little to individual departments into college-wide labs and student learning resources.

External resources were not necessarily a factor in teaching climates in all departments. Physics at UTK, possibly the most resource-rich department profiled, focused most of its resources on graduate education and funded research. The Physics department at Fisk had a similar profile. The use of foundation funds in the College of

Business Administration at UTK had some focus on undergraduate education improvement. Other funds, however, primarily supported more general faculty needs the university could not, e.g., computers and travel funds.

The importance of externally generated resources to departmental climates is best highlighted by departments lacking such resources. Romance Languages at UTK, English at TTech, and English and Business at Fisk all relied almost completely on university funds for operation. As a result, all had faculty lines left unfilled or recently eliminated, the highest teaching loads, little ability to allow faculty to buy out of courses, fewer technology resources for faculty and students, and a “no frills” environment that bordered on crisis. The impact on faculty teaching included fewer elective courses for students, less technology to assist instruction, and a perception by faculty that, while their departments might be supportive of innovative teaching, finding the time and resources to undertake such innovation was a large challenge.

The cases illustrate an interaction between resources and other factors in departmental climate. By themselves, resources impact teaching and learning through faculty access to equipment, materials, and training and development. Resources also play a role in rewards for teaching. Departments at UTK and TTech reported having no way to reward teaching through merit salary increases because the state had not approved funds for merit in a number of years. Lack of resources translated into the inability to reward faculty in the most fundamental way – through raises. For some departments, this resource constraint felt insurmountable. Administrators in Mechanical Engineering at TTech were uncertain how to motivate and reward good teaching without offering salary increases. Other departments found ways to reward teaching by means not connected to

salaries such as departmental recognition and awards, positive tenure and promotion decisions, support for new ideas, time off for banked courses, and other low- and no-cost approaches.

The perception that resources were tight pervaded all departments in the case analysis in large part because of the state funding climate for higher education. Some departments were able to mediate the effects of funding shortages through externally generated resources. Others did not have access to such resources and attempted to mediate the effects of funding shortages through means that did not require money. Departmental perceptions of what “rewarding good teaching” entailed was often connected to perceptions of resource constraints, especially in departments for whom rewards were equated with salary increases.

Collegiality

The role of collegiality in departmental teaching climate is not clear from the cases. In terms of commitment to instructional innovation, some highly collegial departments were the most innovative, for example, Civil Engineering at UTK and the Decision Sciences in Business at TTech. Both sets of faculty and administrators expressed the depth of the collegial nature of their respective departments. Other departments that were highly collegial were not very committed to instructional innovation. Physics faculty at TTech felt that the level of collegiality they shared was noticed even outside the department. As a group, however, they were very satisfied with teaching the way physics has traditionally been taught – lecture and problems. Their perception that students self-select or are chosen to be Physics majors added to their sense of collegiality, but also reinforced traditional teaching approaches.

The converse of the collegiality/innovation relationship is easier to see. Cases in which respondents spoke little about the collegiality within the department and most about “being left alone” – either the value of it or the reality of it – were the least focused on undergraduate teaching and innovation. The Physics department at UTK is a good example. Faculty spoke most about the freedom they had to teach anything and any way they wished, but had little to say about working with colleagues on issues of teaching and learning (as did Civil Engineering at UTK) or feeling a part of a collegial group (as did Romance Languages at UTK and Physics at TTech). The College of Business at UTK fell into this category as well. The collegial anchor for this college was the MBA program, not the departments. Faculty use of active and collaborative teaching in undergraduate courses was moderate. Mechanical Engineering at TTech was focused on undergraduate education, but respondents were not enthusiastic about new teaching approaches or the kind of collaborative efforts with which the Civil Engineering department at UTK was involved.

Teaching Loads, Service Teaching, and Satisfaction with Teaching Loads

Teaching loads in departments were largely a function of institutional or state policy and external resources, and were highly department-specific. No two departments in any institution had the same set of criteria for assigning courses to faculty. Each institution had a requirement that faculty teach a certain number of credits per semester: 12 at UTK, 15 at TTech, 12 at Fisk. Actual course loads were determined by the amount of research (funded and bought out, or in general) in which faculty were involved, the number of vacant faculty positions in the department, whether or not the department had a course banking system, and the departmental service teaching obligation.

Service teaching obligations, perceptions about them, and the ways they were addressed differed by institution as well as by department. A department's obligation to teach courses that were tied to the general education and core curricular requirements of the larger university was closely associated with discipline. Particular science and humanities departments carried the burden of planning and staffing lower division and general education courses in addition to addressing the needs of their majors. In this case analysis, service courses in Physics, Romance Languages, and English were seen as both the mainstay of departments and a hindrance to offering advanced courses for majors. These departments depended on the service obligation and the faculty positions it created in the department. Respondents in physics departments at all institutions pointed out that the size of their faculties was disproportionately large for the number of undergraduate majors they served. Fisk had research faculty on grant funds that were separate from the smaller teaching and research faculty. The department did not have a service obligation to the larger university. Physics at UTK hired instructors to teach service courses and free up the time of tenure-stream faculty. Physics faculty at TTech shared the load and saw it as part of their teaching commitment.

Whether a department hired extra instructors or used graduate assistants to teach service courses depended somewhat on the institution. Fisk University had no graduate programs except in selected sciences. English faculty taught both the core and their own major courses. Physics and English faculty at TTech taught both service and major courses, but the English department had several instructors and adjuncts to augment the full-time faculty. Although Romance Languages at UTK relied on service courses for departmental revenue, tenure-track faculty did not teach many of those courses.

Teaching assistants, under the direction of one faculty member, taught first and second year language courses. Department faculty taught majors and minors beyond the second year.

Fisk faculty felt that the quality of the English major they could offer students was adversely impacted by their obligation to the core. Their approaches to teaching, however, did not seem to differ between the two types of courses. Even core courses at Fisk were as small or smaller than upper level courses at UTK. Faculty members were able to use discussion, writing workshops, and other active and collaborative approaches in those courses

Some of the more innovative efforts in less innovative departments were employed in service courses. The web-assisted astronomy course taught in the UTK Physics department attempted to capture the interest of non-science students by focussing on the most apparent and mysterious evidence of theories of physics – the stars and the universe. The courses were large (200+ students) but the instructor and her assistants were in the process of creating materials, images, and interactive learning modules for the web to support student learning. No other physics faculty at UTK we spoke with showed an interest in this kind of teaching approach. Likewise the Physics for Teachers course at TTech employed experiential learning approaches that allowed students to discover principles through exploration of active experiments.

Some departments with the lightest teaching loads, and whose faculty were most satisfied with their teaching loads, were least focused on undergraduate teaching and least committed to instructional innovation. Faculty in Physics at UTK and TTech, Business at UTK, and Mechanical Engineering at TTech expressed the least difficulty in balancing

their teaching and research obligations, and the greatest satisfaction with their teaching loads. Those departments whose faculty taught more in general used more active and collaborative approaches. These case findings parallel those of the quantitative analysis, and are most likely tied to disciplinary norms for teaching, course loads, and research.

Engagement in Teaching Improvement

The influence of departmental engagement in teaching enhancement – an important factor in the quantitative model – was difficult to assess in these cases. The interview protocols did not probe for faculty development engagement in a way that could elicit clear patterns. Some administrators and faculty commented on the availability of faculty development at the institution. At Fisk, administrators indicated that the university offered a variety of faculty development and teaching improvement seminars and workshops. Faculty respondents, however, felt that the institution did not offer much professional development or provide support for faculty to attend workshops outside the institution. Some Civil Engineering faculty at UTK discussed ideas about teaching they had picked up at national meetings. Romance Language faculty at UTK also talked about incorporating ideas they had learned about through teaching workshops and national meetings. The lack of systematic discussion among faculty and administrators in all departments, however, makes it difficult to elaborate on the findings of the quantitative analysis. This is an area of influence on faculty teaching practice that bears further exploration.

Influences on Departmental Climate

The case department climates were influenced to varying degrees by factors at distinct organizational levels. The strongest influences came from colleges, and from external sources, such as accrediting bodies and advisory boards. Institution-level influences on departmental climates included the university's recent financial health and its consequences, such as hiring freezes, leadership for teaching and learning, and institutional history, mission, and culture.

College Support

Departments with strong climates for teaching benefited from the support of colleges with similarly strong climates. Civil Engineering at UTK, Decision Sciences at TTech, and Physics at Fisk University all resided in colleges that gave departments and faculty a clear message about expectations for teaching excellence, strong leadership in the form of visible, proactive deans, and support for teaching expectations through college policies and resources.

The Dean of the College of Engineering at UTK set expectations for attention to undergraduate education for departments, was visibly involved with the change efforts, and found funding for those change efforts. Departments in the college that followed his lead were rewarded.

In contrast, the Dean of the College of Business at UTK, as well as his administrative staff, acknowledged that the MBA program was the priority of the college, seemed to work largely in the background on issues of undergraduate teaching and learning, and did not connect rewards in the college to undergraduate teaching efforts. Likewise, the Dean of Engineering at TTech surmised that the college's approach to

teaching could change “over the next 10 years” as old faculty retired and new faculty were hired. He was new to the position, and had not yet created a leadership role for himself or a clear message about undergraduate teaching for the college.

An administrator in the College of Arts and Science at UTK noted that departments differed significantly in their commitment to and engagement in teaching excellence, and that the college on the whole did not interfere with that dynamic. Such an approach at the college level, especially a college made up of such divergent departments, could be interpreted as enlightened, allowing departments to find their own strengths. The confusion about expectations expressed by Romance Language faculty at UTK (as well as the department’s precarious footing), however, and the inattention to undergraduate teaching evident in Physics, indicate a need for strong college support and reward for teaching.

Colleges within larger universities could buffer departments from fiscal problems, foster attention to and rewards for teaching and learning through leadership, and set the tone for departmental climates by maintaining a strong college-level climate for teaching. Colleges without strong climates for teaching can send mixed signals to departments about what activities are valued and rewarded, and whether or not departments can look outside themselves for support and leadership.

Institutional Influences

The cases demonstrated the influence of institutional mission, history, culture, and recent policy, as well as leadership for teaching and learning, on departmental-level climates. The mission and history of the institutions shaped the general parameters within which departments existed, and as such, had an influence on the focus of

departments. The strongest example is Fisk University, whose historic mission as one of the country's finest HBCUs, size, and core curriculum heavily influenced faculty focus on undergraduate teaching and learning. Departments were small, and for the most part, looked to the overall university for direction and focus.

UTK's historical mission as a teaching-oriented land-grant university changed to that of a Research I land-grant. This recent history affected both faculty perspectives and institutional expectations for teaching and research, salary structures, and tenure and promotion criteria. Much like Finnegan's (1993) typology of faculty generations, I found distinct groups of faculty based in part on when they joined the institution. Finnegan connected cohorts to the academic labor markets at various time periods over the last 30 years. Some were hired during the institution's teaching-oriented era, and did not have expectations of research. These correspond with Finnegan's Boomers, those hired prior to 1972, who were part of the tremendous expansion of universities that took place after World War II. Others hired to increase the institution's research profile had fewer expectations about teaching. These correspond to Finnegan's Brahmins, hired between 1972 and 1982, who entered the academic labor market at a time of rapid recession. Proteans, those hired after 1983, are part of a replacement trend as older faculty retire. Finnegan found that cohort membership may directly influence faculty preferences and expectations for research and teaching. Faculty members hired prior to the shift to a stronger research orientation at UTK complained of salary compression caused by increases in the starting salaries offered newer faculty, stagnant merit structures, and shifting priorities for raises. Departments in the sciences and business were particularly affected by this phenomenon because they competed with the private sector for good

Ph.D.s. Massey, Wilger, & Colbeck (1994) found that large discrepancies in salaries and assignments were associated with departments that exhibited low levels of collegiality. Priorities and expectations for tenure and promotion were affected by the shift to a research orientation. Recently hired faculty faced higher expectations for balancing good teaching with a research agenda than did senior faculty in their departments.

TTech's mission as a regional institution shaped its approach and commitment to students who might not be prepared for college-level work. At the same time, as the only technological university in the state, TTech also had high expectations for student performance. These elements of the institution's mission influenced departmental climates through funding, salary differentials, and prestige of programs. By benchmarking the university against other comprehensive universities rather than other technological universities, the state board neglected to take into account the higher costs of supporting science, engineering, and technology education. Combined with a state formula that was not fully funded for years, the financial situation at the university created salary inequities between senior and junior faculty as well as between Engineering and Sciences and the Humanities. The "prestige gap" between Engineering and Humanities was a result of this funding and salary inequity as well as of the overall technological mission of the university.

