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# **Barriers to Interdisciplinarity in Environmental Studies: A Case of Alarming Trends in Faculty and Programmatic Wellbeing**

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**Abstract:** Multiple barriers in the structure and function of American higher education conspire to impede the success of interdisciplinary programs in environmental studies. We present an amalgamated narrative case study to illustrate how barriers operate both independently and in concert to undermine individual and programmatic goals, innovation, and operations, resulting in lost opportunities for faculty, students, and curricula, and other program elements. Barriers are illustrated stemming from a variety of sources, including academic organizational culture, structure, and leadership. An analysis of three main barriers and strategies to address them led us to produce recommendations that foster new patterns of faculty interaction and leadership. These recommendations are based on a foundation of human dignity, shared respect, and common values. In turn, they require a clear conception of interdisciplinarity and integration, and practical means to achieve them in diverse contexts.

**Keywords:** interdisciplinarity, integration, environmental studies, higher education, barriers, leadership, administration, organization, culture, human dignity.

## Introduction

In the field of environmental studies, as in other professions, many challenges face faculty members who self-identify as “interdisciplinary.” Some challenges to using interdisciplinarity pose formidable barriers. Barriers take many forms, some starkly visible, others surreptitious, and others invisible, yet all have consequences for faculty productivity, morale, and sustainability (Clark et al., 2011b), and in turn for institutional outcomes (Harvey, 2008). In environmental studies (ES), our job is to help ourselves, our students, and our colleagues build integrative skills to address the problems embedded in professional life, society, and the environment (Clark & Wallace, 2012). Our principal challenge as educators is to produce graduates who are conceptually clear, methodologically competent, and intellectually proficient as problem solvers, future leaders, and change agents. Interdisciplinary teaching and learning are required to meet these goals. Thus, overcoming barriers is critical to the empowering of students and colleagues.

Interdisciplinarity is inherently “problem-oriented”—that is, its theory and methods are designed to address the complexity of social and environmental problems (Klein, 2010; Wallace & Clark, 2014; Repko & Szostak, 2017). This applied focus, in combination with interdisciplinarity’s lack of adherence to historical disciplinary norms, has resulted in a dynamic web of epistemological, organizational, and cultural barriers in higher education that individually and in combination hinder the pedagogy and practice of interdisciplinarity (e.g., Bauer, 1990; Snow, 1998; Conrad, 2002; Henry, 2005; Agrawal & Ostrom, 2006; Adams, 2007; Payton & Zoback, 2007; Tress, Tress, & Fry, 2007; Richter & Paretto, 2009; Hicks, Fitzsimmons, & Polunin, 2010; Kahn, 2011; Pharo & Bridle, 2012; O’Brien, Marzano, & White, 2013). There are many ways to accurately describe the barriers beyond what we offer here (e.g., MacMynowski, 2007; Clark & Wallace, 2015; Terway, 2017).

We examine barriers to interdisciplinarity in ES programs (which we conceive as including environmental science and sustainability programs, all of which face equivalent barriers). We draw on diverse data, both intensive and extensive, to describe, understand, and address barriers. Our paper is in three parts. First, we offer an amalgamated case study of an environmental studies program at an undergraduate liberal arts college in the United States (though these barriers also exist in universities and graduate programs; see, e.g., Clark & Steelman, 2013). Through the case we illustrate the nature and contours of a host of leadership and organizational barriers. Second, we

examine the three barriers to interdisciplinarity as illustrated in the case. We show how they became increasingly formidable in combination. Finally, we offer strategies to address the barriers that we believe would have helped to ameliorate problems in the case—at least for some participants—and which are generally helpful in confronting and overcoming barriers at both the individual and organizational level.

Although all of the barriers to interdisciplinarity that we illustrate in our case are demonstrably evident in ES, many are not unique to that field. Our purpose in illustrating them in this context is to show their influence on interdisciplinary ES while also highlighting the common concerns felt by faculty in many interdisciplinary fields. One of the most challenging characteristics of higher education is its tendency to categorize, isolate, and divide its participants; by highlighting one field's barriers and drawing attention to the common experiences of all interdisciplinarians, we hope to provide common ground on which to strengthen the academic interdisciplinary community across all its attendant fields of research and practice.

### **Theoretical and Methodological Considerations**

As recognized in both interdisciplinary studies and the fields of environment and natural resources, interdisciplinarity is both a concept and a skill set—a practical, teachable means to integrate knowledge and methods in addressing problems (Clark, 2002; Repko & Szostak, 2017). In all our work as teachers and practitioners of interdisciplinary environmental problem solving, we follow Repko and Szostak's (2017, p. 19) model of the "integrationist interdisciplinarian" approach, in which interdisciplinarity is a method to achieve the goals of integration. As has been written in virtually every forum about interdisciplinarity, this practical and scholarly approach is about melding knowledge and skills from all sources—personal and professional, local and "expert"—at all scales to address problems. As is recognized in the pages of this journal and many others, interdisciplinarity and integration have been widely explored and promoted for many decades as a means of problem solving (Apostel, Berger, Briggs, & Michaud, 1972; Newell, 1998; Wallace & Clark, 2014; Frodeman, Klein, & Dos Santos Pacheco, 2017; Repko and Szostak, 2017). However, despite their widespread use, interdisciplinarity and integration remain contentious subjects and practices within the academy (Menand, 2010; Jacobs, 2013; Frodeman, 2014) and in applied fields (e.g., Clark, Palis, Trompf, Terway, & Wallace, 2017).

