Institutional Sources of Practice Variation: Staffing College and University Recycling Programs

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In this paper, I examine how variation arises in the staffing of recycling programs at colleges and universities. Through initial fieldwork, I identified two basic recycling program forms. Some schools adopted recycling programs that entailed the creation of new, full-time recycling manager positions that were filled by ecological activists. Other schools adopted more minimalist programs that were staffed by current employees who were more ecologically ambivalent and assumed recycling management responsibilities as a part-time, additional duty. Results of a subsequent survey of a population of colleges and universities show that this variation in staffing was importantly shaped by the Student Environmental Action Coalition, a national social movement organization that provided resources and support to student environmental groups at particular schools. Implications for the study of how field-level organizations shape the content of organizational practices are discussed.

Although neoinstitutionalists have demonstrated how broader cognitive, normative, and regulative forces shape how new practice models emerge and diffuse throughout organizational populations (e.g., Scott, 1995), we have little understanding about why organizational responses to institutional pressures differ (Friedland and Alford, 1991; Powell, 1991; Oliver, 1991). There have been two general approaches to the study of variation in the institutional diffusion of new practices or structures. One line of research has focused on understanding how temporal (Tolbert and Zucker, 1982; Thornton and Ocasio, 1999) or spatial (e.g., Strang and Tuma, 1993; Davis and Greve, 1997) differences in institutional processes shape diffusion, leading to variation in the organizational adoption of a single or similar practice. Another stream of research, rooted in organizational adaptation perspectives (e.g., Thompson, 1967; Pfeffer and Salancik, 1978), has focused more explicitly on explaining variation in organizational practices (e.g., Kraatz and Zajac, 1996; Westphal, Gulati, and Shortell, 1997). In this second line of research, scholars often distinguish conceptually between institutional pressures for conformity and the more idiosyncratic characteristics and technical demands of organizations, which are theorized as counterposing forces that lead to practice diversity.

Over the past decade, however, there have been a number of efforts to develop more integrative conceptual approaches to the study of institutional and organizational dynamics that focus attention on the interconnections between institutional context and variation in organizational behaviors and practices. Oliver (1991), for instance, has called for the study of how organizations employ different kinds of strategies in response to institutional pressures for both legitimacy and efficiency. In a similar vein, Greenwood and Hinings (1996) developed a framework that aims to extend the neoinstitutional perspective by highlighting how the internal dynamics of organizations may lead some organizations to respond differently than others despite exposure to the same institutional pressures. Ruef and Scott (1998) demonstrated the fruitfulness of a more detailed multilevel approach to institutional and organizational change in their study of how the legitimacy of hospitals with different ownership characteristics shift-
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ed in tandem with a transformation in logics. There has been virtually no empirical research, however, directed toward understanding how variation in the content of organizational practices is systematically shaped by institutional forces (see Edelman, 1992, for an exception).

In an effort to shed light on how heterogeneity in organizational practices is institutionally shaped, I report on a study of a population of colleges and universities in the Great Lakes states that varied in how they staffed authorized recycling programs upon adoption. By authorized, I mean that the recycling program is formally sponsored and funded by a school’s administration. At some universities, authorized recycling programs were staffed by ecological activists who filled newly created full-time recycling coordinator positions. At other schools, authorized recycling programs were mainly staffed by ecologically ambivalent custodial directors who assumed responsibilities for recycling as an additional, part-time duty.

Focusing on staffing is a useful way to probe differences in organizations’ responses to their environments because resource commitments to staffing can provide a visible signal to stakeholders about organizational compliance to demands (Rao and Sivakumar, 1999). For instance, in developing her explanation of organizational variation in the creation of Equal Employment Opportunity/Affirmative Action offices (EEO/AA), Edelman (1992) noted that government agencies, which experienced the greatest degree of normative pressure, created EEO/AA offices with a mean of 7.1 full-time salaried employees, whereas colleges and business organizations, which experienced less normative pressure, staffed offices with an average of two or fewer full-time salaried employees. While variation in staffing was not a central focus for Edelman, her analysis suggests that linkages to field-level organizations may importantly shape the implementation of diffusing practices. I build on the insights of Edelman's work as well as other institutional research that has highlighted how field-level associations and organizations such as professions actively promote specific kinds of practices (e.g., DiMaggio, 1991; Dobbin et al., 1993) by studying how field-level organizations may provide a mechanism by which variation in the content of organizational practices emerges.

In particular, I focus on the role of the Student Environmental Action Coalition (SEAC), a national social movement organization, in generating variation in the staffing of college and university recycling programs. McCarthy and Zald (1977: 1218) defined a social movement organization as “a complex, or formal, organization which identifies its goals with the preferences of a social movement or a countermovement and attempts to implement those goals.” While the literature on social movements has highlighted the importance of social movement organizations such as the Student Non-Violent Coordinating Committee and the Congress of Racial Equality in fomenting social change, there have been few attempts to study how such organizations influence the diffusion of new kinds of organizational practices. In this paper, I examine how the adoption of both kinds of college and university recycling program staffing forms was influenced by the wider societal legitimacy of recycling that had been attained by the late

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1980s as well as by the local student environmental activism that the SEAC facilitated. The SEAC provided an important communication and resource infrastructure that facilitated the mobilization of student environmental groups at campuses, while also specifically promoting the creation of recycling programs that would be staffed by full-time recycling activists.

My project unfolded in two stages. Through exploratory fieldwork, I initially uncovered variation in the staffing of college and university recycling programs. I then used event history analyses to test hypotheses that would enable me to explain the variation detected in the initial exploratory research.

RECYCLING PROGRAM VARIATION

The integration of formalized recycling techniques and technologies into mainstream solid waste practices is a relatively new phenomenon, mainly occurring since the mid- to late-1980s. While only 9.6 percent of the U.S. waste stream was recycled in 1980, by 1990 that figure increased to 16.6 percent, and by 1995 to 27 percent (Environmental Protection Agency, 1997). The most dramatic increases have taken place since the late ‘80s. The Environmental Protection Agency (EPA) estimates that the number of curbside recycling programs in the U.S. increased from approximately 1,000 in 1988 to 7,500 by 1995, providing 48 percent of the U.S. population (120 million people) with access to curbside recycling collection programs by the mid-1990s. This rapid growth in recycling has been fueled by the rejuvenation of the environmental movement, the development and refinement of recycling technologies, the construction of a recycling infrastructure, and the social legitimation of recycling as an appropriate technological solution for dealing with the collection and disposal of solid waste (Blumberg and Gottlieb, 1989; Seldman, 1995; Hoffman, 1997). Despite the proliferation of recycling practices through the 1990s, however, conflicting claims and evidence about the efficiency and effectiveness of recycling practices continually threaten its legitimacy as a solid waste solution (e.g., Denison and Ruston, 1996; Tierney, 1996). In lieu of clear cost-benefit calculations demonstrating the economic benefits of recycling, the diffusion of recycling practices has been mainly driven by normative pressures stemming from environmental groups’ activism and coercive pressures exerted by regulatory agencies such as the EPA and state and municipal governments.