Leadership for teaching and learning from senior administrators, or a perceived lack of leadership, can shape a department's climate for teaching because institutional leaders who are visible advocates for teaching send important messages to the departments about what activities are valued. Departments in UTK had the most faculty and administrators who said that institutional and college messages about the value of

teaching were unclear, or that the leadership for instructional innovation at the institutional level had not been strong. A senior-level academic leader acknowledged that he felt “too far away” from the faculty and from the activity of teaching and learning to be an influence. He stated that influence would have to come “from the departments, since that is where the reward structures are.”

Faculty and administrators at TTech, in general, saw both college and university level leaders as advocates for teaching and learning. Deans of some colleges were very visible leaders, especially the Dean of Business Administration (who, in 2000, became the president of the university). The observation by a Physics faculty member that all administrative levels at TTech supported teaching and learning is a contrast to the comments faculty and some administrators had for UTK leadership. In part, the contrast reflects their different institutional missions. It also reflects differences in the clarity of leadership messages regarding the value of teaching.

Institutions can influence departmental climates for teaching by giving consistent messages about the value and rewards for teaching. There is somewhat less evidence from the cases that programmatic support for teaching enhancement at the institutional level can influence departmental climates for teaching. This is an area that needs further exploration.

Influences from Outside the Institution

The most prevalent influences on departmental climates from outside the university came from accreditation agencies and the standards to which they hold programs, and from advisory boards created by colleges and invited to critique programs and graduates. Both types of oversight bodies influenced departments either directly or

through colleges, bypassing the institution level. In contrast, state-level influences such as funding priorities affected departmental climates through the university and college levels, rather than directly.

Accrediting agencies

Disciplines and departments for which accreditation is either possible or necessary (largely in the “professions” such as engineering, business, and health care) depend on their continued accreditation to attract faculty and students. As a result, accrediting agencies may be their largest single influence on departmental teaching climates. Accreditors set minimum standards for curriculum content and evaluation that programs must meet, so a shift in philosophy or priorities on their part redirects the priorities of departments. The standards set forth by ABET for design oriented curricula that incorporate active and collaborative teaching and learning approaches was clearly pushing the Mechanical Engineering department at TTech in directions it would not have taken on its own. Civil Engineering at UTK took the opportunity early to use ABET 2000 to revise courses, incorporate design projects throughout the curriculum, and have discussions about teaching and learning that have changed faculty teaching approaches.

Departments in under-funded institutions can also protect faculty lines, course offerings, and resources for undergraduate teaching and learning by linking them to accreditation criteria. The Division of Business Administration at Fisk is a good example. The division had received accreditation shortly before our visit. Although it had a number of positions in transition, it was able to protect the time and focus of the internship director, as well as the open faculty lines. Departments without external standards to meet may not fare as well in times of fiscal constraint.

Oversight and advisory boards

Advisory Boards were another external influence found largely in the professional colleges and departments, and created by them as a link to the communities in which their graduates seek careers. They were most often made up of representatives from local and regional industry, often also alumni. These boards have strongly influenced departmental curricula and teaching approaches – they advise departments on the kinds of skills and knowledge they expect and hope for in graduates. Departments and colleges in turn review and revise curricula and teaching approaches to emphasize priorities put forward by boards. Engineering at UTK and Business at TTech both had strong positive relationships with their advisory boards. Because these boards were initiated and fostered by departments and colleges, their advice seemed more welcome than the standards set by accrediting bodies or mandates from the state or institution.

The College of Business Administration at UTK was utilizing a grant given by an alumnus to form an initiative on undergraduate curricular reform. The effort was still in initial committee stage, so had not yet influenced the climates of departments or the actions of faculty.

Departmental Climates as Mediators of Influence

I have highlighted the important mediating influences of departmental climates for teaching throughout this cross-case comparison. Resource-rich departments protect faculty from institutional and state budget constraints. Departments and colleges with endowments, outside contracts, and significant funded research were able to augment the resources for undergraduate teaching provided by the institution and state. Others created their own climates that were different from the larger college or university climate for

teaching. The Physics departments at all three institutions are the best example.

Resource-poor departments attempted to offset fiscal austerity with other compensation such as time off from teaching after course-banking, protection from committee or advising work for new faculty, or collegial work environments.

Summary

This cross-case analysis reveals the importance of academic discipline, leadership, resources, collegiality, and teaching loads and obligations to departmental teaching climate. These elements of climate combined and varied among the case departments in both predictable and unpredictable ways. They were influenced by college-level leadership and climate, institutional history, culture, and leadership, and the priorities of accrediting agencies and advisory boards.

Levels of influence are not completely linear and hierarchical. Extra-institutional influences, such as accrediting criteria and advisory board mandates, can bypass institutions to affect divisions and colleges, and can bypass them to influence specific departments. Institutional and college-level climates can mediate influences coming from outside, such as state-level budget cuts and assessment criteria, so that departments do not feel their direct effects. College and department levels can maintain separate climates from each other and the institution within which they reside.

CHAPTER 7

DISCUSSION AND CONCLUSIONS

This study used a two-stage, mixed methods approach to examine the impact of departmental climate for teaching on faculty teaching approaches, as well as the influence of factors at other organizational levels that may affect both teaching approaches and departmental climate. This chapter discusses the overall findings of the study, integrating the quantitative and qualitative analyses, proposes a revised model of organizational influence on teaching and discuss issues involved in exploring that model, and discusses implications for policy and change strategies suggested by the findings.

Results

The results of the quantitative and qualitative analyses complemented each other and provided a breadth and depth of analysis not possible in a single method approach (Tashakorri & Teddlie, 1998). In some cases, such as with the influence of departmental collegiality, the qualitative findings clarified relationships and provided possible explanations for results that were counter to those the model proposed. In other cases, as with the role of leadership and resources in climate, the qualitative cases explored and demonstrated the importance of dimensions of climate that the quantitative model could not address. Likewise, the quantitative analysis modeled some influences that were not addressed in the case data. For example, the interview protocol for the case data did not contain direct questions about faculty development. The primary findings of both analyses are discussed below.

Relative Influence of Departmental Climate for Teaching

This study confirmed the assertions of researchers that the department is an important nexus of extra-institutional, institutional, disciplinary, and personal influences on faculty (Colbeck et al., 2001; Massey, Wilger & Colbeck, 1995), that departmental climates are unique (Moran & Volkwein, 1988; Volkwein & Carbone, 1994), and that they influence the use of active and collaborative teaching by individual faculty. It also demonstrates that disciplines strongly influence department climates for teaching, but do not determine them completely. Scholars have demonstrated the ways that disciplines shape the values and ideas faculty bring to teaching (Becher & Trowler, 2001; Braxton, 1995). This study demonstrated that the climate created by a group of colleagues at a particular institution also shapes teaching.

The dimensions of departmental climate for teaching that emerged from both analyses as most important included the extent that departments engaged in faculty development for teaching improvement, the leadership and support of departmental chairs, the resources available to departments, and the perceptions of resources available to the department. Departmental collegiality by itself was not a significant predictor, but its interaction with high-use disciplines was a significant negative predictor of active and collaborative teaching. Collective perceptions of student preparedness and departmental membership in a high use discipline were positively associated with active and collaborative teaching. Satisfaction with teaching loads, membership in a low-use discipline, and departmental remedial education obligations were negatively associated with use of active and collaborative teaching.

Departmental faculty development

Departmental engagement in faculty development was a dimension of climate for teaching strongly associated with individual faculty teaching practice. Individual faculty in departments with high levels of faculty engagement in teaching enhancement workshops used active and collaborative teaching approaches more than faculty in departments with lower engagement in teaching enhancement. This finding is true for all faculty, but especially for male faculty. Males in such “high engagement” departments used active and collaborative methods as much or nearly as much as their female colleagues. Other studies (Antony & Boatsman, 1994; Einarson, 2000, 2001; Fairweather, 2002; Milem & Wakai, 1996a and b) have found that women use active and collaborative approaches more than men. As a dimension of departmental climate, faculty development may have the power to encourage more involvement by male faculty in active and collaborative teaching. This, as well as other quantitative findings in the study, is based on correlational data. The study cannot fully distinguish the direction of the association between faculty development and teaching approaches or determine a causal relationship. It is possible that clusters of faculty already using active and collaborative teaching are more inclined to attend teaching enhancement activities, rather than that individual and collective engagement in teaching enhancement encourages greater use of such approaches. As I discuss later, further research could clarify this relationship.

Leadership

The case analysis demonstrated the importance of leadership by department chairs in promoting positive climates for teaching. Chairs had the power to foster strong climates for teaching as well as to shift the departmental climates from weak and inattentive to more focused on teaching. Chairs served as leaders for teaching climate by

giving faculty clear messages that excellent teaching was a departmental expectation, consistently including discussion of teaching issues in department meetings, supporting faculty teaching initiatives with funds and recognition, creating other rewards for good teaching, and shaping departmental perceptions about resources. Departments in which chairs were not able to enact such leadership seemed to have weaker climates for teaching.

The impact of leadership was also apparent at other levels of colleges and universities. College and institution-level leaders shaped the climate within which departments operated, provided resources, and set expectations for departmental teaching and research productivity.

Resources

The cases illustrated the differences between departments with externally funded teaching supports and those without. The perception of how resources were spent, the kinds of activities they funded, and their role in departmental success were also important. All respondents discussed the tight budgets under which they operated. Some departments viewed these constraints as almost insurmountable; others sought ways to work around them. Those willing to seek ways around budgetary constraints seemed to have stronger teaching climates.

Departmental collegiality

Departmental collegiality played a complex role in departmental teaching climate in this study. Quantitative results indicated that faculty in departments with higher levels of departmental collegiality at Research and Baccalaureate institutions reported lower use of active and collaborative teaching than their colleagues in departments with lower

levels of collegiality. Likewise, faculty in departments in “high-use” disciplines that had high levels of collegiality reported lower use of active and collaborative methods. The 11 cases did not necessarily support the interaction pattern modeled quantitatively. Many faculty in Civil Engineering at UTK, a department with high collegiality at a research university, used active and collaborative teaching approaches. Faculty in Physics at TTech, a highly collegial department in a Comprehensive university and also a department in the “low-use” disciplinary category, were very comfortable with traditional teaching approaches and not eager to change. The case analysis also illustrated that departments in which faculty were most satisfied with their teaching loads at both baccalaureate and research institutions could be characterized as low-use. The Physics departments at Fisk and UTK were similar in this respect.

One could interpret these findings in several ways. Departmental collegiality, as modeled and operationalized quantitatively, did not have positive direct effects on active and collaborative teaching. It influenced teaching in combination with disciplinary constructs, and that interaction had a negative influence on use of such teaching methods. The relationship of collegiality to teaching outcomes might be non-linear, or might be dependent upon disciplines. Disciplinary variables were highly collinear with departmental focus on teaching or research. It could be that departmental collegiality can center on disciplinary norms for teaching and research.

The cases highlighted some departments that perceived themselves to have high levels of collegiality but exhibited low use of active and collaborative teaching. Departments with high use of active and collaborative teaching also perceived themselves as highly collegial. Collegiality could reinforce the status quo in departments. Those

with high collegiality supporting the status quo of inattention to teaching issues and lack of discussion around teaching change would still see themselves as highly collegial. This scenario is very similar to what Massey, Wilger, and Colbeck (1994) described as "hollowed" collegiality: lacking a true collegiality in which departments work together on hard issues and collectively challenge themselves toward excellence. Collegiality could also be a necessary, but not sufficient, dimension of departmental teaching climate, or may interact with other dimensions of departmental climate not modeled in this study.

It is possible that the conceptualization and operationalization of departmental collegiality for this study was not sufficiently related to teaching (Massey, Wilger & Colbeck, 1994; Peterson & Spencer, 1990). There may be different kinds of collegiality centering on teaching, research, administration, intellectual interactions, or social aspects of departments, that do not necessarily overlap or play a part in faculty decision-making about teaching approaches. The variables used in this study were general and oriented toward professional and social relationships in departments. Perhaps the counter-intuitive findings are a result of imprecise measurement. This dimension of departmental teaching climate should be explored to clarify not only the relationships among institutions, disciplines, and collegiality, but whether several kinds of collegiality exist in departments, and what outcomes they may influence.

External Influences

Accrediting agencies, especially for business and engineering, have increasingly required academic programs to develop curricula, teaching, and evaluation approaches based on learning outcomes and on the development of student competencies (Colbeck et al., 2001). The cases demonstrated an intersection of discipline and accreditation in many

departments – particularly those in the professions. The disciplinary effect on teaching in those departments may have as much to do with accreditation as with disciplinary culture and tradition. Engineering and business departments may be exhibiting higher use or discussion of active and collaborative teaching as a result of their accreditation standards. Accreditation standards appear to be in the process of shifting the climate for teaching in some departments. Likewise, advisory boards in professional fields, which directly link departments to the needs of the sectors hiring students, influence faculty teaching through feedback on student preparedness for work. The quantitative model did not represent these external influences, but the cases demonstrated their importance to departments in professional fields.