Below, we address difficulties faced by practitioners of interdisciplinary teaching, research, and application in ES. Barriers to interdisciplinarity can be overt in an academic culture that rewards specialization and reductionism over integrative approaches to pedagogy and practice (Terway, 2017). Barriers in ES take many forms, including weak top-down leadership, unclear goals and vision, poor faculty relations, under-resourcing, conceptual muddle, misrepresentation and misunderstanding of interdisciplinarity and, importantly, goal “inversion” or “substitution.” It is our sense that these barriers, which we have observed or experienced directly, and which have manifested repeatedly in diverse ways over many decades, are broadly experienced by interdisciplinary faculty. In response, our desire to share common experiences and strategies drove us to provide the following case, analysis, and recommendations.

Our case study method follows Flyvbjerg (2006) and Ruddin (2006), who note that understanding events and processes requires in-depth research and observation. Our approach reflects Flyvbjerg’s (2001, pp. 135-136) belief that

Practical rationality . . . is best understood through cases—experienced or narrated—just as judgment is best cultivated and communicated via the exposition of cases. [As well,] a focus on concrete cases does not exclude attempts at empirical generalizations (which) are perfectly compatible with cases and with narrative.

Following Flyvbjerg (1989), we believe that cases provide the stepping-stones by which experience becomes wisdom. Our effort also follows Pelias’ (2004) case study methodology of merging actual events experienced by the authors and many other individuals into a more complete, overall picture of the real, lived experiences of educators. To achieve this goal, we offer an amalgamated narrative of actual events that is fully anonymized in order to protect the identity of participants and contributors (after Sparkes, 2007).

We offer this case as a diagnostic tool for other faculty trying to make sense of the barriers they face—a strategy strengthened, we believe, by our reliance upon historical and recent data from the literature and formal and informal conversations with faculty, staff, administrators, and students at scores of colleges and universities in North America, Europe, and Australia. We also draw upon site visits to dozens of institutions and participation in hundreds of professional meetings over more than 40 years at which barriers to interdisciplinary were openly and explicitly discussed. Finally, we incorporate our own professional experiences at multiple institutions. These data capture diverse experiences and create multiple layers of narrative perspective, leading—we hope—to a case presentation, diagnosis, and analysis

that will both seem familiar to a broad readership and add substantively to the widening, ongoing conversation about how best to recognize and overcome barriers to interdisciplinarity.

### **The Barriers Case**

Our case features an environmental studies program at our composite private, undergraduate liberal arts college in the United States. Liberal education—and the typical model of a liberal arts curriculum—is a tradition in which faculty teach and students take a selection of courses in the humanities, social sciences, and natural sciences, collectively designed to provide a broad foundation of inquiry into and engagement with diverse ideas and perspectives (Nussbaum, 2012). The historical development of liberal education in the United States conveyed its curricular diversity with an emphasis on both process (i.e., method) and outcome (i.e., responsible citizenship). Its roots are in the philosophical tradition of American pragmatism, particularly the work of John Dewey, William James, and Jane Addams. As such, liberal education is defensibly normative, designed to create “habits of action that grow out of a spirit of broad inquiry” and to “incite doubt and challenge the prevailing consensus” (Roth, 2013; see also Roth, 2014). Furthermore, societal challenges now call for an even more specific delineation of the values and goals of liberal education: to promote broad cultural understanding and sensitivity, encourage citizenship and community, unify student-centered educational methods and content into a coherent experience, emphasize scholars’ strong teaching skills, and promote joy in the experience of learning (Kimball, 1995; Roche, 2010). These values and goals are well represented, indeed are often essential functions, of ES and many other interdisciplinary fields. As such, they are threatened by the barriers to interdisciplinarity that we address here.

#### *The Inception and Growth of the ES Program*

Our case study school’s ES program grew out of its division of natural sciences. It was part of the rush of program-building following the birth of the environmental movement in the late 1960s. Originally housed in a geology department, ES was the school’s first “interdisciplinary” major. A faculty-wide debate ensued about whether an interdisciplinary field of study (by definition) could claim sufficient depth to warrant a major. Faculty advocacy led to an understanding of the need for an interdisciplinary curriculum to better integrate theory and methods in service to societal problem solving. In

the end, the ES curriculum was approved and two tenured faculty members in natural sciences volunteered to co-chair the new program. Additional courses were added by faculty in existing departments. Thus, the program's original curriculum included pre-existing introductory and elective courses in natural and social sciences and new core ES courses on "the relationship between people and nature." The core courses were co-taught on a rotating basis by two faculty members, one each from the natural sciences and social sciences (there were not yet participating humanities faculty). Their efforts, though heartfelt, amounted to a "side-by-side" presentation of different perspectives—i.e., a multidisciplinary approach—rather than a true interdisciplinarity in service of integrative goals. This format reflected the knowledge and skills of faculty and administrators at the time, and lacked an explicit, systematic, and practical set of interdisciplinary concepts and methods (Clark & Wallace, 2012, 2015).