Given the rapid rise of recycling practices since the late 1980s, I began with an interest in trying to understand how organizations responded to institutional pressures that encouraged the adoption of recycling practices. I delimited my investigation by focusing on recycling practices at colleges and universities. Between the late 1980s and mid-1990s, the vast majority of colleges and universities had been reported to have created "authorized" recycling programs (Smith, 1993). Unlike student volunteer recycling programs of the late 1960s and 1970s that often disappeared soon after they were created, authorized recycling programs are sponsored by university administrators and are typically set up and maintained by university staff within physical plant departments. While most student volunteer recycling efforts

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1 By comparison, in 1960 and 1970, only 7 percent of the waste stream was recycled. These percentages are calculated by dividing the amount of solid waste recovered in a given year by the total amount of solid waste generated, which has also increased dramatically over the past couple of decades.
had died off by the late 1970s due to the lack of markets for recyclables (Strong, 1992), authorized recycling programs are at least symbolically committed to the durability of these efforts, despite market fluctuations.

I did the fieldwork between October 1995 and April 1996. Initially, I conducted interviews with recycling coordinators and managers of facilities and maintenance departments at 60 colleges and universities throughout the United States. I used semi-structured open-ended interview techniques in an effort to uncover the process by which recycling programs were adopted at each school, how they were staffed once adopted, and how much time and energy the person responsible for managing the recycling program committed to recycling duties (Schwartzman, 1993). I followed up with each of the 60 interviewees at least once, and often two or three times, asking for clarification and elaboration. All interviews were transformed into readable electronic text. I used this exploratory fieldwork to gain a grounded perspective on how recycling practices were being implemented at colleges and universities (Strauss, 1987) and then to structure a more systematic study of recycling program diffusion that allowed for a triangulation of theory, field research, and statistical analysis on recycling program diffusion.

Through my initial fieldwork, I uncovered systematic variation in how university recycling programs were staffed. The main variation I focus on is that some universities organized recycling programs by establishing a new full-time recycling coordinator position while others just added recycling management duties to an existing work role. This variation is what Stinchcombe (1983: 188) has referred to as “status creation,” in contrast to “role accretion.” In status creation, “a job description for a role is worked out in the abstract, with corresponding rights and duties” and in relation to other roles, “and this vacancy is filled by recruitment. In the role accretion method of creating roles, various rights and duties are added in small bundles to the ‘estate’ of a given person” (Stinchcombe, 1983: 188). My initial fieldwork was somewhat biased in favor of status-creation recyclers (80 percent of interviews) because my interviewees were identified primarily through snowball sampling techniques, and status-creation recyclers had come to know each other through their efforts to form a distinctive occupational identity that separated them from role-accretion recyclers. Status-creation recyclers tended to name as potential interviewees friends or acquaintances who were also status-creation recyclers. This sampling bias was not a problem, however, since my fieldwork was exploratory and was intended to develop inductively an understanding of recycling practice variation in colleges and universities (Eisenhardt, 1989).

**Status Creation Versus Role Accretion**

Although status creation and role accretion are ideal types (Weber, 1978), they tap into important differences in how organizations go about incorporating new bundles of tasks into organizations (Stinchcombe, 1983). This distinction is particularly revealing in college and university recycling programs. Because authorized recycling programs at colleges

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and universities emerged during a general institutional shift at the societal level toward the incorporation of recycling into mainstream solid waste practices, the creation of new, full-
time recycling coordinator positions can be interpreted as a
symbolic act that signals compliance, or even greater com-
mitment, to institutional pressures (Edelman, 1992; Rao and
Sivakumar, 1999). In addition, my fieldwork indicated that the
variation between status-creation and role-accretion recycling
coordinators and programs was related to the amount of
effort and energy put into building campuswide recycling pro-
grams as well as whether recycling program managers
espoused broader ecological ideals and participated in nation-
al social movement organizations engaged in recycling advoc-
cacy.

A key difference distinguishing status-creation and role-accre-
tion recycling program managers had to do with their occupa-
tional identity. In university recycling programs that were
staffed through role accretion, management duties were
most often given to custodial directors or assistant heads of
facilities management departments who had little slack in
their existing schedules. These extra responsibilities often
came with no reduction in other obligations or resources to
build and maintain the campus recycling infrastructure. The
occupational identities of role-accretion recyclers were tied to
their extent, full-time work roles, and they expressed little
interest in or enthusiasm toward their recycling duties. In
contrast, status-creation recyclers began to forge a new and
distinct occupational identity that was connected to the
ideals of the broader environmental movement. In the early
1990s, status-creation recyclers began to identify each other
through their joint participation in the National Recycling
Coalition (NRC), the main national recycling trade association,
which has been a key actor in promoting recycling practices
since its founding in 1978. In 1993, a group of full-time recy-
cling coordinators formed the College and University Recy-
cling Coordinators (CURC) occupational association during the
annual NRC meeting. This group established procedures to
elect officials and developed committees to study measure-
ment standards, “buy recycled” campaigns, cooperation
between university operations and academics, and other
issues related to the construction of campus recycling pro-
grams. The group also established a ListServ on the Internet
to facilitate ongoing program management dialogue among
organization members. The chairperson of the CURC
expressed a common view among CURC members that their
collaboration represented a step toward creating a recycling
coordinator profession:

I see CURC and the List Server as the vehicle by which our profes-
sion will eventually be formally recognized. This will lead to stan-
dards and procedures that will assist in legitimizing and progressing
our efforts and our ideas. It is the best way to promote and achieve
inroads to business and affect their practice.

Fieldwork also revealed differences between role-accretion
and status-creation recycling programs in the extent to which
they were actively managed. At many schools that had
authorized recycling programs that were staffed through role
accretion, there were few efforts to publicize the program to
the campus community, measure the effectiveness of the program, develop effective logistical systems for handling recyclables, or train custodial staff. These kinds of activities require a great deal of time and energy that role-accretion recyclers did not have, since they already had full-time duties through their existing jobs. In most cases, recycling programs staffed through role accretion could be considered minimalist in that they consisted of little more than a scattering of blue recycling bins around campus.

Full-time recycling coordinators, in contrast, stressed the importance of creating awareness of the recycling program through publicity and educational outreach, developing measurement standards to assess the effectiveness of recycling efforts, as well as engaging in many other activities having to do with building a recycling infrastructure and managing staff and contracts. Many status-creation recyclers work very closely with student environmental groups on campus, and even hire some students as part-time workers, to help build awareness about the recycling program and to educate students, faculty, and staff about the appropriate ways to participate in the recycling program. Moreover, they go beyond educating people to encouraging them both to reduce their production of waste by reusing materials and to purchase recycled products. Role-accretion recycling managers, alternatively, conceptualized recycling much more narrowly as the collection of potential recyclables and rarely worked with student groups or spent time on educating people to “reduce, reuse and recycle.”

Role-accretion and status-creation recyclers also differed in their value orientations toward recycling. Part-time recycling manager informants tended to view recycling as either a nuisance or marginal work activity. When I asked questions about why an informant was involved in recycling, I received answers such as “Because I was ordered to do it!” or “I’m recycling because it is in my job description.” In addition, these role-accretion recyclers made no connections between their recycling duties and broader ecological ideals. For example, in response to a question about how recycling connects to his life outside of work, Rick, a 45-year-old grounds supervisor from a medium-sized East Coast university who manages his school’s recycling program as a part-time duty, said, “It doesn’t really. When you deal with real life issues such as death and dying, then the issues of recycling really are not as important as people perceive them to be.”