Influences at Other Organizational Levels

The results of HLM indicated that only 2% of the variance in active and collaborative teaching could be attributable to differences between institutions. The institutional type variables modeled, and their interactions with lower-level predictors, accounted for 30% of that variance. Institutional types were significant as individual predictors of active and collaborative teaching. When modeled with departmental and individual level variables, however, they were significant predictors only when interactions with departmental factors were also modeled. An institution's Carnegie classification appears to have less to do with faculty use of active and collaborative teaching than its history, mission, reward policies, and leadership. The cases illustrated the influences of specific institutional contexts on departmental climates and individual faculty. UTK's shift in teaching and research focus, TTech's commitment to regional

students, and Fisk's history as a springboard for doctoral study for African-American students were important influences on departments' teaching climates.

Institutional leadership and policies also influenced departments. Institutional leaders can set the agenda for teaching and learning, and can be powerful advocates for innovation. College deans especially appeared to have the ability to influence the climates in departments. Institutional leaders at TTech and Fisk took on that advocacy role, but institutional leaders at UTK did not seem to feel they could reach individual faculty. They left advocacy for teaching to lower administrative levels of the institution. Although all administrators at UTK voiced the opinion that undergraduate teaching should be important, some college-level leaders were visible advocates for attention to undergraduate teaching, and others were not. Faculty in departments in colleges without strong leadership for teaching (Physics, Romance Languages, and the departments within the College of Business) expressed greater confusion about expectations for teaching and research, and less identification with a discernable departmental climate supporting teaching.

An organizational level that was not explored by either approach in this study was the departmental sub-group. Specialty areas, centers for research, and academic programs all reside within departments, and may serve as the primary climate group for faculty. Especially in large departments or those with divergent academic programs, faculty may see their sub-group as more salient and influential than the department as a whole. This sub-group identification could lead to mismeasurement of departmental climate dimensions such as collegiality when groups within departments vary in their levels of collegiality around issues of teaching.

The existence of college-level and departmental sub-group influences and climates for teaching may change the variance found in active and collaborative teaching. For example, the variance accounted for by institutions (2%) might include important variance attributable to colleges within universities. The variance at the department level (17%) could be an over-estimation that includes college-level influences. The large amount of variance attributed to the individual level might contain important departmental sub-group variance and therefore underestimate group variances. Modeling these levels could lead to a more precise understanding of the roles of all levels in individual teaching practices.

Influences at the Individual Level

The individual variables modeled and examined in this study accounted for only 4% of the possible 81% of the variance in active and collaborative teaching that exists at the individual level. This means that very few of the factors that vary among individual faculty to influence their use of active and collaborative teaching were modeled.

Some of the modeled variables yielded results that may be connected to higher level influences. An individual faculty member's total number of courses is positively associated with his or her use of active and collaborative teaching. As one goes up, so does the other. This could be interpreted to mean that if faculty were assigned a higher course load, their use of active and collaborative teaching would increase. More likely is that course loads are associated with disciplines, departmental structures, rank, and other factors that were not fully modeled, and that those factors influence both the number of courses an individual faculty member is assigned and his or her willingness to engage in active and collaborative teaching.

The study findings indicate that active and collaborative teaching use is higher in upper-division undergraduate courses, and that individual faculty perceptions of student preparedness for college-level work is associated with its use. Further, faculty teaching more general education courses and in departments with higher remedial courses use active and collaborative approaches in fewer of their classes. These findings point to the need to explore faculty beliefs about teaching and learning in general and the value of active and collaborative teaching for particular student groups or course topics. Some faculty interviewed for the cases held strong views that there were unacceptable trade-offs in using active and collaborative approaches; content was lost in the attempt to approach teaching and learning differently. These beliefs can consciously or unconsciously contribute to departmental teaching climates that view active and collaborative teaching as a luxury for other faculty or departments with less content to "cover" or with students who already know how to work collaboratively.

An alternative interpretation of the results of this study involves overloaded faculty using group projects, peer evaluation, and other active and collaborative approaches as defensive teaching measures. A faculty member with higher course loads, lower satisfaction with their course loads, and a lower sense of collegiality within their departments, might engage in active and collaborative teaching as a way to "off-load" their own preparations and better manage their own time spent on teaching. The research questions and design of this study did not challenge an implicit assumption that faculty who report the use of active and collaborative teaching practices use them well and in ways consistent with the philosophical arguments that promote them. The results of the

study, however, call into question any simple explanation for reasons that faculty chose different pedagogical approaches.

Exploring faculty beliefs about and reasons for using active and collaborative teaching could add to the individual variance explained in faculty teaching practices. It could also form a dimension of departmental climate directly and indirectly in combination with other factors such as collegiality. This study demonstrated the importance of individual and collective perceptions of student preparedness. Individual and collective views of the usefulness and relevance of active and collaborative teaching approaches, as well as the reasons faculty give for using these approaches, should be modeled.

Creating, Fostering, and Influencing Departmental Teaching Climates

Collective perceptions and actions of faculty largely create the climate for teaching in departments. The quantitative model and the qualitative cases both support the idea that departmental climate is created and fostered by the members of the department. Departmental chairs play key roles in fostering departmental climate, serving as catalysts for climate change, and protecting departmental climates from external influences. Structural dimensions of departments such as teaching loads and obligations are also important to climate. Faculty development and other departmental and institutional initiatives to support teaching may affect departmental climates when a critical mass of faculty in a department engage in such initiatives. Institutional leaders and policy-makers influence departmental climates, as do accreditation and advisory boards, through messages about the importance of teaching and learning at the undergraduate level, whether or not the institution will reward and recognize teaching

excellence, the kinds of skills and knowledge graduates should have, and the resources available to support teaching and learning.

Revised Model and Future Research

The findings of this study warrant a review of the proposed model of departmental climate for teaching, and revision of the dimensions and relationships it represents. Figure 5 contains the revised model. Some factors proposed in the initial model were ultimately poor predictors of active and collaborative teaching and are removed from the revised model. Other factors should remain in the model but be operationalized differently in future research. New factors and potential dimensions of climate for teaching are proposed in the revised model based on the findings of this study. Departmental sub-group, college, and external levels are also added to the model. The model is discussed in detail below, as are issues attendant with its use in future studies. Further research directions are also discussed.

The results of the case study indicate that predictors at the institutional level could be expanded to include dimensions such as recent financial circumstances (as distinct from its total revenues or expenditures), leadership, historic focus on teaching and research, and current policies regarding teaching and learning. Institutional type should be modeled, but may not be as significant a factor at the institutional level if other dimensions of institutions are modeled. Also important are faculty members' perceptions of their department's and institution's financial health. Prior studies have examined faculty perceptions of available resources (Einarson, 2001), but not how faculty perceive those resources affecting them and their departments.

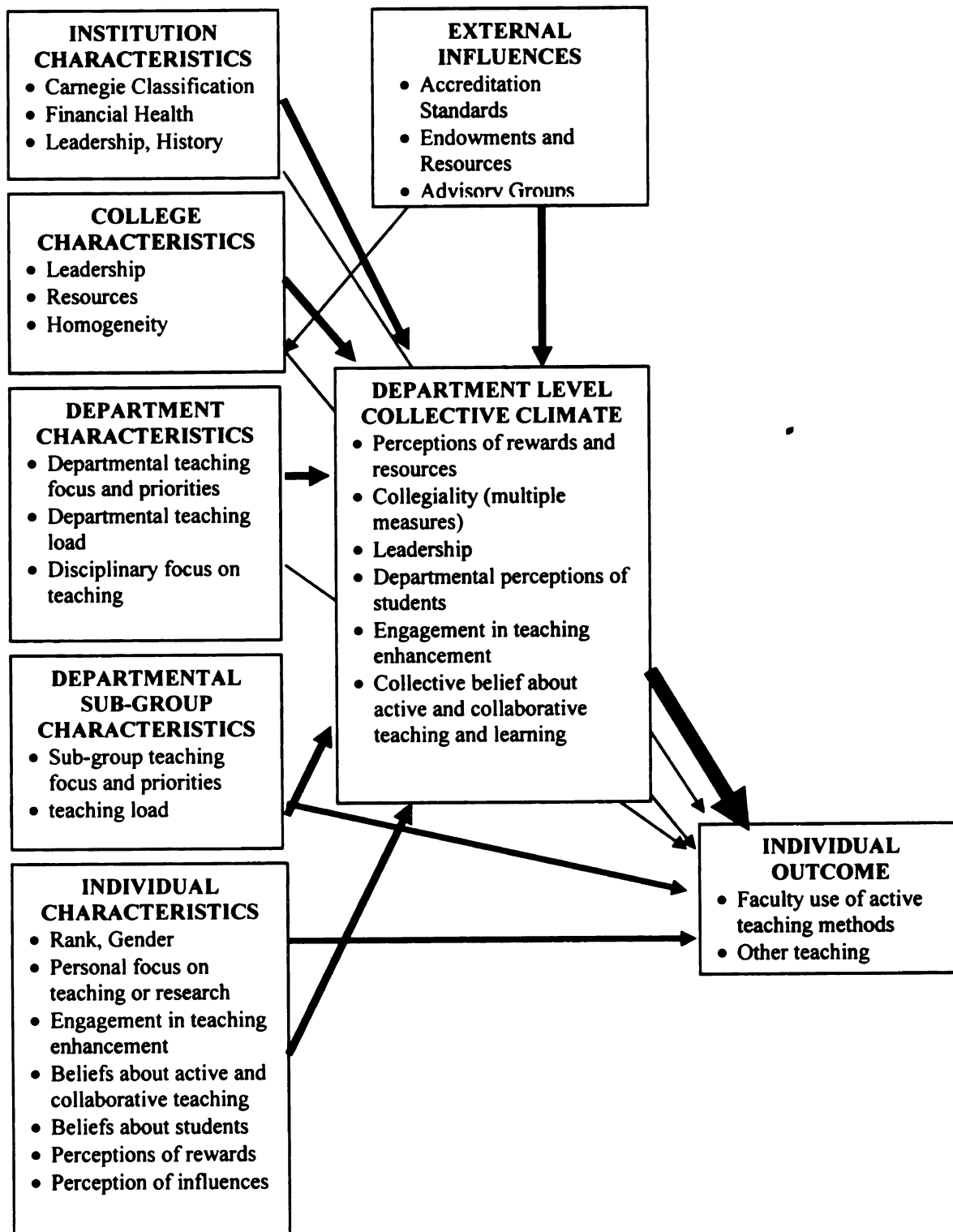


Figure 5. Revised Model of Departmental Climate for Teaching

Individual level predictors excluded from the revised model include: an individual's perception that his or her research is valued by his or her department, the total hours per week one spends on teaching activities, and work prior to one's present teaching position. Race and age were not associated with the use of active and collaborative teaching when tested hierarchically with other variables taken into account. Individual factors could be expanded to include beliefs about active and collaborative teaching and learning, perceptions of internal and external influences on teaching, and perceptions of leadership at the department and institutional level regarding teaching. The model indicated that 81% of the variance in active and collaborative teaching resides at the individual level, but this study only explained 4% of that variance. It would be fruitful to identify individual-level factors that both directly affect a faculty member's teaching approaches and aggregate to the departmental level as climate constructs.

The department level represents 17% of the variance in active and collaborative teaching. The dimensions of departments modeled in this study explained 45% of that variance. Predictors that were not retained as dimensions of departmental climate for teaching include perceptions of the value of faculty members' research by departments. This finding supports previous research that identified separate research and teaching climates in departments (Volkwein & Carbone, 1994). Also dropped from the revised model are collective hours spent on teaching activities, prior work, collective perceptions that faculty research is valued, and satisfaction with teaching loads.

The role of departmental collegiality in teaching climate should be explored with different predictors that represent more teaching-related collegial interactions, rather than general collegial relations. Examples might be: the frequency of conversations about

teaching and learning, perceptions of collective agreement about the kinds of teaching and learning best suited to the department's students, perceptions of the level of collegial intellectual interaction in the department, faculty members' respect for each other as teachers, and their level of willingness to open their teaching to the critique of their colleagues. Testing such dimensions of collegiality might yield clearer relationships between collegiality, discipline, institutional type, and teaching approaches.

Some individual and departmental factors modeled best viewed as interacting with discipline. For example, course loads, time spent on teaching, departmental focus on research or teaching, collegiality, and satisfaction with teaching were all affected by the disciplinary variables in the models. The parameters and contents of the disciplinary dimension of departmental teaching climate should be further specified.