In its early years, the program inched toward curricular and scholarly integration in concept and practice without ever explicitly elucidating a coherent, practical theory of interdisciplinarity. This development is a common phenomenon that MacMynowski (2007) termed "pausing at the brink of interdisciplinarity." The program promoted itself as interdisciplinary in aspiration at least, but never actually got to the desired clarity of concept, method, and integration. The co-chairs worked assiduously to develop new courses, regularly teaching overloads, developing and running related extracurricular programming, and recruiting colleagues in other departments to develop and offer cross-listed courses. Acknowledging the co-chairs' success in these endeavors, the dean and other top administrators took a hands-off approach to the program's development. Given wide leeway, even without many resources, the co-chairs were eventually able to develop a credible problem-oriented, interdisciplinary program that provided students with both rigorous courses and related co-curricular experiences on and off campus. As a result, the program developed a reputation as the college's interdisciplinarity center and boasted successful outcomes, including helping students to land jobs and graduate school admissions at impressive rates.

### *Barriers to Program Evolution*

At the time of the program's first external accreditation-related review, the dean noted that the program had prospered "due to the willingness of the ES faculty to go above and beyond the call of duty, and of faculty in other departments to teach ES courses out of the kindness of their hearts and desire to do the right thing by the students and college." While the program was

successful, this history illustrated the lack of formal institutional support for its maintenance and growth. Curricular growth was difficult, as the co-chairs received only fixed-term faculty appointments to supplement their two full-time appointments, usually one- or two-year visiting professorships or teaching postdocs.

The college's larger curricular context was limiting as well. In order that they might complete the college's extensive general education requirements (a centerpiece of its identity and marketing), students were not allowed to declare a major until the end of their second year. Because students had only four semesters to complete their major requirements, major curricula were limited in size, breadth, and depth. Because of the compressed timeline for completing major requirements, the college strongly discouraged double-majoring by students. Similarly, the administration and faculty curriculum committee typically did not allow departments and programs to offer minors to accompany their major curricula. All of these restrictions served to limit flexibility in the structuring of curricular requirements and related co-curricular experiences by students and faculty. Because ES had been initially approved on the presumption that a broad selection of disciplinary offerings would comprise the base of the curriculum, these limitations had the effect of restricting the curriculum's interdisciplinary content and depth.

For ES faculty, the college's strict adherence to the traditional academic divisions—natural sciences, social sciences, and humanities—proved problematic when the founding program co-chairs retired within a year of one another. Prior to the creation of ES, the college's academic program had featured only traditional disciplines, and all faculty were required to be placed in one of the three academic divisions. This requirement was designed to facilitate the contributions of all faculty members to the college's required core curriculum. Faculty members in each division were required to offer introductory core courses in that division. ES, having developed out of a natural sciences department, had been placed in the natural sciences division when it was created. This placement worked for years because the founding co-chairs (the only core faculty in the program) were both natural scientists. In response to their retirements, the administration approved two new tenure-track hires at the assistant professor level. The first of these was for a new program director—a position that was changed from “chair” to “director” in order to match the untenured status of the person who would fill it. That position was filled by a natural scientist. The second position was filled by a social scientist. Both came from top-ranked research universities and prestigious post-docs, but had little teaching or administrative experience.

The college's divisional teaching requirements meant that both new

ES faculty were obligated to offer core courses in the natural sciences. Remarkably, this policy included the social scientist, even though she had no background or training in the natural sciences. In other words, no exception or accommodation was made for a social scientist teaching in an interdisciplinary program that—for historical reasons that no longer applied to current circumstances—had been placed in the natural sciences division. Because the program director was herself a new and untenured faculty member lacking in power, status, and experience, and the dean maintained her hands-off approach to the program, no one was in a position to change the requirement that placed the social scientist in this untenable position. As a result, once per academic year, the ES social scientist taught an introductory section of a core natural science methods course—an experience that poorly served the core curriculum and the students enrolled in the class, and that fostered an existential crisis on the part of the ES social scientist.

The program director, despite her inexperience, received no mentoring or active support from administrative leadership. As a result, she was left alone to figure out how to navigate both the college's academic culture and the web of informal relationships that the previous co-chairs had developed over nearly two decades. These, she learned, had been central to the stability and growth of the ES curriculum. As she discovered, the influence of the previous co-chairs was difficult to overcome. Furthermore, the situation presented an unexpected and unwelcome challenge for a newly-minted Ph.D. in her first tenure-track job.