By contrast, status-creation recyclers expressed more holistic views about how recycling was integral to their existence and how their promotion of recycling contributes to the well-being of life on the planet. For instance, when asked why she was involved in recycling, Karin, a coordinator from a Pacific Northwest university responded:

Because we need to establish common ground with people throughout the world so we can actually work together in community to deal with other bigger splinter issues that face us . . . garbage is one thing we all have in common, recycling is the inroads to all other life issues. . . . it is the first step away from the garbage can, the first place we are getting the message to make bigger connections . . . besides that it’s big business and we have totally screwed

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up our natural resource base so as long as we consume, recycling will be essential to our lives. . . . recycling is a safe place where we can institute things like waste reduction which is really tied into the whole multinational corporate structure of manufacturing, money, consumption, pollution, forest destruction, cancer . . . etc. . . . etc.

Judy, a recycling coordinator from a Midwestern university, answered the question of why she was involved in recycling by emphasizing its substantive value: “I’m not just gonna do something because I’ll make a lot of money as an accountant or working at the board of trade. I do something because I feel like it’s important . . . what I’m doing is important and valuable to someone or something.” Judy and other full-time recycling coordinators I interviewed passionately embraced recycling as an inherently meaningful activity. Judy rooted her involvement in recycling in a worldview that stresses the delicate interconnectedness of the social and natural realms of existence:

And I think a lot of it . . . is just a general respect for other people, other cultures, you know, other things is sort of intertwined with a respect for the environment. It’s just a general respect for things and not wanting to destroy things or people or take care of others in general, whether those others are animals, plants or humans.

Charles, another status-creation recycler from a major South-eastern university, was even more passionate in his views on recycling:

Recycling because the other option is extinction! Unless humans begin living in harmony with nature, we will make Mother Nature too sick and she will eventually heal herself just like the human body heals sickness—it kills off and expels the toxins polluting its system. Right now, humans are the equivalent to the toxins!

Although it is difficult to generalize from the basic differences uncovered in my fieldwork, they highlight that the creation of full-time recycling coordinator positions may involve more than an expression of symbolic commitment to institutional pressures (Edelman, 1992; Rao and Sivakumar, 1999). In fact, college and university recycling program staffing variation may potentially be related to the ultimate effectiveness of recycling programs, although this linkage is extraordinarily difficult to demonstrate. Though there have been a number of generic templates devised to guide the measurement of recycling program effectiveness (e.g., Morris, 1994), both role-accretion and status-creation informants often stressed the underlying complexity of measuring the costs and benefits of recycling. Status-creation recycling coordinators were particularly adamant about this issue, since their ability to demonstrate program effectiveness was crucial to their job assessment and to garnering more resources to expand their programs. Jim, a full-time recycling coordinator for a large, Midwestern university expressed some of the elements of measurement complexity:

What do you include in those numbers? Compost? Are the numbers real or estimates? The savings often do not figure in saving pollution to the environment or the cost of not sending materials to the landfill. We can track revenue generation, but that is only part of the
story, especially since the prices paid for recyclable material often fluctuate dramatically.

Interviews with recycling managers indicated that few programs systematically track the costs and benefits of recycling efforts. To the extent that they do, the wide variety of measures used make it virtually impossible to compare the relative effectiveness of those recycling programs. Performance measures mentioned in my interviews with recycling program managers included the comparative cost of recycling a ton versus landfilled a ton of material, the diversity of materials recycled, total weight of materials recycled, the percentage of materials diverted from dumps, remaining within budget, customer satisfaction, custodial hours worked, complaints from custodial staff, as well as revenue generated through recycling.

Given the importance of assessing the effectiveness of their efforts by measuring the costs and benefits of programs, however, status-creation recyclers made the number one goal of the CURC “to develop reporting standards for measuring progress toward waste abatement and to allow for accurate comparisons and analyses between schools” (interview with the CURC chairperson). To develop standardized techniques for measuring and evaluating recycling program productivity, the CURC has organized a measurement standards committee that is trying to create training tools and models that will be made widely available to recycling coordinators. To date, little progress has been made, however, and the lack of measurement standards that could support generally acceptable claims about recycling program effectiveness has not only affected the development of recycling programs on college campuses but has helped to fuel ongoing debates about the overall effectiveness of recycling as a solid waste solution (e.g., Denison and Ruston, 1996; Tierney, 1996).

Over the course of this initial fieldwork, I tried to develop an understanding of why some schools created new full-time positions, while others did not. Through my interviews with recycling coordinators, I discovered that virtually all recyclers in newly created full-time recycling coordinator positions were undergraduates at the school where they now had positions. Full-time recycling coordinators argued that when schools decided to authorize the creation of a recycling program, students who were members of the student environmental group that lobbied administrators provided a natural resource pool from which to staff and manage those efforts. As undergraduates, they were leaders of their student environmental groups, participated in and belonged to national social movement organizations such as the Student Environmental Action Coalition (SEAC), which promoted the diffusion of recycling practices, and were active in pressuring their schools to adopt recycling programs. The link to the SEAC seemed to be significant in many of my interviews with full-time coordinators. The SEAC claims to be the largest student-run organization in the U.S., with members at over 2,200 universities, colleges, and high schools (Strauss, 1995). It sponsors annual student conferences and maintains an elaborate network of experienced student organizers who travel to campuses and hold workshops, provide training, and
support work on activities such as campus solid waste audits. The SEAC claims to have helped create over 700 recycling programs at U.S. schools (Smith, 1993: 127). The SEAC is supported by student environmental group memberships as well as by foundations such as the Mary Reynolds Babcock Foundation and other social movement organizations such as the National Wildlife Federation.

The SEAC was also instrumental in promoting the adoption of recycling programs that were staffed with full-time recycling coordinator positions. During my research, I gained access to many documents prepared by college and university student groups in their effort to convince school administrators that it was appropriate for them to sponsor the creation of an authorized recycling program. Documents from different schools often contained similar kinds of arguments and examples about how other socially similar schools had adopted recycling programs staffed with full-time recycling coordinator positions. Interviews suggested that the SEAC provided access to key information such as case studies of other socially similar schools that helped student environmental organizations shape their arguments to administrators. This emphasis on student activism and the SEAC contrasted sharply with my interviews with role-accretion recyclers, who claimed that there was little to no student concern about recycling when their programs were adopted. Even though my initial research revealed variation in how colleges and universities staffed their recycling programs and suggested that student activism importantly motivated the creation of new full-time recycling coordinator positions upon program adoption, it did not allow me to develop systematic claims about the variation in how programs were staffed.

How the SEAC, college and university student activism, and the adoption of status-creation recycling programs were linked seemed to be an important focal point for further analysis. It is theoretically interesting because it draws attention to how broader institutional diffusion processes intersect with organization-level processes involving intraorganizational conflict and connections to field-level actors to produce variation in the practices adopted (Greenwood and Hinings, 1996). Most institutional research on diffusion has focused on how innovations flow through a system as a result of a variety of cognitive, normative, and regulative forces that are exogenous to organizations (Scott, 1995). While the adoption of practices is certainly influenced by an organization’s susceptibility to broader institutional forces, we know very little about how intraorganizational dynamics and connections to field-level organizations shape responses to institutional pressures. Hence, I set out to gather more systematic data that would enable me to make stronger claims about the interplay between broader institutional processes and organization-level dynamics by testing hypotheses derived from institutional theory and my initial grounded research investigation.