Climate for teaching and other factors used at the departmental level can be tested at the department sub-group level to assess their salience. Factors that were weak or contradictory at the department level may have systematic sub-group effects. Likewise, college-level factors such as leadership, resources, and the homogeneity of departments within colleges can be tested as potential influences on teaching outcomes and on departmental climates for teaching. The association of external influences such as accreditation standards, advisory boards, and endowments and resources with colleges as well as on departments are represented in the revised model in light of their importance in the case analysis.

Issues Involved in Testing the Revised Model

Taken as a whole, the revised model represents six potential levels of influence on an individual faculty member's use of active and collaborative teaching. These levels are

conceptually sound, and ideal research would account for all of them. That prospect, however, is daunting. Currently, no analytic method exists that can simultaneously examine and hold constant factors at that many levels. HLM is capable of testing models with only two or three levels. The relatively small amount of variance between institutions would support the removal of that level from future models. Single institution data could be used to examine college, department, sub-department, and individual-level data, but those levels would have to be tested in different three-level configurations and their results extrapolated instead of directly assessed.

The HERI faculty survey data used in this study would not be appropriate to test college-level or sub-departmental influences since neither intra-institutional college affiliations nor departmental sub-groups were specified by survey respondents. Such model testing would require data collected specifically for testing levels of influence. Again, single institution data could provide those levels. Allowing faculty to identify the groups they most identify with rather than arbitrarily grouping them into departments would provide sub-departmental groups.

The qualitative case data used in this study addressed all levels to a certain extent. A qualitative approach to exploration of new levels in this model could yield insight into the most important levels on which to focus. In addition, qualitative inquiry could be used to examine faculty beliefs and attitudes about active and collaborative teaching, dimensions of disciplines that affect departments, and possible variants of collegiality prior to attempts to quantitatively operationalize them. Constructs created through this kind of thick descriptive approach will have a stronger conceptual grounding than was possible using the data available for this study.

Further Research

This research proposed and tested dimensions of climate for teaching. Given the nature of the data used and the inherent limitations of secondary data analysis, the results are quite promising for further research into teaching climates in college and universities. Peterson et al. (1986) expressed concern about the dated nature of organizational climate instruments created for higher education use. To date, no instrument has been created and tested that addresses specific dimensions and outcomes of teaching climates. Given the current concern about fostering faculty engagement in effective undergraduate teaching, such an instrument could be an important tool for institutional examination and change. The results of this study point to several dimensions of teaching climate at departmental and institutional levels that should be further defined and explored. Most were discussed in detail above. Qualitative exploration of those dimensions prior to creation and testing of an instrument would provide details regarding their parameters not possible with a quantitative study.

I used active and collaborative teaching as the outcome of this climate model. Other teaching behaviors and attitudes – both at the individual and at the departmental level – could be explored to determine their relationship with departmental teaching climate. For example, this study did not explore technology factors, either as predictors of teaching practice or as outcomes such as technology integration into teaching. Given the sea-change that technology has already affected in higher education, and its potential for facilitating active and collaborative teaching and learning in classrooms and at a distance, this line of inquiry would be timely and relevant. Another timely outcome that could be examined using this model is faculty choice to address multi-cultural issues in

their courses. Department outcomes in such areas could also be explored by aggregating individual outcome data to the departmental level and assessing collective departmental influences on group practices. Doing so may provide a more accurate portrait of the collective practices of departments.

Implications for Policy and Change Strategies

This study aimed to identify organizational influences on faculty engagement in active and collaborative teaching that could potentially inform more effective strategies and policies to support such teaching. The study results suggest that several important influences are amenable to change, and strategies that institutional policy-makers might consider to support faculty attention to undergraduate teaching. They include faculty development, leadership, resource allocation and articulation, active and collaborative teaching for all students, and the need to focus strategies on departments within specific institutional contexts.

Faculty Development

The multi-level analysis identified engagement in teaching improvement as the greatest individual and departmental association with the way faculty teach beyond disciplinary membership. The importance of this finding lies in the potentially innovative approaches to faculty development it suggests. Although faculty development programs have long advocated active and collaborative learning, they have traditionally focused on the needs and interests of individual faculty (Austin, Beach, Eddy & Sorcinelli, 2002; Centra, 1976; Erickson, 1986). Programs for teaching improvement might be extensive, but individual faculty must motivate themselves to attend and participate. Most faculty

development programs have not been used strategically by their institutions to change teaching climates or foster teaching change in departmental groups (Austin, Sorcinelli, Eddy & Beach, 2002). If departmental climates for teaching can influence the teaching choices of faculty, focusing on groups rather than individuals and fostering strong teaching climates as a specific faculty development approach may achieve greater results.

Such an approach to faculty development might involve faculty developers working long-term with department chairs, teaching them the leadership skills they need to foster strong teaching climates in their departments. Developers might work with departmental groups or sub-groups to help them examine their teaching practice, the beliefs about teaching and learning that inform that practice, the assumptions they hold about what does and does not work in the classroom, and the level of their collegiality around issues of teaching. These kinds of discussions would foster the "true collegiality" that Massey, Wilger & Colbeck found in only a few isolated academic departments. Those few departments, however, were the most committed to teaching excellence. Faculty developers hoping to change departmental climates for teaching might work to foster collegiality within departments around issues of teaching and learning as well as provide instruction into different approaches to teaching.

Viewing developers as "process consultants" to departments is very different from current faculty development practices (Austin, Beach, Eddy & Sorcinelli, 2002; Centra, 1976; Erickson, 1986). This focus on group process is more organizational development than faculty development, and would require both the active cooperation of department groups and a shift in focus, training, and perhaps philosophy for faculty developers.

The results of this study indicate that the potential of faculty development as an intentional lever for organizational as well as individual change in teaching is very promising. No other studies have demonstrated such a strong link between collective engagement in faculty development and use of particular teaching approaches. These findings raise questions about alternative ways faculty development might be approached: departmentally rather than individually, as a process of group learning rather than as individual consultation and improvement, and as a lever for climate change and institutional improvement.

Leadership

Leaders, at the department and institution levels, play a key role in creating and sustaining teaching climates. The cases demonstrate that departmental leaders are critical to creating and fostering strong climates for teaching. Institutional leaders who convey clear ideas about how important undergraduate teaching and learning is in the institution, and who support reward systems that do not contradict or water down that message, can influence and foster college and department climates for teaching. This finding suggests that leaders may need to rethink their assumptions about how involved they can and should be with the priorities and reward systems of colleges and departments, and how much affect they can have. An institutional leader may not be able to influence each individual faculty member, but that leader's message and actions can influence deans and chairs, and through them, enough faculty to foster teaching climates within departments. To do so, leaders must be willing to have a consistent message about the importance of undergraduate education and active and collaborative teaching. They

must also be willing to shape the institution's resources and rewards to support teaching, or at least not to oppose it.

Resources

Even small increases or shifts of resources can make a difference in departmental climates for teaching. All departments discussed their tight finances, but some believed they could leverage funds from the institution and from endowments and foundations to improve the climate for teaching anyway. UTK and TTech both instituted a technology fee that was not large for individual students, but in the aggregate meant considerable resources for the university and its departments. "Now that we have the technology fee . . ." was a common statement across both institutions. Faculty felt that the funds generated by the fee would improve their ability to teach collaboratively because it would improve the technological infrastructure of the university. Institutions hoping to support active and collaborative teaching could consider small increases in fees or tuition earmarked publicly and visibly to teaching enhancement.

Institutions, Not Institutional Types

Both analyses supported the premise that individual colleges and universities display a variety not captured by categories of institutional type (Fairweather & Beach, 2002; Colbeck et al., 2001). Further, institutional types do not have as strong a connection to teaching practices as found in other studies (Fairweather, 1997) when individual institutions and departmental and individual factors within them are also modeled. Institutional missions, numbers of courses taught, and other factors may appear to differ by institutional type, but one cannot assume that teaching practices differ by

institutional type. The multi-level model demonstrated that when departmental influences on teaching practices are taken into effect, apparent institutional type influences operate only when interacting with other, intra-institutional variables. The case analysis demonstrated that three institutions with different stated missions, student body sizes, research focus and obligations, and institutional cultures, ultimately did not differ dramatically in the teaching approaches faculty in different departments used. Physic faculty at Fisk University were just as likely to use “chalk talk” as Physics faculty at UTK. Policy makers must consider intra-institutional conditions to be primary when developing strategies to support effective teaching. This finding supports modifying assumptions about the usefulness of institutional typologies in characterizing the teaching practices of faculty in different colleges and universities.

Active and Collaborative Teaching and Learning Across the Curriculum

The quantitative model demonstrated that individual and collective departmental perceptions of students’ preparedness for college-level work influences faculty choices of teaching approaches. Faculty in departments that have a higher remedial education obligation do not use active and collaborative teaching approaches as much as their colleagues in departments with lower remedial obligations. Faculty who teach more general education courses use such methods less than their colleagues who do not teach general education classes. The cases demonstrated that active and collaborative teaching approaches were used most in senior-level design and capstone courses, late in students’ college experiences, and were incorporated more into major courses than lower-division courses. These findings are important because one of the justifications for using active and collaborative teaching approaches is to reach students at all levels of academic

preparedness (Johnson, Johnson, & Smith, 1991). In large lecture courses often associated with general education, incorporating active and collaborative teaching approaches can be challenging, but is by no means impossible (Johnson, Johnson, & Smith, 1991). Remedial education courses should be opportunities to use these teaching methods, especially given the outcomes in student development associated with them (e.g., greater student confidence, ability to transfer learning, responsibility for work) (Johnson, Johnson, & Smith, 1991, 1998).

If the climate for teaching includes the perception that active and collaborative teaching is best used with students best prepared for college work, a significant portion of students may be missing out on the benefits of these teaching and learning approaches. Institutional and departmental policy makers might help change this dimension of the teaching climate through messages that active and collaborative teaching and learning is useful for all students at all levels of education and preparedness, and through reward structures that do not marginalize general and remedial education. For example, institutions could provide teaching development support for faculty who teach such courses or offer incentives to departments to collectively undertake general and remedial education as a meaningful and important activity of the department. This could involve giving equal time and energy to planning general and remedial course curricula and teaching approaches as goes into addressing major courses. It could also involve having a mix of faculty teach such courses under that guidance and responsibility of a full-time, tenure-track faculty member.

Faculty developers might address uses and successes of active and collaborative approaches specifically in general education and remedial courses as part collective

departmental discussions about the incorporation of such approaches within disciplinary contexts of teaching and learning. They can also help departments experiment with different active and collaborative practices.

Focus on Departments

This results of this study indicate that departments are the most important focal point for policy to support effective teaching and learning. They have the power to block institutional policy if it does not fit with their internal priorities and climate (Colbeck et al, 2001), and can augment those policies if given the support and incentive to do so. Policies meant to foster and support active and collaborative teaching might be more effectively implemented by focusing on supporting departments. This result might mean funding faculty and professional development initiatives that engage departmental groups in discussion, experimentation, and collective strategy-building related to incorporating active and collaborative approaches into courses. It could also mean creating departmental teaching awards, such as that bestowed on Decision Sciences at TTech. The focus of such an award on collective excellence in teaching sends a very different message about how an institution envisions the enactment of teaching and learning than the message behind bestowing a limited number of individual awards.

Although the quantitative analysis confirmed that the largest portion of variance in teaching approaches among faculty is individual, both analyses demonstrated the important role of departments in individual faculty work. Variance among individuals is difficult to identify, expensive to target, and slow to build to a level of institutional change. The variance among department is more systematic and more easily targeted. This study and others before it (Massey, Wilger, & Colbeck, 1994) demonstrate the

synergistic quality of relationships in departments – groups of colleagues supported by an effective chair can more fully engage in innovation.

Examining and targeting departments' teaching climates might help institutional leaders and policy makers best use limited resources to foster teaching excellence on campus by helping them identify departments that could be visible models on campus, departments that might be currently shifting their teaching climate and need only a small amount of support, and departments that might need the greatest assistance through development of chairs, process consultation by faculty developers, or other direct intervention. Dimensions of departments and departmental teaching climates that could be examined include: the group's general and remedial education load; the commitment of the chair to actively support teaching excellence, and foster a departmental climate in which teaching issues and approaches are openly discussed; and the level of engagement in teaching enhancement opportunities offered by the institution exhibited by the faculty.