As a result of the barriers to their professional development, the two young ES faculty members found it difficult to plan strategically for future programmatic and curricular development. As well, they found it hard to delineate (much less implement) a long-term vision for the ES program. Worse, they were forced to navigate these difficult administrative and institutional hurdles while also developing, introducing, offering, and assessing new ES courses, advising students, pursuing their research agendas, and performing college service duties, all required in annual reviews toward tenure and promotion. Facing these unanticipated stresses and hurdles to their professional development and their ability to productively contribute to either their individual or programmatic goals, both new faculty members left for other jobs within two years.

In the wake of the faculty members' departure, members of the administration promoted a narrative that both had been a "poor fit" for the school, unable to adapt to the school's culture, and argued that that a different approach to hiring was necessary to ensure future stability in the ES program. In the interim, the dean put a non-tenure track lecturer in the ES director

position, temporarily downgrading it to the equivalent of a staff position. The administration then asked an ad hoc committee of interested faculty to design a new hiring strategy. They decided to consolidate the two open ES positions into a single senior-level (i.e., tenured) hire—a new program chair. The dean and president approved and authorized a search. The search committee soon found itself with two rough categories of candidates: those with a proven record of successful program administration and those with a prestigious research career. There was little overlap between the two. When the search committee deadlocked on which type of candidate to pursue, the dean, provost, and president expressed their desire to attract a high-profile researcher with a proven record of obtaining large grants. In the end, the finalists in the search pool were limited to full professors with prestigious research and grant-making profiles. The hire was a quantitative social scientist whose research program focused on natural resource economics in developing nations. His arrival—and the arrival of his substantial research funding—was much-heralded by the college.

While the new program chair brought esteem to the college, he unfortunately lacked an interest in administrative leadership and programmatic development, much less deep interdisciplinarity. Once settled in, he prioritized his own research over managing and developing the ES program and its enrollments. Whereas his two immediate predecessors had been interested in growing the program, but had lacked the experience to provide leadership in a complicated organizational context, the new program chair was a skilled operator whose main interest was in settling quickly into a routine of traveling to his research sites and teaching a light course load (that he had negotiated upon his hiring and justified with the substantial grants he brought with him).

### *Barriers Conspire to Produce a Diminished Program*

There were several consequences of the new program chair's self-centered orientation. First, he negotiated a move of the ES program from the natural science to the social science division so he could offer a basic economics course as his contribution to the college core and comfortably offer courses in his narrow field of study. Second, because he taught a reduced course load and had replaced two full-time faculty members, the core ES curriculum shrank with his arrival and greater curricular responsibility fell to faculty in other departments who taught cross-listed courses (these were mostly the faculty members who had been on the hiring committee). Third, despite the greater need for faculty in other departments to offer ES courses, he did not

attempt to recruit such faculty into the program. Fourth, he did not attempt to grow student enrollments in order to justify additional ES faculty hires, but instead continued to seek annual funding for visiting or post-doc positions to teach required classes in the ES major. In his 15 years as chair, no new permanent faculty lines have been requested and the number of annual visiting faculty lines has fluctuated between zero and two. Finally, without centralized leadership by either the chair or his superiors, the number of overall ES faculty members has shrunk, and with it the number of available courses. These factors, in isolation and combination, all served to discourage the success of interdisciplinary ES at the college.

As a result, interdisciplinarity in the curriculum began to lose both voice and presence in curricular discussions. Other programs—particularly STEM-related programs, such as neuroscience and biochemistry, took advantage of the opportunity to claim the mantle of interdisciplinarity. ES became marginalized and diminished, even in the college’s promotional materials, as the communications staff neglected to include ES among the interdisciplinary programs on the college’s academic home page, where it was absent for years (despite ES-affiliated faculty members’ repeated requests to have it included), until a redesign of the page did away with *all* mention of interdisciplinary programs.

### *Summary Analysis*

During the programmatic decline reflected in the latter half of the history recounted above, the dean and provost deflected responsibility for supporting ES and defended the college’s status quo standards and behavior. Deans, provosts, and presidents have a responsibility (and associated accountability) to both college-wide interests and to the individual fields of study represented in their curriculum. Successful schools—and their leaders—demonstrate the ability to integrate multiple mandates, methods, and areas of theory and knowledge in the interests of building and supporting vibrant programs that (in turn) lead to healthy and sustained student enrollments. In our case, competing mandates typically led to the disadvantaging of ES—e.g., in favor of supporting the college’s disciplinary norms and reputation—that resulted in the disempowerment of interested and motivated ES faculty. Despite the problems ES was experiencing, the deans and provosts during this time repeatedly made decisions that disadvantaged the curriculum. These decisions led to marginalization, alienation, and resentment by some faculty members and students, and also to low morale among faculty members who had long been supporters of and contributors to ES. This, in turn, contributed

to faculty attrition from the program.