Hypotheses

Institutional analysis often involves theorizing how processes operating at different levels of analysis are connected (Scott, 1995; Schneiberg and Clemens, 2001). My concern was with

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how the broader legitimation and diffusion of recycling practices at the societal level and lower school-level processes shaped the temporal and spatial dynamics of the adoption of recycling practices in a population of colleges and universities. I focused on how broader institutional dynamics driving the diffusion of recycling got translated into more specific staffing arrangements in college and university recycling programs: whether newly adopted recycling programs at colleges and universities were staffed by existing employees who assumed recycling duties as an additional responsibility (role accretion) or by full-time employees who filled newly created roles in the organizational chart (status creation). Consistent with most institutional studies of diffusion, I focus on the rates by which schools adopt recycling programs with different staffing forms (Strang and Soule, 1998).

In the organizations literature on the diffusion of innovations, there has been a strong emphasis on processes of organizational isomorphism (DiMaggio and Powell, 1983; Davis, 1991; Haunschild, 1993). Isomorphism has been conventionally explained with reference to adaptive responses related to imitation or mimesis, although in practice, it is very difficult to untangle such cognitively based mechanisms from more normative or regulative forces (Mizruchi and Fein, 1999). While there have been a number of studies that have focused on isomorphism across whole fields of actors, there have also been considerable efforts aimed at parsing social space into relatively homogeneous groupings that can help explain the temporal and spatial variation of diffusing practices (e.g., Burt, 1987; Galaskiewicz and Burt, 1991; Greve, 1996). The general argument is that different groups of socially similar actors will share information with each other and create group norms that will lead to similar beliefs or the adoption of similar kinds of practices (Festinger, 1954). For instance, Galaskiewicz and Burt (1991) found that evaluations of non-profits by contributions officers in Minneapolis–St. Paul were not uniformly shaped through mimesis but were influenced by shared social status in a hierarchically stratified professional field.

One conventional way to parse educational organizations into socially similar groups is by selectivity (e.g., Kraatz and Zajac, 1996; Kraatz, 1998; Soule, 1997). Schools that are highly selective share many common elements that lead them to define each other as peers and look to each other for cues about how to respond to institutional pressures. For instance, highly selective schools compete for the same kinds of talented students and share similar degrees of media visibility through national comparison rankings. Schools should therefore respond to institutional pressures by choosing adaptive responses similar to those previously chosen by other schools in their status group:

**Hypothesis 1 (H1):** The prevalence of adoption of recycling programs in a school’s status group will increase a school’s probability of program adoption.

Research on colleges and universities has shown that schools that are highly selective also tend to have similar kinds of student bodies that typically have a more liberal
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or the way their interests are accommodated by the dominant coalition, dissatisfaction with the status quo can accrue, leading to mobilization efforts and pressures for change (Zald and Berger, 1978; Covaleski and Dirsmith, 1988; Palmer, Jennings, and Zhou, 1993). In the case of college and university recycling, it is important to investigate how student groups were able to mobilize effectively to affect the staffing of recycling programs that were adopted. It is plausible to hypothesize that schools that have environmentally related majors may have students that are more likely to get involved in environmental activism on campus. Quite often, the study of campus ecological practices is embedded in environmental curricula through lectures and student projects (Smith, 1993; Strauss, 1995). This allows students in environmental majors to be more reflective about ecological issues and become interested in facilitating the development of ecologically benign practices. Further, faculty teaching such environmentally related courses may be more sympathetic to students’ efforts to create recycling programs, providing an important resource to facilitate student mobilization. As a result, a more ecologically aware and active student body may emerge and lobby for the creation of a full-time recycling coordinator position. In turn, school administrators may create a recycling program with a full-time, ecologically committed recycling coordinator in an effort to appease student demands and effectively coopt activist students (Selznick, 1949).

**Hypothesis 4 (H4):** The existence of environmentally related majors will increase a school’s probability of adopting recycling programs staffed with new full-time recycling coordinator positions.

While having an environmentally related major may provide a context conducive to the development of student activism around ecological issues such as recycling, my interviews further suggested a more concrete mechanism by which recycling programs became staffed through the creation of new full-time positions. Specifically, my interviews with full-time recycling coordinators further indicated that student efforts to establish an authorized recycling program were importantly influenced by the SEAC, the national social movement organization that provided resources and energy to local student efforts. The role of field-level organizations and associations in facilitating the diffusion of practices has been a common theme among analysts of institutional processes (e.g., DiMaggio, 1991; Edelman, 1992; Dobbin et al., 1993), although the state and professions, as opposed to actors such as social movement organizations, have been the main focal point of such institutional analyses (Scott, 1995: chap. 5). Field-level organizations can affect intraorganizational dynamics by altering power relations among competing constituencies when some groups draw on the resources of such external organizations to advance their goals at the expense of other groups (Pfeffer and Salancik, 1978). The SEAC’s influence on local student activism became manifest through its sponsorship of national networking meetings, its efforts to facilitate contact among student environmental groups from different campuses, and its advice about appropriate tactics to get authorized recycling programs created.
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The SEAC’s national meetings were particularly instrumental in enabling various student environmental groups to share experiences with each other, including how to structure and make claims when advocating recycling on campus. In contrast, student activism and social movement organizations such as the SEAC were noticeably absent from interviews about recycling program creation at schools that did not establish new full-time recycling management positions. Just as environmental courses of study and associated faculty may provide a resource that facilitates student mobilization around ecological issues such as recycling, the SEAC may have provided important resources to students to help them make effective claims to campus administrators. Hence,

Hypothesis 5 (H5): Student environmental group membership in the SEAC will increase a school’s probability of adopting recycling programs staffed with new full-time recycling coordinator positions.

METHOD

Data for this study come from a variety of archival sources as well as a survey that I conducted in a population of Great Lakes colleges and universities in 1996. I chose states that make up the Great Lakes region to control for multistate cooperation efforts that became popular in the 1980s. In 1983, the states of Minnesota, Illinois, Wisconsin, Indiana, Michigan, Ohio, Pennsylvania, and New York formed the Council of Great Lakes Governors to encourage the development of recycling practices. As an analytical strategy, I decided to further delimit my investigation by analyzing only those colleges and universities with total enrollments of at least five thousand in 1995.

I directed my survey questions to both heads of facilities management departments and people with management responsibilities for the campus recycling program, if one existed. I surveyed schools about if and when they created an authorized recycling program, why it was created, whether students on campus played a role in its establishment, how the program was staffed, including the staffing history, whether and when a new full-time recycling management position was created, whether the person in charge of recycling had other, non-recycling duties, and how much time he or she spent on recycling activities. While questions that prompt informants for historical data are subject to problems of retrospective bias, I believe that there was little bias in this case because, for the majority of schools contacted, the recycling program was a relatively recent phenomenon, and its staffing structure, including the person with managerial responsibilities, had been static since program inception. In most cases, I was also able to verify information by surveying two people at each school as well as through documents related to the origins and operation of recycling programs that were provided to me by informants and by third parties such as state recycling coalitions.