Conclusion

This study was designed to assess the relative importance of departmental climate for teaching on individual faculty use of active and collaborative teaching, and to explore the dimensions of climate for teaching. The departmental level represents 17% of the variance in active and collaborative teaching, and the dimensions of departments modeled in this study explained 45% of that variance. The case analysis revealed other important dimensions of climate for teaching, and provided a contextual portrait of the influence departmental teaching climates on faculty practice. Together, the analyses provided evidence of the importance of departmental climate, as well as the ability of factors at the college, institution, and extra-institution levels to influence departmental climates.

Institutions and policy-makers might increase faculty attention to and use of active and collaborative teaching by targeting strategies to improve teaching at departments. Such strategies could include clear messages about the value of these approaches, support and rewards that are consistent with that message, and professional development that encourages group engagement in issues of teaching (Massey, Wilger & Colbeck, 1994).

This study is one of the first to propose and test dimensions of departmental climate for teaching (Volkwein & Carbone, 1994) and their influence on individual faculty teaching approaches. The results suggest that further definition of departmental teaching climate constructs would be fruitful. An instrument focused on climate for teaching could serve as a useful diagnostic tool for institutions and systems seeking effective strategies to support and encourage faculty excellence in teaching.

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APPENDICES

APPENDIX A – 1998 HERI FACULTY SURVEY CODE BOOK

Higher Education Research Institute
 Graduate School of Education & Information Studies
 University of California, Los Angeles
 3005 Moore Hall / Mailbox 951528
 Los Angeles, California 90095-1528

FILE DOCUMENTATION

1998 FACULTY SURVEY

File Name: FAC1998.DAT

Record Length: 318

- 1-4 ACE: College (ACE) I.D.
- 5-5 SAMPTPYE: Sample Type
 - 1=paid participant
 - 2=supplemental
- 6-6 NORMSTAT: Norms Status
 - 1=in norms
 - 2=not in norms
- 7-12 FID: Subject I.D.
- 13-13 PRINACT: Principal Activity
 - 1=administration
 - 2=teaching
 - 3=research
 - 4=services to clients and patients
 - 5=other
- 14-14 FULLSTAT: Full-time Employee?
 - 1=no
 - 2=yes
- 15-15 SEX: Respondent's Gender
 - 1=male
 - 2=female
- 16-16 ACADRANK: Academic Rank
 - 1=professor
 - 2=associate professor
 - 3=assistant professor
 - 4=lecturer
 - 5=instructor
 - 6=other
- 17-17 ADMTTITLE: Administrative Title
 - 1=not applicable
 - 2=director or coordinator
 - 3=department chair

- 4=dean
- 5=associate or assistant dean
- 6=vice-pres, provost, vice-chanc
- 7=president, chancellor
- 8=other

- 18-18 MARITAL: Current Marital Status
 - 1=married
 - 2=unmarried, living with partner
 - 3=single

Divorced, Widowed, Separated?

- 1=not marked
- 2=marked

- 19-19 DIVWSEP1: divorced
- 20-20 DIVWSEP2: widowed
- 21-21 DIVWSEP3: separated
- 22-22 DO_OVER: Still Want to Be College Professor?

- 1=definitely no
- 2=probably no
- 3=not sure
- 4=probably yes
- 5=definitely yes

Racial Background

- 1=not marked
- 2=marked
- 23-23 RACE01: White/Caucasian
- 24-24 RACE02: African American/Black
- 25-25 RACE03: American Indian
- 26-26 RACE04: Asian American/Asian
- 27-27 RACE05: Mexican American/Chicano
- 28-28 RACE06: Puerto Rican American
- 29-29 RACE07: other Latino
- 30-30 RACE08: other

Number of Children Aged:

- 1=none
- 2=one
- 3=two
- 4=three
- 5=four or more
- 31-31 NCHILD1: 0 to 4
- 32-32 NCHILD2: 5 to 12
- 33-33 NCHILD3: 13 to 17
- 34-34 NCHILD4: 18 to 23
- 35-35 NCHILD5: 24 or older
- 36-36 PRIMINT: Primary Interest
 - 1=very heavily in teaching
 - 2=leaning toward teaching
 - 3=leaning toward research
 - 4=very heavily in research

Degree Status

- 1=bachelor's (B.A., B.S., etc.)
2=master's (M.A., M.S., etc.)
3=LL.B., J.D.
4=M.D., D.D.S. (or equivalent)
5=other first professional
6=Ed.D.
7=Ph.D.
8=other degree
9=none
- 37-37 DEGEARN: Highest Earned
38-38 DEGWORK: Currently Working Toward
- Teaching Activities in the Last Two Years
1=no
2=yes
- 39-39 TCHACT01: taught honors cours
40-40 TCHACT02: taught interdisciplinary course
41-41 TCHACT03: taught ethnic studies course
42-42 TCHACT04: taught women's studies course
43-43 TCHACT05: team-taught a course
44-44 TCHACT06: taught a service learning
course
45-45 TCHACT07: worked w/students on res
project
46-46 TCHACT08: used funds for research
47-47 TCHACT09: in teaching enhancement
workshop
48-48 TCHACT10: placed/coll assign on Internet
49-49 TCHACT11: taught course excl on Internet
- Degree Field/Department
1=agriculture
2=architecture/urban planning
3=bacteriology, molecular biology
4=biochemistry
5=biophysics
6=botany
7=environmental science
8=marine life sciences
9=physiology, anatomy
10=zoology
11=general, other biological science
12=accounting
13=finance
14=international business
15=marketing
16=management
17=secretarial studies
18=general, other business
19=computer science
20=business education
21=elementary education
22=educational administration
- 23=educational psych/counseling
24=higher education
25=music or art education
26=physical or health education
27=secondary education
28=special education
29=general, other education fields
30=aeronautical/astronautical eng
31=chemical engineering
32=civil engineering
33=electrical engineering
34=industrial engineering
35=mechanical engineering
36=nuclear engineering
37=general, other engineering fields
38=ethnic studies
39=art
40=dramatics or speech
41=music
42=other fine arts
43=forestry
44=geography
45=dentistry
46=health technology
47=medicine or surgery
48=nursing
49=pharmacy, pharmacology
50=therapy (speech,physical,occup)
51=veterinary medicine
52=general, other health fields
53=home economics
54=English language & literature
55=foreign languages & literature
56=French
57=German
58=Spanish
59=other foreign languages
60=history
61=linguistics
62=philosophy
63=religion or theology
64=general, other humanities fields
65=journalism
66=law
67=law enforcement
68=library science
69=mathematics and/or statistics
70=military science
71=astronomy
72=atmospheric sciences
73=chemistry
74=earth sciences
75=marine sciences (including oceanography)

- 76=physics
77=general, other physical sciences
78=clinical psychology
79=counseling and guidance
80=experimental psychology
81=social psychology
82=general, other psychology
83=anthropology
84=archaeology
85=economics
86=political science, government
87=sociology
88=general, other social sciences
89=social work, social welfare
90=building trades
91=data processing, computer prog
92=drafting/design
93=electronics
94=industrial arts
95=mechanics
96=other technical
97=other vocational
98=women's studies
99=all other fields
- 50-51 MAJORD: Field of Highest Degree Held
52-53 DEPTD: Department of Current Faculty Appointment
54-56 SALARYD: Base Salary (in thousands)
57-57 SALBASE: Salary is Based On
1=9/10 months
2=11/12 months
Year:
58-59 BIRTHYRD: of Birth
60-61 DEGYRD: Highest Degree Earned
62-63 APPTYRD: of Current Appointment
64-64 TENURED: Tenured?
1=no
2=yes
65-66 TENYRD: Year Tenure Awarded
HOURS PER WEEK SPENT ON:
1=none
2=1 to 4
3=5 to 8
4=9 to 12
5=13 to 16
6=17 to 20
7=21 to 34
8=35 to 44
9=45 or more
- 67-67 HRSPWK01: Scheduled Teaching
68-68 HRSPWK02: Preparing for Teaching
69-69 HRSPWK03: Advising/Counseling of Students
- 70-70 HRSPWK04: Committee Work & Meetings
71-71 HRSPWK05: Other Administration
72-72 HRSPWK06: Research and Scholarly Writing
73-73 HRSPWK07: Creative Products/Performances
74-74 HRSPWK08: Consultation with Clients/Patients
75-75 HRSPWK09: Community or Public Service
76-76 HRSPWK10: Outside Consulting/Freelance Work
77-77 HRSPWK11: Household/Childcare Duties
- NUMBER OF COURSES TAUGHT IN:
1=none
2=one
3=two
4=three
5=four
6=five or more
- 78-78 COURSES1: General Education
79-79 COURSES2: Other BA or BS
Undergraduate Credit Courses
80-80 COURSES3: Non-BA Credit Courses (developmental or remedial)
81-81 COURSES4: Graduate Courses
- Goals for Undergraduates
1=not important
2=somewhat important
3=very important
4=essential
- 82-82 UGGOAL01: develop ability to think clearly
83-83 UGGOAL02: prepare for employment
84-84 UGGOAL03: prepare for graduate education
85-85 UGGOAL04: develop moral character
86-86 UGGOAL05: provide for emotional development
87-87 UGGOAL06: prepare for family living
88-88 UGGOAL07: teach classics of western civ
89-89 UGGOAL08: help develop personal values
90-90 UGGOAL09: enhance out-of-class experience
91-91 UGGOAL10: enhance self-understanding
92-92 UGGOAL11: instill commitment to cmty svc
93-93 UGGOAL12: prepare for respons citizenship
94-94 UGGOAL13: enhance knowledge of race/eth grps
- Significant Institutional Changes In?
1=no
2=yes

95-95 INSTCHG1: overall mission, purpose
 96-96 INSTCHG2: general education
 97-97 INSTCHG3: faculty role/reward
 98-98 INSTCHG4: governance

NUMBER OF:

1=none
 2=1 to 2
 3=3 to 4
 4=5 to 10
 5=11 to 20
 6=21 to 50
 7=51+

99-99 PUBLISH1: Articles in Academic or Professional Journals
 100-100 PUBLISH2: Chapters in Edited Volumes
 101-101 PUBLISH3: Books, Manuals, Monographs
 102-102 PUBLISH4: Exhibitions or Performances Presented
 103-103 PUBLISH5: Prof Writings Accepted or Published in Last Two Years
 Publishing/Scholarly Work Done
 1=none
 2=some
 3=most
 4=all
 104-104 WORKTYP1: alone
 105-105 WORKTYP2: with one other person
 106-106 WORKTYP3: with two or more people
 107-107 Work Before Taking Current Position
 1=taught at college/university
 2=full-time non-teaching research position
 3=postdoctoral fellowship
 4=full-time acad admin position
 5=professional pos outside higher ed
 6=student
 7=other

General Activities

1=no
 2=yes

108-108 GENACT01: held academic admin position
 109-109 GENACT02: award for outstanding teaching
 110-110 GENACT03: commute a lnog distance to work
 111-111 GENACT04: research/writing on women
 112-112 GENACT05: spouse/partner work in same city
 113-113 GENACT06: spouse/partner an academic
 114-114 GENACT07: res/writing on race/ethnicity
 115-115 GENACT08: born in the U.S.A.