During the more than three decades that the case briefly describes, the college hewed to national trends in college governance that reflect a growing loss of power by faculty over curricular and staffing decisions (e.g., Ginsberg, 2011; Bess & Dee, 2014, Gerber, 2014). When the ES program was established in the early 1970s, faculty were both self-empowered and enabled by administrators to create and nurture the curriculum and related co-curricular opportunities. As the role of the faculty in academic governance at the college diminished, decisions about the direction of the academic program were increasingly made by the dean, provost, and president. Without a strong, active faculty voice in governance, it became difficult for ES faculty to access resources to ensure programmatic and curricular stability. This problem was especially formidable when the program directors were untenured faculty. Stability is necessary to support curricular cohesion and evolution, a necessary precursor to achieving student learning outcomes and all other academic goals.

At no time did top administrators display a clear conception of—much less empathy for—integration or interdisciplinarity in the ES program. The greatest casualty of the lack of leadership—by both the new chair and college administrators—was the program’s interdisciplinary content and method, which all but vanished, creating a discontinuity between the college’s progress and national norms in ES. This was most clearly evident in top administrators’ lack of concern for national standards for either ES or interdisciplinarity, and their declining interest in engaging knowledgeable and skilled faculty in either area.

Finally, it is worth clarifying the trajectory of the ES curriculum over the life of the case. When the original program chairs established the first ES curriculum, the academy and the nation were in a period of rapid growth in environmental thought and practice. The ES faculty had help not only from their top administrators, but from their like-minded colleagues and students. All clamored for post-secondary environmental education. As a result, the curriculum grew in both breadth and depth, and enrollments with it. Its continued growth and stability, however, needed the continuing support of the college’s administrators. Without it, and unlike in more established disciplines, staffing changes in ES created repeated uncertainties and discontinuities in the curriculum. For example, the hiring of the two junior faculty members could have marked a period of renewed growth for the curriculum, if they had received appropriate mentoring and support. Receiving no such support, they both departed prematurely creating a lengthy period of curricular uncertainty and highlighting the need for a strong, well-

grounded leader to foster curricular growth. When administrators insisted on hiring a new chair to promote research and grantmaking prowess rather than curricular innovation, faculty in other departments were left to their own devices to contribute to the ES curriculum. Furthermore, core courses were staffed by post-docs, visiting professors, and adjunct lecturers whose skills and experience were often mismatched to the long-term needs of the curriculum and program. This in turn caused the curriculum to languish until it approximated a piecemeal approach to ES that looked more like a nascent patched-together program than one with decades of history (see Clark et al., 2011b). This is especially disappointing in comparison with national trends in the growth of ES curricula in the U.S. and internationally.

### **Placing the Case in Context**

The case raises three broad, interrelated areas of concern for interdisciplinarians. Collectively they offer a diagnosis warranting further exploration of: (1) the influence of disciplinary norms on interdisciplinarity, (2) the changing culture of academic governance, and (3) the devaluing of community in ES. In this section, we locate the case in the context of each of these areas of concern, noting that weaknesses in administrative leadership are directly implicated in all three problems. As we stated at the outset, the case is an amalgam of input from many different sources, anonymized, and presented narratively. Every experience recounted in the case is true. We either experienced them firsthand or had them described to us by individuals who did. Analytically, we now leave the anonymized narrative, and relate the three main concerns to the larger trends occurring in higher education.

#### *Disciplinary Hegemony and the Suppression of Interdisciplinarity*

The modern disciplinary structure of higher education arose out of the professionalization of the academy in the United States at the end of the 19<sup>th</sup> century, when colleges and universities that had long focused on learning as a goal in itself were forced to meet societal demands for “marketable” and “business-relevant” skills (Veysey, 1970; Rudolph, 1978; Gerber, 2014). By the early 1900s, the modern disciplines had been established and academic departments formalized around them. This structure has remained largely unchanged in the decades since, augmented by an ever-increasing number of sub-specialties within those disciplines, some of which are now seen as independent of their progenitors (Abbott, 2001; Becher & Trowler, 2001).

The culture of disciplinarity grew rapidly in the early 20<sup>th</sup> century,

undergirding professional identity, socialization, and loyalty within the academy. Indeed, the disciplines quickly became the defining “tribes and territories” of the academy—groups of people asserting claim to their respective intellectual landscapes (Clark, 1997; Becher & Trowler, 2001; Trowler, Saunders, & Bamber, 2012). Adherence to these trends defies logic and pragmatism when, as in the case, faculty are required to teach outside of their area of training and expertise, and no quarter is given to faculty members who do not neatly fit into disciplinary molds. Defending disciplinary norms to the point of sacrificing individual faculty members is perhaps the most self-defeating example of disciplinary control we have experienced. When such experiences occur, individual institutions and the academy as a whole are weakened.