Since temporal variation is a key component of the diffusion process I studied, I employed event history modeling techniques to predict rates of recycling program adoption. As is common in structuring event history analyses, my data are

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organized to include yearly observations on each school in my population until a recycling program was adopted. I was able to obtain data for all 154 colleges and universities surveyed, enabling analyses to reflect the complete population of Great Lakes schools surveyed. To avoid any problems with left-censoring (Tuma and Hannan, 1984), or schools having adopted recycling programs before the beginning of the study period, I began my analyses in 1975, when the first authorized recycling program in my population was created. Analyses are based on a total of 2,530 school-year observations.

Variables

The dependent variable is whether a campus recycling program, if and when created, was staffed by creating a new full-time position within the facilities management department (status creation) or by giving recycling duties to an existing facilities employee as an additional obligation (role accretion). These data were obtained through my survey of Great Lakes colleges and universities.

**Independent variables.** Percent of program adoptions by school selectivity group and High selectivity school were constructed based on selectivity data published in Peterson’s Guide to Undergraduate Study and Barron’s Profiles of American Colleges. I used two sources for cross-checking purposes. I coded school selectivity on a continuous four-point scale, with four being the most selective, and data were coded annually. Since I used the selectivity variables to test how stable social-comparison groupings influence adoption practices, I ran a hierarchical cluster analysis in UCINET (Borgatti, Everett, and Freeman, 1999), which allowed me to derive four stable status groups. The percent of program adoptions by school selectivity group variable measures the extent to which schools within each of the four status groups have adopted a recycling program. High selectivity school is constructed as a standard dummy variable, coded as one for the most highly selective group and zero otherwise.

Public school is a dummy variable indicating whether a college or university is public or private. Environmentally related major captures if and when a college or university created an environmental major. This is a time-varying covariate that was developed by systematically coding whether a school had an official major related to environmentalism as reported in Peterson’s Guide to Undergraduate Study or Barron’s Profiles of American Colleges from 1975 to the present. Again, I used two sources for the purpose of cross-checking.

Member of SEAC, the Student Environmental Action Coalition, indicates whether a student environmental group was affiliated with this large national social movement organization through official membership. The SEAC provided me with annual membership data from its inception in 1989. This variable is a time-varying dichotomous variable that captures if and when a college or university student environmental group was a member of the SEAC, providing an objective indicator of a school’s propensity to experience student advocacy of recycling.
Recycling Programs

Control variables. I used periodization to demarcate a shift toward state regulatory involvement in recycling practices. Between 1988 and 1990, each of the states in the Great Lakes region passed rules mandating that an increasing percentage of their waste stream must be recycled. Data came from interviews with state environmental agencies, which I cross-checked with data provided by the Environmental Protection Agency. These mandates provided an authoritative endorsement of recycling practices and created obligations for local municipalities to develop their recycling programs. The passage of these mandates, therefore, provides data about the timing by which recycling practices achieved regulatory legitimacy in each state. Because I treated all states in the Great Lakes region as experiencing and reacting to institutional forces similarly, I developed period effects for the region as a whole, distinguishing between a pre-regulatory era before 1988, the year when states in the region began formally adopting recycling mandates, and a regulatory era after 1988. I subsequently conducted sensitivity analyses yearly for the five years before and after 1988 to verify that 1988 was the most appropriate year to periodize the temporal process I analyzed.

Counts of recycling articles in Business Week capture the ebb and flow of public attention to the issue of recycling. To do this, I tracked the number of articles that focused on recycling in Business Week. Over the past few years, there have been many efforts and calls to measure cultural changes using media sources such as the popular press (e.g., Hybels, 1994; Baum and Powell, 1995). I chose Business Week not only because of its broad readership and reputation as a mainstream popular business magazine but also because I believe the popularity of recycling in the media provides a good indicator of the eventual widespread acceptance of recycling practices. I obtained counts of recycling articles in Business Week through Lexis-Nexis, using the search word “recycling.” Data are available from 1975 to the present.

Percent change in recycling articles in Waste Age tracks the extent to which recycling became defined as an important technical solution in the U.S. solid waste field. Since the early 1970s, the field of solid waste management has become increasingly professionalized and technologically sophisticated. Waste Age, a solid waste trade magazine that started in 1970 and was purchased by the National Solid Waste Management Association in 1980, is the preeminent trade magazine on solid waste. Physical plant managers at colleges and universities look to Waste Age to provide information on how other schools and municipalities are solving solid waste management problems and to keep abreast of the latest technological developments. As recycling became a legitimate technological solution in the solid waste field, the coverage of recycling in Waste Age increased, creating normative pressures and providing important instrumental information that could encourage physical plant directors to adopt this technology.

School enrollment, a proxy for size, was coded as a time-varying covariate based on data from Peterson’s Guide to Undergraduate Study and Barron’s Profiles of American Col-

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leges from 1975 to 1995. Enrollment was scaled by one thousand for the purposes of analysis. Size is an important control variable for a variety of reasons. Large colleges and universities may be more likely than small ones to create new full-time recycling coordinator positions because they have more resources to create new work positions. Since large schools are highly visible entities in the educational field and in the public eye, they also may be more likely than small schools to express deeper commitments to socially legitimated practices. In addition, since large schools have more students than small schools, the probability of having students oriented toward ecological activism may be greater.

I originally included a number of other control variable operationalizations, but I omitted them from analyses due to multi-collinearity problems with included variables. For instance, lagged recycling program adoptions was very highly correlated with the percent of program adoptions by school selectivity group and is therefore not included in reported analyses. I also disaggregated lagged program foundings and percent of program adoptions by school selectivity group into those schools that adopted status-creation and role-accretion programs but found that the disaggregated variables were very highly correlated with each other. In addition, I gathered data on the overall creation of curbside recycling programs in the U.S. to try to capture how processes outside the Great Lakes states may affect the population of organizations studied, but these were also highly correlated with other control variables. While correlational problems prohibit the inclusion of these variables in the models, those high correlations provide some validation that the variables used are effectively capturing the main contours of the diffusion process.

Analysis. I used event history analysis to examine the rate of recycling program adoption (Tuma and Hannan, 1984). To account for the shift toward Great Lakes states’ regulatory involvement through the passage of recycling mandates beginning in 1988, I employed piecewise exponential models. Piecewise exponential models allow the intercepts to vary in an unconstrained way across time. The basic functional form of this model is summarized in the following equation:

\[ r_{jk}(t) = \exp(\alpha_{jk} + \beta_{jk}X_{jk}), \]

where \( j \) is the origin state of no recycling program for schools, \( k \) is the destination state of recycling program adoption, \( \alpha_{jk} \) is a constant coefficient associated with the \( p \)th time period (in this case, a pre-regulatory period from 1975 to 1987 and a regulatory period from 1988 to 1995), \( \beta_{jk} \) is an associated vector of coefficients, and \( X_{jk} \) is a vector of explanatory and control variables used in the analysis.

Since I was interested in explaining variation in recycling program staffing in addition to temporal patterns of adoptions, I used a competing risk formulation that estimates the determinants and the form of adoption (Hachen, 1988). The estimation of competing risks essentially expands the piecewise exponential model by allowing for multiple destination states.
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were created between 1989 and 1992. By 1995, all but three schools in the population of 154 had adopted one of those two types of programs: 36 authorized recycling programs adopted were staffed through status creation and 115 were staffed through role accretion.