116-116 GENACT09: am a U.S. citizen
 117-117 GENACT10: interrupted career for hlth/fam
 118-118 GENACT11: sexually harassed at this inst
 119-119 GENACT12: plan working beyond age 70

General Activities in the Last Two Years

1=no
 2=yes

120-120 GENACT13: had one or more firm job offers
 121-121 GENACT14: developed a new course
 122-122 GENACT15: considered early retirement
 123-123 GENACT16: considered leaving academe
 124-124 GENACT17: taught at more than one inst in same term
 125-125 GENACT18: served as a paid consultant

Institutional Priorities

1=low
 2=medium
 3=high
 4=highest

126-126 INSPRI01: promote intellectual development
 127-127 INSPRI02: help students understand values
 128-128 INSPRI03: hire more minority faculty/admin
 129-129 INSPRI04: devel community among students/fac
 130-130 INSPRI05: dev leadership ability in stdnts
 131-131 INSPRI06: hire more women faculty/admin
 132-132 INSPRI07: involvement in community svcs
 133-133 INSPRI08: teach stdnts how to change soc
 134-134 INSPRI09: increase/maintain inst prestige
 135-135 INSPRI10: hire faculty 'stars'
 136-136 INSPRI11: recruit more minority students
 137-137 INSPRI12: enhance insts' national image
 138-138 INSPRI13: create multi-cultural environ

Opinions About the Institution

1=disagree strongly
 2=disagree somewhat
 3=agree somewhat
 4=agree strongly

139-139 INSOPN01: fac interested in students' prob
 140-140 INSOPN02: people don't respect each other
 141-141 INSOPN03: students well prep academically
 142-142 INSOPN04: Stdnt Aff staff supported by fac

143-143 INSOPN05: fac committed to welfare of inst
 144-144 INSOPN06: fac interest in stdnts acad prob
 145-145 INSOPN07: a lot of racial conflict here
 146-146 INSOPN08: courses include feminist perspect
 147-147 INSOPN09: faculty of color treated fairly
 148-148 INSOPN10: women faculty treated fairly
 149-149 INSOPN11: courses involve stnds in cmty svc
 150-150 INSOPN12: students committed to cmty svc
 151-151 INSOPN13: gay/lesbian faculty treated fairly
 152-152 INSOPN14: my research valued by fac in dept

Reasons for Pursuing Academic Career

- 1=not important
- 2=somewhat important
- 3=very important

153-153 REASCAR1: autonomy
 154-154 REASCAR2: flexible schedule
 155-155 REASCAR3: intellectual challenge
 156-156 REASCAR4: intellectual freedom
 157-157 REASCAR5: freedom to pursue interests
 158-158 REASCAR6: opportunities for teaching
 159-159 REASCAR7: opportunities for research
 160-160 REASCAR8: occupational prestige/status
 161-161 REASCAR9: oppty to influence soc change

Education Level of

- 1=8th grade or less
- 2=some high school
- 3=completed high school
- 4=some college
- 5=graduated from college
- 6=attended grad/prof school
- 7=attained advanced degree
- 8=does not apply [spouse only]

162-162 spouse
 163-163 father
 164-164 mother

Sources of Stress

- 1=not at all
- 2=somewhat
- 3=extensive

165-165 STRESS01: household responsibilities
 166-166 STRESS02: child care
 167-167 STRESS03: care of elderly parent
 168-168 STRESS04: my physical health
 169-169 STRESS05: review/promotion process

170-170 STRESS06: subtle discrimination
 171-171 STRESS07: personal finances
 172-172 STRESS08: committee work
 173-173 STRESS09: faculty meetings
 174-174 STRESS10: colleagues
 175-175 STRESS11: students
 176-176 STRESS12: research or publishing demands
 177-177 STRESS13: inst procedures & 'red tape'
 178-178 STRESS14: teaching load
 179-179 STRESS15: children's problems
 180-180 STRESS16: marital friction
 181-181 STRESS17: time pressures
 182-182 STRESS18: lack of personal life
 183-183 STRESS19: illness or death of spouse
 184-184 STRESS20: keeping up with info tech

Satisfaction

- 1=not applicable
- 2=not satisfied
- 3=marginally satisfied
- 4=satisfied
- 5=very satisfied

185-185 SATIS01: salary and fringe benefits
 186-186 SATIS02: oppty for scholarly pursuits
 187-187 SATIS03: teaching load
 188-188 SATIS04: quality of students
 189-189 SATIS05: working conditions
 190-190 SATIS06: autonomy and independence
 191-191 SATIS07: prof relations w/other faculty
 192-192 SATIS08: social relations w/other faculty
 193-193 SATIS09: competency of colleagues
 194-194 SATIS10: visibility for jobs
 195-195 SATIS11: job security
 196-196 SATIS12: relationships with admin
 197-197 SATIS13: overall job satisfaction
 198-198 SATIS14: oppty to develop new ideas

Attributes of the Institution

- 1=not descriptive
- 2=somewhat descriptive
- 3=very descriptive

199-199 INSDSC01: easy to see fac outside ofc hour
 200-200 INSDSC02: great conformity among students
 201-201 INSDSC03: faculty at odds with admin
 202-202 INSDSC04: faculty respect each other
 203-203 INSDSC05: most stdnts treated like numbers
 204-204 INSDSC06: social activities overemphasized

205-205 INSDSC07: intercoll sports
overemphasized
206-206 INSDSC08: stdnts don't socialize regularly
207-207 INSDSC09: fac rewarded for good
teaching

Evaluation Methods

1=none
2=some
3=most
4=all

208-208 EVLREQ01: multiple-choice mid-
terms/finals
209-209 EVLREQ02: essay mid-terms/finals
210-210 EVLREQ03: short-answer mid-terms/finals
211-211 EVLREQ04: quizzes
212-212 EVLREQ05: weekly essay assignments
213-213 EVLREQ06: student presentations
214-214 EVLREQ07: term/research paperrs
215-215 EVLREQ08: stdnt evals of each others'
work
216-216 EVLREQ09: grading on a curve
217-217 EVLREQ10: competency-based grading

Instructional Methods

1=none
2=some
3=most
4=all

218-218 INSREQ01: class discussions
219-219 INSREQ02: computer/machine-aided
instruct
220-220 INSREQ03: cooperative learning
221-221 INSREQ04: experiential learning/field stud
222-222 INSREQ05: teaching assistants
223-223 INSREQ06: recitals or demonstrations
224-224 INSREQ07: group projects
225-225 INSREQ08: independent projects
226-226 INSREQ09: extensive lecturing
227-227 INSREQ10: multiple drafts of written work
228-228 INSREQ11: readings on racial/ethnic
issues
229-229 INSREQ12: readings on women/gender
issues
230-230 INSREQ13: student-developed activities
231-231 INSREQ14: student-selected topics

Used Information Technology/Computer to:

1=never
2=1-2 times/month
3=once a week
4=2-3 times/week
5=daily

232-232 ITUSE1: communicate using e-mail
233-233 ITUSE2: conduct research with Internet
234-234 ITUSE3: use on-line discussion groups
235-235 ITUSE4: work from home
236-236 ITUSE5: write memos/letters
237-237 ITUSE6: conduct scholarly research
238-238 ITUSE7: conduct data analysis
239-239 ITUSE8: create presentations

General Opinions

1=disagree strongly
2=disagree somewhat
3=agree somewhat
4=agree strongly

240-240 GENOPN01: West Civ foundation of UG
curric
241-241 GENOPN02: college can ban extreme
speakers
242-242 GENOPN03: college increases earning
power
243-243 GENOPN04: diversity yields underprep
stdnts
244-244 GENOPN05: coll should help solve soc
probs
245-245 GENOPN06: tenure is an outmoded
concept
246-246 GENOPN07: encourage students to do
cmty svc
247-247 GENOPN08: give cmty svc weight in
admissions
248-248 GENOPN09: tenure essential to attract best
minds
249-249 GENOPN10: computers enhance student
learning
250-250 GENOPN11: diverse student body
enhances education
251-251 POLIVIEW: Political Orientation
1=far right
2=conservative
3=middle-of-the-road
4=liberal
5=far left

Personal Goals

1=not important
2=somewhat important
3=very important
4=essential

252-252 GOALS01: become authority in own field
253-253 GOALS02: influence political structure
254-254 GOALS03: influence social values
255-255 GOALS04: raise a family
256-256 GOALS05: be very well-off financially

257-257 GOALS06: help others in difficulty
 258-258 GOALS07: be involved in envir clean-up
 259-259 GOALS08: develop philosophy of life
 260-260 GOALS09: promote racial understanding
 261-261 GOALS10: obtain recog from colleagues
 262-262 GOALS11: integrate spirituality into life
 263-263 GOALS12: be a good colleague
 264-264 GOALS13: be a good teacher

Optional Questions

1=a
 2=b
 3=c
 4=d
 5=e

265-265 OPTQ01: Question #40
 266-266 OPTQ02: Question #41
 267-267 OPTQ03: Question #42
 268-268 OPTQ04: Question #43
 269-269 OPTQ05: Question #44
 270-270 OPTQ06: Question #45
 271-271 OPTQ07: Question #46
 272-272 OPTQ08: Question #47
 273-273 OPTQ09: Question #48
 274-274 OPTQ10: Question #49
 275-275 OPTQ11: Question #50
 276-276 OPTQ12: Question #51
 277-277 OPTQ13: Question #52
 278-278 OPTQ14: Question #53
 279-279 OPTQ15: Question #54
 280-280 OPTQ16: Question #55
 281-281 OPTQ17: Question #56
 282-282 OPTQ18: Question #57
 283-283 OPTQ19: Question #58
 284-284 OPTQ20: Question #59
 285-285 RESPACE: Responded to Race Question?

1=no
 2=yes

Base Salary (recoded)

1=less than 20
 2=20 to 29
 3=30 to 39
 4=40 to 49
 5=50 to 59
 6=60 to 69
 7=70 to 79
 8=80 to 89
 9=90 to 99
 10=100 to 124
 11=125 to 149
 12=150 or more

286-287 SALARY09: 9/10 month contract
 288-289 SALARY12: 11/12 month contract

290-291 AGE: Age as of December 31, 1998
 (recoded)

1=less than 30
 2=30 to 34
 3=35 to 39
 4=40 to 44
 5=45 to 49
 6=50 to 54
 7=55 to 59
 8=60 to 64
 9=65 to 69
 10=70 or more

Year (recoded)

1=before 1961
 2=1961 to 1965
 3=1966 to 1970
 4=1971 to 1975
 5=1976 to 1980
 6=1981 to 1985
 7=1986 to 1990
 8=1991 to 1995
 9=1996 to 1998

292-292 DEGYRA: Highest Degree Earned

293-293 APPTYRA: Appointed to Current Position

294-294 TENYRA: Received Tenure

Major Field/Department (recoded)

1=agriculture or forestry
 2=biological sciences
 3=business
 4=education
 5=engineering
 6=English
 7=health related
 8=history or political science
 9=humanities
 10=fine arts
 11=mathematics or statistics
 12=physical sciences
 13=social sciences
 14=other technical
 15=other non-technical

295-296 MAJORA: Field of Highest Degree

297-298 DEPTA: Department of Current Faculty Appointment

Respondent Type

1=no
 2=yes

299-299 RESTYPE1: full-time undergraduate faculty

300-300 RESTYPE2: part-time undergraduate faculty

301-301 RESTYPE3: full-time academic administrator

302-302 RESTYPE4: graduate-only faculty
 303-303 RESTYPE5: other
 304-305 STRAT: Stratification Cell
 1=public universities: low selectivity
 2= medium selectivity
 3= high selectivity
 4=private universities: low selectivity
 5= medium selectivity
 6= high selectivity
 7=public 4-year colleges: low selectivity
 8= medium selectivity
 9= high selectivity
 10= unknown selectivity
 11=nonsectarian 4-year colleges: low
 selectivity
 12= medium selectivity
 13= high selectivity
 14= very high selectivity
 15= unknown selectivity
 16=Catholic 4-year colleges: low selectivity
 17= medium selectivity
 18= high selectivity
 19= unknown selectivity
 20=Protestant 4-year colleges: very low
 selectivity
 21= low selectivity
 22= medium selectivity
 23= high selectivity
 24= unknown selectivity
 25=public 2-year colleges: very low enroll
 26=low enrollment
 27=medium enrollment
 28=high enrollment
 29=very high enrollment
 30=private 2-year colleges: very low
 enrollment
 31=low enrollment
 32=medium enrollment
 33=high enrollment
 34=predominantly black: public 4-year
 colleges
 35= nonsectarian 4-year colleges
 36= public 2-year colleges
 37= private 2-year colleges
 38=Protestant 4-year colleges
 39=Catholic 4-year colleges
 40=public universities
 41= private universities
 306-310 INSTWGT: Institution Weighting Factor
 (F5.2)
 311-317 STRATWGT: Strat Cell Weighting Factor
 (F7.2)

318-318 WGTRANK: Revised Academic Rank for
 use with Weighting Procedure
 1=professor
 2=associate professor
 3=assistant professor
 4=all other

**APPENDIX B– INSTITUTIONS USED FOR MODEL TESTING, AND RESPONSE
RATES WITHIN THEM**

Table 24

Institutions Used for Model Testing, and Response Rates Within Them

Carnegie Classification	Institutional ID	Number of Faculty	Number of Responses	Response Rate	Average by Institutional Type
Research I and II	56	1530	437	29%	30%
	61	1370	396	29%	
	511	581	172	30%	
	584	638	267	42%	
	835	1016	261	26%	
	1207	1154	287	25%	
	2088	1979	550	28%	
	2278	397	141	36%	
	2458	1032	226	22%	
	2596	606	150	25%	
	2645	436	125	29%	
	2726	1328	546	41%	
	2764	531	147	28%	
Doctoral I and II	414	456	158	35%	39%
	631	519	186	36%	
	678	891	259	29%	
	1215	204	64	31%	
	1508	267	153	57%	
	1616	376	141	38%	
	1748	154	61	40%	
	1773	569	205	36%	
	1864	447	144	32%	
	1987	383	153	40%	
	2051	646	233	36%	
	2079	750	290	39%	
	2302	127	57	45%	
	2546	699	322	46%	
	2609	246	102	41%	
Comprehensive I and II	2	128	70	55%	53%
	31	432	206	48%	
	83	377	188	50%	
	141	184	82	45%	
	218	108	63	58%	
	605	300	134	45%	
	700	482	194	40%	
	763	136	76	56%	
	767	183	108	59%	
	1274	94	53	56%	
	1333	317	161	51%	
	1362	275	142	52%	
	1413	152	83	55%	
	1456	432	200	46%	
	1465	90	67	74%	
	1486	356	179	50%	
	1502	673	355	53%	