Another aspect of disciplinary culture that impedes interdisciplinarity is that disciplines are designed to be self-perpetuating, as a means to ensure that they remain the academy’s dominant intellectual units (Clark, 1997; Abbott, 2001), and are the essential component of identity and loyalty of almost all faculty, regardless of rank or position (Hyland, 2012). Throughout their history, disciplines have thrived by placing great pressure on their members—through the peer review and tenure and promotion processes—to adhere to their theoretical, methodological, and behavioral norms. In so doing, disciplines and their departments have become a staging ground for socialization of academic professionals based on the understanding that each discipline represents an intellectual primacy within the academy—a perspective that leads to the so-called “silo effect” where disciplines and divisions are in competition without truly understanding their relationships to one another or to the greater goals of the academy (Becher & Trowler, 2001; Weidman, Twale, & Stein, 2001). Given this dynamic, it is understandable why researchers studying socialization in higher education find that interdisciplinarity is often undermined by disciplinarity (Boden, Borrego, & Newswander, 2011; Gardner, Jansujwicz, Hutchins, Cline, & Levesque, 2014). This situation has come to be called “disciplinary hegemony.” In essence, it is the institutionalization of a power structure around emplaced “disciplinary advantage” in higher education—advantage that impedes the ability of interdisciplinary faculty and programs to flourish (Henry 2005). This consequence was illustrated in the case, and reflects the challenges that ES has experienced throughout its history (e.g., Soule, 1998; Maniates & Whissel, 2000; Maniates, 2013). We address it further in the following sections.

### *The Shift from Collective to Neoliberal Academic Leadership*

The case also demonstrates the evolution of administrative culture—the “pattern of beliefs, values, rituals, myths, and sentiments shared by the members of an organization” (Harrison & Stokes, 1992, p. 1)—in ways that have hampered interdisciplinarity. Culture is the normative glue that holds organizations and people together, affecting all aspects of organizational life, including the support and empowerment of faculty and staff and hierarchical decision-making strategies. Culture is an organization’s personality. The case illustrates what can occur when a school’s culture evolves from strong faculty leadership in program design and implementation, to a disempowered faculty and weak administration, to a strong administration that instrumentalizes faculty hiring to serve needs other than those of the curriculum. This evolution reflects changing norms throughout higher education in which corporatized administrative metrics regarding visibility, status, and marketing are increasingly important in driving top-down decision making (Brown, 2014).

Responding to the stresses that these cultural shifts place upon faculty requires complex learning (and unlearning), understanding, and self-awareness of one’s operating environment (Kegan, 1994). Assuming faculty want to respond to these shifts by pressing for changes that will benefit both their own wellbeing and that of the curriculum, strategies for re-establishing control will be necessary, supporting clear goals and actions (Kegan & Lahey, 2009). But it is difficult to be self-empowered in the face of poor change management and weak strategic leadership, both of which were manifestly illustrated in the case, and which can cause loss of a sense of community, destruction of trust, poor job satisfaction, high turnover, fatalism, and resistance to further change (Bordia, Restubog, Jimmieson, & Irmer, 2011). These are substantial barriers to programmatic and individual wellbeing in ES and other interdisciplinary programs.

### *The Growing Neglect of Community*

Goal clarity is essential for practical programmatic advances that require collective action, especially beyond typical disciplinary borders. Setting programmatic and curricular goals should involve collaboration among faculty, students, and administrators in pursuit of knowledge, skills, and values that are integral to complex interdisciplinary problems. Good goals that are well elucidated can engage and energize both students and faculty, leading to a collective sense of both pragmatic accomplishment and vision.

Whereas these tenets are generally true in interdisciplinary studies, they are an essential foundation to ES—despite its continuing struggles with its provenance and identity (Clark et al., 2011c; Proctor et al., 2015).

Cooperation and community are essential to implementing an ES program in a small liberal arts college. Indeed, classical liberal pedagogy is rooted in approaches to education that prize the social experience of learning over “solitary study aimed at acquiring knowledge for its own sake” (Kagan, 2013, p. 6). Our case illustrates the fragility of a program and curriculum that lack a team of willing participants among the faculty, coordinated and encouraged by a central leader (i.e., the program director or chair), and supported by the dean, provost, and president. When interdisciplinary programs are undermined by or at odds with organizational norms or culture, the collaborative systems necessary for their implementation and growth are fragile. Feedback loops between community members are impeded or lost, and collegiality suffers. This compounds the aforementioned conflicting notions about ES identity (e.g., Clark et al., 2011b, 2011c; Proctor, 2015 vs. Vincent, 2017). What sets ES apart is its reliance not only on faculty with disciplinary training and identities whose interests extend to ES, but also on faculty trained in the central tenets and methods of integration via interdisciplinarity (Wallace & Clark, 2014; Clark & Wallace, 2015). Organizing a collection of diverse—even disparate—faculty into a cohesive ES program is a challenge that requires skills in interdisciplinary curricular development and program management *and* an ability to manage the same tribal, territorial, and hegemonic pressures present in any faculty (Gardner, 2013).