Table 1 reports basic descriptive statistics and correlations. There are no major correlational problems with the variables reported. Table 2 reports piecewise exponential competing risk analyses of recycling program adoptions. Model 1 provides a baseline model that includes just control variables for regulatory actions that mandated increasing rates of recycling in the states under consideration, the ebb and flow of recycling popularity in Business Week, the rise of recycling as a

### Table 1

**Means, Standard Deviations, and Correlations for Independent Variables**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>S.D.</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Counts of recycling articles in Business Week&lt;br&gt;(t-1)</td>
<td>17.61</td>
<td>12.21</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent change in recycling articles in W age&lt;br&gt;(t-1)</td>
<td>.36</td>
<td>.92</td>
<td>.08***</td>
<td>.01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School enrollment/1000&lt;br&gt;(t-1)</td>
<td>8.74</td>
<td>7.33</td>
<td>.06***</td>
<td>-.01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent of program adoptions by school selectivity group&lt;br&gt;(t-1)</td>
<td>.08</td>
<td>.17</td>
<td>.02</td>
<td>.01</td>
<td>-.04**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High selectivity school dummy</td>
<td>.21</td>
<td>.40</td>
<td>-.01</td>
<td>-.01</td>
<td>.06**</td>
<td>.06**</td>
<td></td>
</tr>
<tr>
<td>Public school dummy</td>
<td>.66</td>
<td>.47</td>
<td>-.01</td>
<td>.01</td>
<td>.37**</td>
<td>-.08**</td>
<td>-.25**</td>
</tr>
<tr>
<td>Environmentally related major&lt;br&gt;(t-1)</td>
<td>.60</td>
<td>.49</td>
<td>-.02</td>
<td>.04**</td>
<td>.30**</td>
<td>-.03</td>
<td>-.04*</td>
</tr>
<tr>
<td>Member of SEAC&lt;br&gt;(t-1)</td>
<td>.03</td>
<td>.17</td>
<td>.06**</td>
<td>-.10**</td>
<td>.06**</td>
<td>-.41**</td>
<td>-.02</td>
</tr>
</tbody>
</table>

* \(p < .10\); ** \(p < .05\); *** \(p < .01\); tests are two-tailed for control variables and one-tailed for hypothesized effects.

### Table 2

**Maximum Likelihood Estimates of Piecewise Exponential Competing Risk Models of Status-creation and Role-accretion Recycling Program Adoption (N = 2530)**

<table>
<thead>
<tr>
<th>Model</th>
<th>Status creation</th>
<th>Role accretion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1</td>
<td><strong>-7.242</strong>*</td>
<td><strong>-5.527</strong>*</td>
</tr>
<tr>
<td></td>
<td>(.762)</td>
<td>(.482)</td>
</tr>
<tr>
<td>Model 2</td>
<td><strong>-7.134</strong>*</td>
<td><strong>-5.278</strong>*</td>
</tr>
<tr>
<td></td>
<td>(.745)</td>
<td>(.473)</td>
</tr>
<tr>
<td>Model 3</td>
<td><strong>-7.800</strong>*</td>
<td><strong>-5.604</strong>*</td>
</tr>
<tr>
<td></td>
<td>(.821)</td>
<td>(.492)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Covariate</th>
<th>Status creation</th>
<th>Role accretion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-regulatory period</td>
<td><strong>-2.770</strong>*</td>
<td><strong>-1.449</strong>*</td>
</tr>
<tr>
<td></td>
<td>(.580)</td>
<td>(.329)</td>
</tr>
<tr>
<td>Regulatory period</td>
<td><strong>-2.844</strong>*</td>
<td><strong>-1.506</strong>*</td>
</tr>
<tr>
<td></td>
<td>(.605)</td>
<td>(.337)</td>
</tr>
<tr>
<td>Counts of articles in Business Week&lt;br&gt;(t-1)</td>
<td>-.039</td>
<td>.023</td>
</tr>
<tr>
<td></td>
<td>(.028)</td>
<td>(.014)</td>
</tr>
<tr>
<td>% change in articles in W age&lt;br&gt;(t-1)</td>
<td><strong>-4.10</strong></td>
<td><strong>-2.93</strong></td>
</tr>
<tr>
<td></td>
<td>(.183)</td>
<td>(.113)</td>
</tr>
<tr>
<td>School enrollment/1000&lt;br&gt;(t-1)</td>
<td><strong>-4.04</strong></td>
<td><strong>-1.03</strong></td>
</tr>
<tr>
<td></td>
<td>(.016)</td>
<td>(.019)</td>
</tr>
<tr>
<td>% program adoptions by school selectivity group&lt;br&gt;(t-1)</td>
<td><strong>880</strong></td>
<td><strong>752</strong></td>
</tr>
<tr>
<td></td>
<td>(670)</td>
<td>(378)</td>
</tr>
<tr>
<td>High select. school dummy</td>
<td>1.173***</td>
<td>.254</td>
</tr>
<tr>
<td></td>
<td>(.345)</td>
<td>(.249)</td>
</tr>
</tbody>
</table>

Public school dummy

Environmentally related major<br>\(t-1\)

Member of SEAC<br>\(t-1\)

Log likelihood | -425.32 | -422.64 | -419.74 |

Likelihood ratio test | .536* | 11.16*** |

* \(p < .10\); ** \(p < .05\); *** \(p < .01\); tests are two-tailed for control variables and one-tailed for hypothesized effects.

Standard errors are in parentheses.
legitimate technological solution in the solid waste field, and school enrollment size. All independent variables reported are lagged by one year except for the invariant dummy variables that indicate whether a school is public or private and examine schools that are most selective. Although log likelihood results are provided for each model, it is not useful to compare across models unless they are hierarchically nested. Models 2–7, therefore, are nested models that provide tests of specific hypotheses.

Model 1 shows that the adoption rate of both recycling-program staffing forms significantly increased from the pre-regulatory period to the regulatory period that demarcates when state-level recycling mandates began to be enacted in 1988. This is no surprise, given that the observed adoption rates in figure 1 indicate that the diffusion process began to unfold quite rapidly around the time that most of these mandates were passed in the late 1980s. The Business Week variable, which captures the popularity of recycling, is not significant for either program form, perhaps because the rapid growth in the popularity of recycling practices at the societal level was concomitant with the emergence of actions by state governments to support and encourage the development of recycling practices. As DiMaggio and Powell (1983), Scott (1995), and others have argued, it is often difficult to disentangle normative, cognitive, and regulatory forces, since the processes that lead to the normative popularity of a particular practice are often interpenetrated with efforts to establish rules and guidelines related to that practice.