	1573	373	174	47%	
	1586	314	170	54%	
	1659	323	163	50%	
	1664	362	150	41%	
	1675	118	85	72%	
	1841	99	52	53%	
	1869	276	137	50%	
	1871	206	101	49%	
	1873	246	104	42%	
	1878	200	97	49%	
	1939	643	260	40%	
	1946	808	288	36%	
	1947	158	95	60%	
	1991	382	192	50%	
	2144	66	49	74%	
	2195	134	75	56%	
	2343	244	143	59%	
	2494	361	198	55%	
	2591	189	111	59%	
	2665	402	144	36%	
	2696	199	106	53%	
	2816	225	106	47%	
	2942	73	50	68%	
	5329	49	49	100%	
	5330	400	216	54%	
	5751	416	144	35%	
	6079	138	62	45%	
	7034	161	69	43%	
Baccalaureate I and II					68%
	219	152	104	68%	
	274	78	52	67%	
	582	81	49	60%	
	597	145	93	64%	
	707	170	84	49%	
	747	136	76	56%	
	752	153	85	56%	
	769	68	53	78%	
	783	106	93	88%	
	834	142	76	54%	
	944	86	59	69%	
	956	85	52	61%	
	965	48	26	54%	
	1100	288	240	83%	
	1109	65	52	80%	
	1189	259	129	50%	
	1344	143	88	62%	
	1355	227	134	59%	
	1491	181	135	75%	
	1776	138	83	60%	
	1846	154	96	62%	
	1929	156	93	60%	
	2049	65	46	71%	
	2063	128	69	54%	
	2065	149	84	56%	
	2080	89	59	66%	
	2247	149	90	60%	

2259	155	82	53%
2290	139	99	71%
2446	191	120	63%
2461	38	35	92%
2562	110	69	63%
2814	65	55	85%
2934	74	59	80%
5194	58	53	91%
5353	69	61	88%
5657	52	47	90%
6332	166	100	60%
6542	66	59	89%

**APPENDIX C – INTERVIEW PROTOCOLS FOR "ENHANCING FACULTY
CONTRIBUTIONS TO LEARNING PRODUCTIVITY"**

EFCLP FACULTY INTERVIEW GUIDE

Good morning. I'm [INTERVIEWER], one of the team of researchers investigating ways to enhance faculty contributions to undergraduate learning. The federal Office of Educational Research and Improvement is funding this study. We are talking with faculty, administrators, and students in four departments on this campus and at eight other institutions. We are in [STATE] because the state legislature has been rather active in the policy arena regarding faculty work. We feel that policies regulating faculty work should be informed by the people who actually teach undergraduates. That's why we want to talk with you. We are interested in your views about what undergraduates should learn, about good teaching practices, and about the organizational context in which all this occurs. Our goal is to develop policy recommendations to enhance undergraduate learning that are grounded in the day-to-day reality of faculty work.

We want to have a complete and accurate record of our conversation, so I'm asking your permission to record it. Of course, your comments will remain anonymous, and our reports will be written so that individuals cannot be identified. Please read and sign a copy of this consent form while I set up the recorder. One copy is for me and one is for you to keep.

FIRST, I WANT TO ASK YOU A FEW QUICK QUESTIONS ABOUT YOUR HISTORY AS A FACULTY MEMBER [APPROXIMATELY 5 MINUTES].

[COMPLETE PARTICIPANT FACT SHEET]

NEXT, I WANT TO ASK YOU A FEW QUESTIONS ABOUT LEARNING AND TEACHING IN THE [DISCIPLINE] DEPARTMENT [APPROXIMATELY 15 MINUTES].

1. In your view, what are the most important things students majoring in [discipline] at [institution] should learn by the time they graduate? In particular, we are interested in five areas of learning: content knowledge, skills, integration of knowledge, application of knowledge, and attitudes about future learning. Lets take them one at a time.
 - 1a. What content knowledge should new graduates have mastered?
 - 1b. What skills should new graduates have mastered?
 - 1c. In what ways should new graduates be able to integrate knowledge? [Pull together what they have learned in meaningful ways.]
 - 1d. In what ways should new graduates be able to apply knowledge?

- 1e. What do you hope new graduates' attitudes will be about future learning in [discipline]?
- 1f. In your view, is there anything else important that new graduates should know?
- 2. Since [institution] is a [research university, comprehensive university, liberal arts college], is there anything different that [discipline] graduates from [institution] should learn compared to students at other types of institutions?
- 3. We've just discussed several areas in which students should learn. I'm interested in your ideas about how faculty in the [discipline] department can contribute most effectively to students' learning in each of these areas. In your view:
 - 3a. What is the most effective way to teach so students will master content knowledge?
 - 3b. What is the most effective way to teach so students will develop essential skills?
 - 3c. How can faculty teach most effectively so students will pull together what they have learned in a meaningful way?
 - 3d. How can faculty teach most effectively so students will apply their knowledge to real world situations?
 - 3e. What is the most effective way to teach so students will develop positive attitudes about future learning in [discipline]?

NOW I HAVE SOME QUESTIONS ABOUT YOUR OWN WORK WITH UNDERGRADUATES [APPROXIMATELY 15 MINUTES].

- 4. You mentioned [P], [Q] and [R] as effective ways to teach so students will learn. Please tell me about the ways that you use [P], [Q] or [R] methods in your own undergraduate teaching. Please share an example or two.
- 5a. What are your particular strengths in working with undergraduates?
- 5b. How would you like to improve the ways you work with undergraduates?

6. How—if at all—has your approach to working with undergraduates to enhance their learning changed over the last five to ten years?

NOTE: If the faculty member reports that her/his teaching methods have changed, ask:

- 6a. What factors contributed to changes in the way you work with undergraduates?

7. How do you balance undergraduate teaching with your other faculty responsibilities?

NOW I'D LIKE YOU DISCUSS THE WAYS THAT YOUR DEPARTMENT, YOUR INSTITUTION, AND EVEN THE [STATE] POLICY CONTEXT INFLUENCE YOUR WORK [APPROXIMATELY 15 MINUTES].

- 8a. How do the formal policies of [discipline] department facilitate your ability to promote undergraduate learning?

Probe: workload policies, teaching assignments, faculty involvement in decision making, rewards

- 8b. How do the formal policies of [discipline] department constrain your ability to promote undergraduate learning?

Probe: workload policies, teaching assignments, faculty involvement in decision making, rewards

9. We have talked about formal policies affecting faculty work at [institution]. In every organization, there are also unwritten guides for work behavior that emerge from daily interactions.

- 9a. How do informal rules for faculty work in [discipline] department facilitate your ability to promote undergraduate learning?

- 9b. How do informal rules for faculty work in [discipline] department constrain your ability to promote undergraduate learning?

10. It might be helpful if we made this more concrete. Let's take the example of collaborative learning. By collaborative learning, I refer to students working together, helping one another learn. Suppose you wanted to begin using collaborative learning in your undergraduate courses or to use it more extensively.

- 10a. How would the department and institutional environment facilitate your doing that?

- 10b. How would the environment inhibit you from doing it?

11. Tell me about state policies related to faculty work in [state].
 - 11a. In your view, how have these policies influenced the environment for faculty work at [institution] and in the [discipline] department?
 - 11b. How—if at all—have [state] state policies influenced the way you work with undergraduates?
 - 11c. How—if at all—have [state] state policies influenced any other aspect of your work as a faculty member in [discipline] department at [institution]?
12. Please share with me anything else you think I should know about the contexts for teaching and learning here in [discipline] department at [institution].

That concludes my questions. Thanks so much for taking time to meet with me. As you may know, we are talking with other faculty, students and administrators here. We will have a report in six months or so. The report will be given to your chair, and should also be available to you. If you have anything else to share in the meantime, please use the email address on my card.

— THANK YOU —

EFCLP CHAIRS & DEANS INTERVIEW GUIDE

Good morning. I'm [INTERVIEWER], one of the team of researchers investigating ways to enhance faculty contributions to undergraduate learning. The federal Office of Educational Research and Improvement is funding this study. We are talking with faculty, administrators, and students in four departments on this campus and at eight other institutions. We are in [STATE] because the state legislature has been rather active in the policy arena regarding faculty work. We feel that policies regulating faculty work should be informed by the people who actually teach undergraduates. That's why we want to talk with you. We are interested in your views about what undergraduates should learn, about good teaching practices, and about the organizational context in which all this occurs. Our goal is to develop policy recommendations to enhance undergraduate learning that are grounded in the day-to-day reality of faculty work.

We want to have a complete and accurate record of our conversation, so I'm asking your permission to record it. Since there is only one [chair, dean] of [discipline] at [institution], we cannot guarantee your anonymity. So any time you would like your remarks to remain off the record, please let me know, and I will turn off the recorder or ensure the remarks are deleted before this tape is transcribed. In addition, we will consult you before attributing any direct quote to you in all written reports prepared from the findings of this study. Please read and sign a copy of this consent form while I set up the recorder. One copy is for me and one is for you to keep.

FIRST, I WANT TO ASK YOU A FEW QUICK QUESTIONS ABOUT YOUR HISTORY AS A FACULTY MEMBER (APPROXIMATELY 5 MINUTES).

[COMPLETE PARTICIPANT FACT SHEET]

TO PROVIDE SOME PERSPECTIVE ON HOW YOUR ROLE RELATES TO UNDERGRADUATE TEACHING AND LEARNING AT [INSTITUTION], I'D LIKE TO ASK A FEW QUESTIONS ABOUT YOUR JOB RESPONSIBILITIES (APPROXIMATELY 5 MINUTES).

- 1a. Please tell me how long you have been [chair], [dean]?
- 1b. How is the [chair], [dean] selected?
- 1c. Is there a term limit to the office of [chair], [dean]?
- 1d. **CHAIRS:** How many full-time, tenure-track faculty are there in the [discipline] department? Approximately how many undergraduate majors
- 2a. Please describe your major responsibilities as [chair], [dean].

- 2b. Tell me how you integrate attention to undergraduate teaching and learning with your other responsibilities.
- 3a. As [chair], [dean], what formal authority do you have over the work of faculty?
- 3b. In what other formal or informal ways do you work with faculty about issues of undergraduate teaching and learning?

I'M INTERESTED IN YOUR VIEWS ABOUT LEARNING AND TEACHING AT [INSTITUTION] (APPROXIMATELY 15 MINUTES).

- 4. In your view, what are the most important things students at [institution] should learn by the time they graduate? In particular, we are interested in five areas of learning: content knowledge, skills, integration of knowledge, application of knowledge, and attitudes about future learning. Lets take them one at a time.
 - 4a. What content knowledge should new graduates have mastered?
 - 4b. What skills should new graduates have mastered?
 - 4c. In what ways should new graduates be able to integrate knowledge? [Pull together what they have learned in meaningful ways.]
 - 4d. In what ways should new graduates be able to apply knowledge?
 - 4e. What do you hope new graduates' attitudes will be about future learning in [discipline]?
 - 4f. In your view, is there anything else important that new graduates should know?
- 5. Since [institution] is a [research university, comprehensive university, liberal arts college], is there anything different that graduates from [institution] should learn compared to students at other types of institutions?
- 6. We've just discussed several areas in which students should learn. I'm interested in your ideas about how faculty can contribute most effectively to students' learning in each of these areas. In your view:
 - 6a. What is the most effective way to teach so students will master content knowledge?
 - 6b. What is the most effective way to teach so students will develop essential skills?

- 6c. How can faculty teach most effectively so students will pull together what they have learned in a meaningful way?
- 6d. How can faculty teach most effectively so students will apply their knowledge to real world situations?
- 6e. What is the most effective way to teach so students will develop positive attitudes about future learning in [discipline]?
- 7. In your view, to what extent are faculty at [institution] currently using the effective teaching practices you have described?
- 8a. How—if at all—have faculty approaches to work with undergraduates at [institution] changed over the last five to ten years?
- 8b. What factors have contributed to the changes (or lack of changes)?
- 9. In your view, in what ways do faculty at [institution] balance undergraduate teaching with their other faculty responsibilities?

NOW I'M INTERESTED IN YOUR VIEWS ABOUT THE CONTEXTS FOR UNDERGRADUATE LEARNING AND TEACHING AT [INSTITUTION] (APPROXIMATELY 15 MINUTES).