To ensure individual and programmatic wellbeing, junior or otherwise untenured program leaders must have the strong support of established academic leaders, and the resources needed to serve programmatic goals. Senior (i.e., tenured) interdisciplinary leaders must be prompted from above to provide programmatic leadership if they are not self-motivated to do so. The sort of passive approach by administrators to managing ES illustrated in the case is all too common. As in the case, it can have dire effects, including the fracturing of the ES faculty and student community. Untenured leaders lacking standing and support have little incentive to fight the necessary battles. Senior, tenured program leaders who refuse to lead, and cannot be easily moved or influenced, can create an impenetrable oligarchy, especially if they have been hired (and are supported) for another purpose, such as augmenting institutional prestige. In either circumstance, program implementation, and the faculty interested in it, are disadvantaged. In turn, poorly performing programs can suffer declining enrollments, starting a

cycle of programmatic decay in which cuts in resources are rationalized by declining enrollments and lack of program leadership. At worst, such programs become a “lost cause” and may become targets for draconian cuts if a school-wide budget crisis occurs. The intentional disadvantaging a program through strategic administrative decisions that undermine program faculty and implementation is a stark example of the neoliberal corporatization of the academy. Trends in this behavior undermine both the goals of interdisciplinary ES and the liberal arts more broadly (Giroux 2002; Brown 2011a, 2011b; McArthur, 2011; Berg, Huijbens, & Larsen, 2016).

The case above is broadly illustrative of organizational and leadership pathologies of “persistent failure” (Samuel, 2010). These pathologies have long been well documented yet seem never to stimulate necessary change. Perhaps this is because, as Thomas Merton (1940, p. 561; see also Weber, 1978) observed, “bureaucracy is administration which almost completely avoids public discussion of its techniques, although there may occur public discussion of its policies.” This pathological syndrome describes the devolving relationship between faculty and administration documented by Kronman (2007), Ginsberg (2011), Gerber (2014), Giroux (2014) and others. This organizational pathology is not only disempowering, but can seem incurable to students, individual professors (especially untenured), and even whole faculties who feel disenfranchised and alienated by what is occurring around them (Johnsrud & Rosser, 2002; Norman, Ambrose, & Huston, 2006; Sparkes, 2007; Nolan & Stitzlein, 2011; Winter & O’Donohue, 2012).

## **Recommendations**

On the heels of such a sobering assessment, we are left with the question: What to do? Below we offer strategies to help professors, students, and staff overcome these barriers to interdisciplinarity. To address the trends and conditions the ES case illustrates, our recommendations include both individual and organizational actions. They are about the choices that we make in our jobs and careers, both short- and long-term, that allow us to respond to and improve the processes of which we are a part. They are also about engaging and mobilizing people in a functional manner specific to a given context. We offer encouragement and pragmatic hope, though with full recognition that in some cases obstacles can be insurmountable (Kaufman, 1971). We are particularly concerned with empowering faculty members interested in promoting teaching and learning in interdisciplinary ES programs, but who are facing the barriers described above.

*Addressing Leadership Issues*

The obvious first strategy is to work within the hierarchy by talking with your leaders—your department chair, dean, provost, and/or president, assuming they are accessible and responsive—about the barriers you experience. This strategy may or may not bear fruit, depending on how deeply entrenched an organizational or leadership pathology is. In other words, not all situations can be remediated through available hierarchical or bureaucratic channels, especially if the neoliberal evolution in administrative culture we describe above has taken place.

Second, we recommend becoming educated about leadership and administration. The demands placed upon us by the barriers to interdisciplinary ES in higher education call for us to cultivate our personal growth. Leadership and administration are about capacity to take people on a journey and to encourage and motivate them while promoting and safeguarding the process of participation, deliberation, and change in a community of common interest (Zhu, Sosik, Riggio, & Yang, 2012; Nica, 2014). Fortunately, there is literature on leadership, including environmental and academic leadership, and on the qualities and abilities of effective leaders (e.g., Gallagher, 2012). Because of the diversity of both thought and practice in ES, established and emerging leaders should be highly pragmatic and flexible in trying to change conditions for the better. There are many excellent analyses of how to navigate complex organizational communities (e.g., Nadler & Tushman, 1980; Schön, 1983; Argyris, 1992; Kofman & Senge, 1993; Bailey & Madden, 2016). Keen administrative judgment is key to managing ES's (and the academy's) organizational complexity (Clark et al., 2011c). Learning basic leadership skills is essential for any faculty member participating in program implementation, even if self-taught and learned from experience. Indeed, this reflects our own personal career shifts in ES from narrower, often technical (e.g., conservation biology) pursuits earlier in our careers to our current focus on leadership, interdisciplinarity, and policy and program management, among other interests (Clark & Wallace, 2012, 2015; Wallace & Clark, 2014). At the programmatic level, leadership behavior and skills can be cultivated in one's self and encouraged in faculty colleagues. We must work toward inspiring commitment, action, and broad involvement in problem solving, all the while encouraging and sustaining pragmatic hope.