### Table 2 (continued)

<table>
<thead>
<tr>
<th>Model 4</th>
<th>Status creation</th>
<th>Role accretion</th>
<th>Model 5</th>
<th>Status creation</th>
<th>Role accretion</th>
<th>Model 6</th>
<th>Status creation</th>
<th>Role accretion</th>
<th>Model 7</th>
<th>Status creation</th>
<th>Role accretion</th>
</tr>
</thead>
<tbody>
<tr>
<td>-7.189***</td>
<td>-5.613***</td>
<td>-7.555***</td>
<td>-5.575***</td>
<td>-6.966***</td>
<td>-5.625***</td>
<td>-8.081***</td>
<td>-5.647***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(.790)</td>
<td>(.489)</td>
<td>(.816)</td>
<td>(.489)</td>
<td>(.766)</td>
<td>(.490)</td>
<td>(.952)</td>
<td>(.508)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-2.710***</td>
<td>-1.539***</td>
<td>-3.146***</td>
<td>-1.496***</td>
<td>-2.980***</td>
<td>-1.461***</td>
<td>-4.027***</td>
<td>-1.789***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(.624)</td>
<td>(.340)</td>
<td>(.671)</td>
<td>(.338)</td>
<td>(.619)</td>
<td>(.327)</td>
<td>(.798)</td>
<td>(.366)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>-0.39</td>
<td>0.23</td>
<td>-0.38</td>
<td>0.24</td>
<td>-0.047</td>
<td>0.025*</td>
<td>-0.39</td>
<td>0.013</td>
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<td></td>
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</tr>
<tr>
<td>(.028)</td>
<td>(.014)</td>
<td>(.029)</td>
<td>(.014)</td>
<td>(.029)</td>
<td>(.014)</td>
<td>(.033)</td>
<td>(.016)</td>
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<tr>
<td>-0.410***</td>
<td>-0.298***</td>
<td>-0.411***</td>
<td>-0.294***</td>
<td>-0.238</td>
<td>-0.315***</td>
<td>-0.254</td>
<td>-0.347***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(.183)</td>
<td>(.113)</td>
<td>(.184)</td>
<td>(.113)</td>
<td>(.200)</td>
<td>(.113)</td>
<td>(.205)</td>
<td>(.118)</td>
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<tr>
<td>.101***</td>
<td>-0.049***</td>
<td>.089***</td>
<td>-0.044***</td>
<td>.059***</td>
<td>-0.032*</td>
<td>.079***</td>
<td>-0.052**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(.018)</td>
<td>(.021)</td>
<td>(.018)</td>
<td>(.020)</td>
<td>(.018)</td>
<td>(.019)</td>
<td>(.022)</td>
<td>(.023)</td>
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</tr>
</tbody>
</table>

| -1.14    | .254          | .635*          | .130     | (.480)         | (.200)         | 1.112*** | -.435*        |
| (.455)   | (.210)         | (.480)         | (.200)   | (.416)         | (.291)         | (.417)   | (.294)         |

| -424.55  | -424.16       | -420.41        | 9.82**   | -409.79        | 31.06***      | 47/ASQ, March 2001

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The variable that tracks the legitimation of recycling as a solid waste solution in *Waste Age* is significant but negative for both status-creation and role-accretion programs. This is mainly because recycling as a technology had been discussed in *Waste Age* throughout the time period under investigation, with the highest rate of increase in the mid-1980s, whereas authorized recycling program adoption rates did not begin to increase until the late 1980s. School size as captured through enrollment is positively significant for status-creation recycling programs and negative and significant for role-accretion programs. This indicates that larger schools, which possess a greater amount of resources, are more likely to create new full-time recycling coordinator positions upon program adoption. The size variable, however, provides little insight into the underlying mechanisms by which size gets translated into status-creation programs.

The results of model 2 support H1, that the prevalence of recycling programs adopted among socially similar schools, as proxied by selectivity, will increase the rate of recycling program adoption. Results show that social comparison processes were an important component of the recycling-program diffusion process, but they do not explain variation in the staffing of adopted programs. Model 3, however, shows that the schools that are most selective have a higher rate of adopting recycling programs staffed with new full-time recycling coordinators, providing strong support for H2. There was also a positive association between high-selectivity schools and the rate of adopting role-accretion programs, but it was not significant.

Hypothesis 3, which predicted that public schools will have a higher adoption rate of recycling programs that are staffed through status creation, was not supported. Model 4 shows that the public school dummy is in the opposite of the expected direction for status-creation programs and is not significant for either recycling-program staffing forms. Model 5 provides marginal support for H4, that schools with environmentally related majors will have higher rates of adopting recycling programs staffed by full-time recycling coordinators. Schools with environmentally related majors did tend to create recycling programs staffed with new full-time recycling coordinator positions at higher rates, but there was no significant relationship between the existence of an environmentally related major and rates of creating role-accretion programs. Results of model 6 show that having a student environmental group affiliated with the SEAC is positively and significantly related to rates of creating recycling programs staffed through status creation, providing strong support for hypothesis 5. In addition, the relationship between having connections to the SEAC and rates of role-accretion recycling-program adoption is negative and significant, highlighting that recycling program staffing variation was, on the whole, importantly shaped by that field-level organization.

Model 7 provides a complete model that sheds light on the overall processes and mechanisms that explain how variation in the staffing of recycling programs at colleges and universities occurred. The passage of state recycling mandates, as proxied by the regulatory periodization, continues to capture
important forces shaping the overall diffusion process. Aside from the period effect, however, the pattern of results for the creation of status-creation and role-accretion recycling programs are remarkably different. For status-creation recycling programs, highly selective schools and membership in the SEAC remain positive and strongly significant, while the percent of programs adopted by school selectivity group and environmentally related major variables are not significant in the full model. For role-accretion recycling programs, all results from previous models remain, with the exception of the public school dummy variable, which became marginally significant. Overall, schools that created new full-time recycling coordinator positions tended to be larger, were more highly selective, and had student environmental groups on campus that were connected to the SEAC. Schools that staffed their recycling programs as a part-time duty with existing staff tended to be smaller, public, influenced by social comparison processes, and lacked connections to the SEAC social movement organization.

While organizational characteristics such as size and school selectivity provide insights into the processes by which schools decided on how to staff adopted recycling programs, connections to the SEAC provide a more concrete mechanism that explains the origins of recycling program staffing variation. While extant research shows that schools that are large and more selective experience higher rates of student activism, school size also provides a dimension of social similarity that may guide efforts by school administrators to search for appropriate responses to institutional pressures. Both my initial fieldwork and the empirical results of the broader survey of Great Lakes schools, however, show that student environmental groups’ connections to and support from the SEAC were crucial in making effective claims, leading to variation in recycling program staffing forms. Large size and high selectivity are perhaps better understood as characteristics that help shape what kinds of schools were most susceptible to the normative influences of the SEAC.

DISCUSSION AND CONCLUSION

This study of variation in the staffing of college and university recycling programs showed that schools that staffed their recycling programs through role accretion tended to be public, smaller, and were importantly influenced by social comparison processes among schools of similar selectivity. Schools that created a new, full-time recycling coordinator position upon program adoption were larger, more selective, and had student environmental groups that actively lobbied their administrations to create an authorized recycling program. This local student activism did not occur in a vacuum, however, but was importantly shaped by the Student Environmental Action Coalition (SEAC), a national social movement organization that provided resources and advice to student environmental groups about how to get their schools to adopt an authorized recycling program. In addition, the passage of recycling mandates by state governments was an important aspect of the process of aggregate recycling program diffusion, but it was relatively unhelpful in explaining how and why staffing variation occurred.

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Through the sponsoring of national meetings, the SEAC facilitated the development of network connections among student environmental groups from different campuses. Most importantly, though, the SEAC helped local student environmental groups make effective claims about why their school should adopt recycling programs staffed with full-time, dedicated recycling coordinators. They provided student groups with evidence from comparable schools that emphasized that it was normatively appropriate to create a full-time staff position since the creation and management of a recycling program required full-time attention and a set of skills that was orthogonal to that of managing garbage collection and hauling. This evidence was communicated in formal documents created by student environmental groups that were presented to school administrators in support of their claims. The overall development of such documents was also shaped by interactions with the SEAC and student environmental groups from other campuses.