- 10a. How do the formal policies of [discipline] facilitate faculty members' ability to promote undergraduate learning?
Probe: workload policies, teaching assignments, faculty involvement in decision making, rewards
- 10b. How do the formal policies of [discipline] constrain faculty members' ability to promote undergraduate learning?
Probe: workload policies, teaching assignments, faculty involvement in decision making, rewards
- 11. We have talked about formal policies affecting faculty work at [institution]. In every organization, there are also unwritten guides for work behavior that emerge from daily interactions.
 - 11a. How do informal rules for faculty work at [discipline] facilitate faculty members' ability to promote undergraduate learning?
 - 11a. How do informal rules for faculty work at [discipline] constrain faculty members' ability to promote undergraduate learning?

12. It might be helpful if we made this more concrete. Let's take the example of collaborative learning. By collaborative learning, I refer to students working together, helping one another learn. Suppose you wanted more faculty at [institution] to use collaborative learning in their undergraduate courses.

12a. What inducements or policies might you employ to encourage more faculty to use collaborative learning.

12b. What features of the institutional environment would support your actions?

12c. What features of the institutional environment would inhibit your actions?

FINALLY, I'M INTERESTED IN THE WAYS THAT STATE POLICIES INFLUENCE FACULTY WORK AT [INSTITUTION] (APPROXIMATELY 15 MINUTES).

13a. Tell me about state policies related to faculty work in [state].

13b. How—if at all—have [state] state policies enhanced the way you work with faculty, chairs and deans to promote undergraduate learning?

13c. How—if at all—have [state] state policies constrained the way you work with faculty, chairs and deans to promote undergraduate learning?

13d. How—if at all—have [state] state policies influenced any other aspect of faculty work at [institution]?

13e. In your view, what are some unintended consequences of state policies for faculty work?

14. Please share with me anything else you think I should know about the contexts for teaching and learning here at [institution].

That concludes my questions. Thanks so much for taking time to meet with me. As you may know, we are talking with other faculty, students and administrators here. We will have a report in six months or so. The report will be given to your chair, and should also be available to you. If you have anything else to share in the meantime, please use the email address on my card.

— THANK YOU —

EFCLP ADMINISTRATORS INTERVIEW GUIDE

Good morning. I'm [INTERVIEWER], one of the team of researchers investigating ways to enhance faculty contributions to undergraduate learning. The federal Office of Educational Research and Improvement is funding this study. We are talking with faculty, administrators, and students in four departments on this campus and at eight other institutions. We are in [STATE] because the state legislature has been rather active in the policy arena regarding faculty work. We feel that policies regulating faculty work should be informed by the people who actually teach undergraduates. That's why we want to talk with you. We are interested in your views about what undergraduates should learn, about good teaching practices, and about the organizational context in which all this occurs. Our goal is to develop policy recommendations to enhance undergraduate learning that are grounded in the day-to-day reality of faculty work.

We want to have a complete and accurate record of our conversation, so I'm asking your permission to record it. Since there is only one [administrator] at [institution], we cannot guarantee your anonymity. So any time you would like your remarks to remain off the record, please let me know, and I will turn off the recorder or ensure the remarks are deleted before this tape is transcribed. In addition, we will consult you before attributing any direct quote to you in all written reports prepared from the findings of this study. Please read and sign a copy of this consent form while I set up the recorder. One copy is for me and one is for you to keep.

TO PROVIDE SOME PERSPECTIVE ON HOW YOUR ROLE RELATES TO UNDERGRADUATE TEACHING AND LEARNING AT [INSTITUTION], I'D LIKE TO ASK A FEW QUESTIONS ABOUT YOUR JOB RESPONSIBILITIES (APPROXIMATELY 5 MINUTES).

- 1a. Please tell me how long you have been [administrator]?
- 1b. How is the [administrator], selected?
- 1c. Is there a term limit to the office of [administrator]?
- 1d. In what discipline did you receive your terminal degree?
- 2a. Please describe your major responsibilities as [administrator].
- 2b. Tell me how you integrate attention to undergraduate teaching and learning with your other responsibilities.
- 3a. As [administrator], what formal authority do you have over the work of faculty?
- 3b. In what other formal or informal ways do you work with faculty about issues of undergraduate teaching and learning?

**I'M INTERESTED IN YOUR VIEWS ABOUT LEARNING AND TEACHING AT [INSTITUTION]
(APPROXIMATELY 15 MINUTES).**

4. In your view, what are the most important things students at [institution] should learn by the time they graduate? In particular, we are interested in five areas of learning: content knowledge, skills, integration of knowledge, application of knowledge, and attitudes about future learning. Lets take them one at a time.
 - 4a. What content knowledge should new graduates have mastered?
 - 4b. What skills should new graduates have mastered?
 - 4c. In what ways should new graduates be able to integrate knowledge? [Pull together what they have learned in meaningful ways.]
 - 4d. In what ways should new graduates be able to apply knowledge?
 - 4e. What do you hope new graduates' attitudes will be about future learning in [discipline]?
 - 4f. In your view, is there anything else important that new graduates should know?
5. Since [institution] is a [research university, comprehensive university, liberal arts college], is there anything different that graduates from [institution] should learn compared to students at other types of institutions?
6. We've just discussed several areas in which students should learn. I'm interested in your ideas about how faculty can contribute most effectively to students' learning in each of these areas. In your view:
 - 6a. What is the most effective way to teach so students will master content knowledge?
 - 6b. What is the most effective way to teach so students will develop essential skills?
 - 6c. How can faculty teach most effectively so students will pull together what they have learned in a meaningful way?
 - 6d. How can faculty teach most effectively so students will apply their knowledge to real world situations?

- 6e. What is the most effective way to teach so students will develop positive attitudes about future learning in [discipline]?
- 7. In your view, to what extent are faculty at [institution] currently using the effective teaching practices you have described?
- 8a. How—if at all—have faculty approaches to work with undergraduates at [institution] changed over the last five to ten years?
- 8b. What factors have contributed to the changes (or lack of changes)?
- 9. In your view, in what ways do faculty at [institution] balance undergraduate teaching with their other faculty responsibilities?

NOW I'M INTERESTED IN YOUR VIEWS ABOUT THE CONTEXTS FOR UNDERGRADUATE LEARNING AND TEACHING AT [INSTITUTION] (APPROXIMATELY 15 MINUTES).

- 10a. How do the formal policies of [institution] facilitate faculty members' ability to promote undergraduate learning?
Probe: workload policies, teaching assignments, faculty involvement in decision making, rewards
- 10b. How do the formal policies of [institution] constrain faculty members' ability to promote undergraduate learning?
Probe: workload policies, teaching assignments, faculty involvement in decision making, rewards
- 11. We have talked about formal policies affecting faculty work at [institution]. In every organization, there are also unwritten guides for work behavior that emerge from daily interactions.
 - 11a. How do informal rules for faculty work at [institution] facilitate faculty members' ability to promote undergraduate learning?
 - 11a. How do informal rules for faculty work at [institution] constrain faculty members' ability to promote undergraduate learning?

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12. It might be helpful if we made this more concrete. Let's take the example of collaborative learning. By collaborative learning, I refer to students working together, helping one another learn. Suppose you wanted more faculty at [institution] to use collaborative learning in their undergraduate courses.
- 12a. What inducements or policies might you employ to encourage more faculty to use collaborative learning.
- 12b. What features of the institutional environment would support your actions?
- 12c. What features of the institutional environment would inhibit your actions?

FINALLY, I'M INTERESTED IN THE WAYS THAT STATE POLICIES INFLUENCE FACULTY WORK AT [INSTITUTION] (APPROXIMATELY 15 MINUTES).

- 13a. Tell me about state policies related to faculty work in [state].
- 13b. How—if at all—have [state] state policies enhanced the way you work with faculty, chairs and deans to promote undergraduate learning?
- 13c. How—if at all—have [state] state policies constrained the way you work with faculty, chairs and deans to promote undergraduate learning?
- 13d. How—if at all—have [state] state policies influenced any other aspect of faculty work at [institution]?
- 13e. In your view, what are some unintended consequences of state policies for faculty work?
14. Please share with me anything else you think I should know about the contexts for teaching and learning here at [institution].

That concludes my questions. Thanks so much for taking time to meet with me. As you may know, we are talking with other faculty, students and administrators here. We will have a report in six months or so. The report will be given to your chair, and should also be available to you. If you have anything else to share in the meantime, please use the email address on my card.

— THANK YOU —

EFCLP STUDENTS INTERVIEW GUIDE

Good morning. I'm [INTERVIEWER], one of the team of researchers investigating ways to enhance faculty contributions to undergraduate learning. The federal Office of Educational Research and Improvement is funding this study. We are talking with faculty, administrators, and students in four departments on this campus and at eight other institutions. We are in [STATE] because the state legislature has been rather active in the policy arena regarding faculty work. We feel that policies regulating faculty work should be informed by the people who actually teach undergraduates. We also feel that learning should be assessed by the people doing the learning—students. That's why we want to talk with you. We are interested in your views about what undergraduates should learn, about good teaching practices, and about the organizational context in which all this occurs. Our goal is to develop policy recommendations to enhance undergraduate learning that are grounded in the day-to-day reality of learning and teaching.

We want to have a complete and accurate record of our conversation, so I'm asking your permission to record it. Of course, your comments will remain anonymous, and our reports will be written so that individuals cannot be identified. We also ask, however, that you respect the confidentiality of your colleagues. Everything said in this room should remain strictly confidential. Please read and sign a copy of this consent form while I set up the recorder. One copy is for me and one is for you to keep.

FIRST, I'D LIKE TO GET TO KNOW YOU ALL A LITTLE BETTER (APPROXIMATELY 10 MINUTES).

1. Please tell me your name, and the date you expect to graduate.
2. What contributed to your decision to attend [institution]?
3. What contributed to your decision to major in [discipline]?
4. What do you plan to do in the first year or so after you graduate?

NEXT, I'D LIKE TO KNOW YOUR VIEWS ABOUT LEARNING AND TEACHING IN YOUR [DISCIPLINE] MAJOR (APPROXIMATELY 25 MINUTES).

5. I'd like to ask you about the most important things you have learned as a [discipline] major? My questions will focus on five areas: content knowledge, skills, integration of knowledge, application of knowledge, and attitudes about future learning. Lets take them one at a time.
 - 5a. What content knowledge have you mastered?

- 5b. What skills have you developed?
- 5c. Describe ways you have been able to pull this knowledge together in a meaningful way.
- 5d. Describe ways you have been able to apply this knowledge to real world issues.
- 5e. Is there anything you feel you should have learned here in [discipline] that you haven't learned?
- 5f. Now that you are close to graduation, how do you feel about [discipline]?
- 5g. As far as you can tell now, how will your experiences in the [discipline] department help with your career?

NOW I'M INTERESTED IN THE WAYS THAT FACULTY IN [DISCIPLINE] AT [INSTITUTION] CONTRIBUTED TO YOUR LEARNING (APPROXIMATELY 20 MINUTES).

- 6a. Describe ways that faculty in this department were most effective at helping you learn important knowledge in [discipline].
- 6b. What kinds of faculty teaching practices did you find least helpful as you were learning knowledge in [discipline]?
- 7a. Describe ways that faculty in this department were most effective at helping you develop skills in [discipline].
- 7b. What kinds of faculty teaching practices did you find least helpful as you were developing skills in [discipline]?
- 8a. Describe ways that faculty in this department helped you pull all that you have learned together in a meaningful and practical way?
- 8b. In what ways did faculty teaching efforts interfere with your ability to integrate what you have learned?
- 9a. Describe ways that faculty in this department helped you apply your knowledge to real-world issues?

- 9b. In what ways did faculty teaching efforts interfere with your ability to apply what you have learned?
- 10a. Tell me about ways that faculty efforts contributed to your long-term interest in [discipline].
- 10b. In your view, what aspects of your work with faculty in this department turned you off to [discipline]?

NOW I'D LIKE YOUR IMPRESSIONS OF WHAT MIGHT INFLUENCE FACULTY MEMBERS' EFFECTIVENESS AS UNDERGRADUATE TEACHERS (APPROXIMATELY 15 MINUTES).

- 11a. From your perspective, what aspects of the [discipline] department or of [institution] encourage faculty to use the types of teaching methods that really enhanced your learning?
- 11b. From your perspective, what aspects of the [discipline] department or of [institution] discourage faculty from using the types of teaching methods that enhance your learning?
- 12. Tell me about any state policies you are aware of in [state] that are related to faculty work or to teaching and learning.
- 13. In your view, how—if at all—have [state] state policies influenced the way faculty work with undergraduates in [discipline] department at [institution]?
- 14. Please share with me anything else you think I should know about the contexts for teaching and learning in the [discipline] department at [institution].

— THANK YOU —