The role of the SEAC in facilitating the staffing of college and university recycling programs through status creation highlights the general importance of investigating how broader field-level actors and organizations such as governmental agencies, trade associations, and social movement organizations shape the content of organizational practices (Scott, 1995). The case of the Americans with Disabilities Act (ADA), passed in 1990, provides a related non-social-movement organization example. Consistent with institutional arguments that the passage of laws often leaves the specification of how organizations are supposed to respond to the law ambiguous (e.g., Edelman, 1992), ten regional technical assistance centers were created across the country to promote the organizational adoption of specific disability-friendly practices. These technical assistance centers, in turn, provided an important mechanism by which practices adopted in response to that legislation varied—with some organizations adopting more committed responses, such as hiring ergonomic specialists and creating special budget lines for disability accommodation costs, while others adopted more symbolic practices that were much less helpful for people with disabilities (Balser, 1999). A focus on how such field-level organizations like the SEAC or ADA technical assistance centers shape differences in the practices of organizations, therefore, promises to contribute to our understanding of the sources of organizational heterogeneity.

A focus on organizational heterogeneity can help to bridge the gap between institutional analysis and more traditional perspectives on organizational adaptation that portray organizational variation as antithetical to institutional analysis (Leblebici et al., 1991; Powell, 1991; Greenwood and Hinings, 1996). In addition to staffing variation, this study as well as the ADA example described above raise the issue about whether an organization’s response to institutional pressures is substantive or merely ceremonial (Meyer and Rowan, 1977). Though my fieldwork indicates that recycling programs staffed through status creation provided more substantive and committed responses to institutional pressures, while programs staffed through role accretion seemed more cere-

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Recycling Programs

monial, it would be useful to conduct more systematic research about the conditions under which the substance and appearance of organizational responses to institutional pressures are decoupled.

The results of this study suggest that connections to a national social movement organization helped to explain variation in the staffing of adopted programs, but this network mechanism may be consistent with standard diffusion mechanisms having to do with processes such as mimesis (Galaskiewicz and Burt, 1991). For instance, the percent of schools adopting recycling programs by school selectivity group and school size both contributed to the overall explanation of staffing variation. Even though school size proxies a variety of potential mechanisms, such as those having to do with access to resources, it is possible that social similarity may also be a mechanism tapped by size variables. Larger schools, for instance, may look to each other for cues about how to respond to similar institutional pressures. In addition, my fieldwork suggested that student environmental groups explicitly made claims to administrators by marshaling evidence about how socially similar schools adopted recycling programs staffed with full-time recycling coordinator positions.

To wit, this study additionally suggests that a focus on broader field-level organizations may lead to further insights about processes of organizational stratification (Stinchcombe, 1965). If connections to field-level organizations operate in tandem with diffusion processes driven by social similarity, then the study of such organizations may provide further insight into the mechanisms by which status is conferred upon organizations (Podolny, 1993). Hence, trade associations may be important not only because of their contribution to the governance and stability of fields (Campbell, Hollingsworth, and Lindberg, 1991) but because of the role they play in stratifying fields into niches. It would be particularly interesting to study industries and fields in which multiple kinds of professional and business associations compete for members and influence over how practices should be organized, to develop an understanding of how such contestation over work practices shapes the boundaries of organizational niches, field evolution, and status-mobility projects (Abbott, 1988; Hannan and Freeman, 1989; Lounsbury, 2001).

By highlighting the role of a social movement organization in shaping variation in practice implementation, this study also contributes to the growing interest in combining the study of social movements with organizational analysis (e.g., Zald and Berger, 1978; Davis and Thompson, 1994; Clemens, 1997; Rao, 1998). While neoinstitutionalists generally have not highlighted social movement activity as a major factor driving institutional change, student activism should not necessarily be viewed as an explanatory mechanism that is contradictory to new institutional analysis. Social movement organizations provide a mechanism that is consistent with standard neoinstitutional arguments about the influence of broader interorganizational linkages through organizations such as state agencies and professional bodies (Strang and Meyer, 1993; Scott and Meyer, 1994). What is somewhat different from
standard accounts of institutional process, however, is that social activism was responsible for creating institutional variation but not for driving the overall process. This paper indicates that as institutionalists aim to revise their theories of social change to highlight conflict and heterogeneity, variation tied to social activism and movements should receive more attention (e.g., Strang and Soule, 1998; Moore, 1999).

This study also has important implications for the dynamics of social movements and the relationship between social movements and institutional change. Although some have argued that as the environmental movement of the late 1960s became co-opted by for-profit industry interests, the initial environmental goals of restructuring capitalist production systems into small self-sustaining communities through recycling was subverted (e.g., Schnaiberg and Gould, 1994), the case of recycling in colleges and universities provides a more complicated picture. As my initial exploratory interviews indicated, the people that filled newly created recycling coordinator positions at colleges and universities were ecological activists who were committed to the enduring goals and inspirations of the environmental movement. In contrast to early recycling activists in the 1970s, who formed thousands of non-profit volunteer recycling centers and practiced alternative lifestyles (Seldman, 1986), recyclers discussed in this paper are working within mainstream organizational bureaucracies. For social movements analysts, this provides an interesting example of how the charisma of social movements gets routinized into the daily workings of society (Weber, 1978). Often, social movement analysis is delimited by a focus on the rise and fall of the movement itself. Little attention has been paid to the consequences of the movement that embed its inspiration into mainstream institutions (Giugni, 1998; Giugni, McAdam, and Tilly, 1999). Unlike social movement co-optation (e.g., Selznick, 1949; Jenkins, 1977), the embedding of social movement discourse and practice within conservative institutional frameworks holds out the possibility of continued social change, albeit in much less visible and dramatic ways.

A focus on how work gets structured through staffing may also provide a way to synthesize research on hierarchical relations in fields (Scott, 1994) with the longstanding Weberian organizational tradition that emphasizes the study of authority relations in bureaucracies. One obvious way that scholars have connected the dynamics of authority relations to organization-environment relations is through the study of professionalization and the development of heteronomous organizations (e.g., Scott, 1965; Powell, 1985). It would be fruitful, however, to develop a deeper understanding of how various kinds of social forces other than professionalization figure into the staffing of organizations. A focus on social movements and social movement organizations is one relatively unexplored path (e.g., Zald and Berger, 1978), while a focus on the evolutionary dynamics of organizations and occupations (e.g., Baron and Bielby, 1960; Miner, 1990, 1991; Haveman and Cohen, 1994; Lounsbury and Kagan, 2001) and how the transformation of fields leads to changes in the
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structure of work (Scott et al., 2000) has already begun to show promise.

In general, we need more studies that connect institutional change to variation in the content of organizational practices. To uncover institutional sources of practice variation, however, researchers may have to employ more eclectic methodologies that combine large-scale archival analysis with more grounded ethnographic research strategies. By understanding how the content of organizational practices is shaped by broader institutional forces, we may develop new insights about the sources of organizational heterogeneity and gain significant leverage in identifying why organizational diversity exists in some fields but not in others. Finally, by studying practice variation, institutional theorists may be able to identify some boundary conditions that demarcate when and where isomorphic processes are expected to operate and the degree to which certain practices will become more or less institutionalized.

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