Finally, we believe that more faculty members in ES (and other interdisciplinary fields) must become dynamic, skilled leaders in the interests of both specific and overarching programmatic goals. Faculty

members in ES need to be conceptually clear on the basic concepts of integration and interdisciplinarity and good at interpersonal and community relations. Achieving these baselines will require skill development beyond traditional academic disciplinary training and epistemologies. Developing these skills means demonstrating leadership by (1) targeting ourselves for self-improvement, (2) granting ourselves license to think and act beyond the confines of our formal academic training, (3) clarifying goals based on establishing shared values with other members of our professional communities, (4) honing our problem solving skills so that diagnosing organizational problems becomes second nature, (5) developing self-awareness about our leadership capabilities, (6) helping to create and build capacity throughout our organizations, at all levels and across all roles, as practicable, and (7) volunteering for—or even convening—groups of like-minded community members to aid leaders in addressing problems. These strategies are all means to self-empowerment.

### *Addressing Organizational Barriers*

As the ES case illustrates, organizational culture and structure can provide a foundation for barriers to interdisciplinarity. Combining an awareness of your organization's culture and structure with awareness of the needed leadership dynamics that we describe above is necessary, as Goffee and Jones (2013) note, to develop goals for influencing organizational culture in productive ways:

What workers need is a sense of moral authority, derived not from a focus on the efficiency of means but from the importance of the ends they produce.... People want to do good work—to feel they matter in an organization that makes a difference. They want to work in a place that magnifies their strengths, not their weaknesses. For that, they need some autonomy and structure, and the organization must be coherent, honest, and open.

The case illustrates how ES faculty interested in programmatic success sometimes experience just the opposite of the supports they need (and what Goffee and Jones call for). But it is equally noteworthy that in a neoliberal academic culture, faculty who are hired into ES and other interdisciplinary programs to serve other organizational interests, and whose lack of interest in promoting programmatic success constrains interdisciplinary ES, can enjoy both a sense of moral authority and a long and fruitful career highlighted by the support of administrators, all while the interdisciplinary ES program under their watch deteriorates.

Among the most acute barriers to the wellbeing of interdisciplinary faculty is the lack of formal promotion and tenure policies and procedures. Even widely-recognized, well published, and highly cited interdisciplinary scholars and practitioners may go under-recognized by their program and administrative leaders, and thus be bypassed for recognition, standing, and promotion in the academy. In the worst instances these professors may be confined to an enforced under-class status by their dominant disciplinary co-workers and administrators. The institutionalization of formal promotion and tenure standards for interdisciplinary faculty is a necessary remedy. Klein and Falk-Krzesinski (2017) provide a broad analysis of the status of such supports and the need for their formalization where institutional goals include interdisciplinary programming and faculty to support it. Not surprisingly, Klein and Falk-Krzesinski find such supports typically lacking or ad hoc—a finding that reflects research and analysis in ES (Clark, Steen-Adams, Pfirman, & Wallace, 2011a; Clark et al., 2011b, 2011c; Pfirman, 2011; Pfirman & Martin, 2017).

Klein and Falk-Krzesinski (2017), the Association for Interdisciplinary Studies (2016), and Roth and Elrod (2015), among others, have amassed recommended guidelines for tenure and promotion, and these three sources alone contain dozens of specific recommendations of tenure and promotion standards for interdisciplinary faculty. We strongly suggest that all interdisciplinary faculty members interested in their own career advancement and self-preservation become familiar with these guidelines, and advocate for their adoption in their home institutions and professional societies. However, cooperative action amongst faculty and administrators is only possible if there is some level of agreement on goals, collaboration, and mutual trust and respect (Clark & Steelman, 2013). Governance must be shared among all faculty members for much progress to be made. It is the responsibility of all participants in ES programs to work toward that end (Mortimer & Sathre, 2010; AAUP, undated).

## **Conclusion**

Interdisciplinary environmental programs at colleges and universities at both undergraduate and graduate levels have a responsibility to help students develop knowledge and skills necessary to address complex social and ecological problems. Successful programs require agreement on common interest goals and the means to achieve them. This in turn requires an inclusive process and cooperation among participants to establish and support those goals. In our experience, interdisciplinary ES programs and

faculty face diverse barriers that have huge costs in terms of faculty morale, programmatic community health, and allocation of resources. Faculty in interdisciplinary ES (and other fields) must face the real barriers that we have illustrated, diagnosed, and discussed. Our approach is to practice what we preach, and vice versa.

Our overarching belief is that interdisciplinary ES programs should be based on a foundation of human dignity and mutual respect—in other words, recognizing fundamental human physical and emotional needs and the necessary connections between them and the integrity of the ecosystems upon which we rely (Clark et al., 2011a, 2011b; Mattson & Clark, 2011). Too often, ES programs and curricula lean toward one or the other side of this equation—either emphasizing social and humanistic components or biological and physical ones. The interdisciplinarity that is at the core of ES requires the integration of these components. Achieving this integration will require formal and informal processes of teaching and learning the knowledge and skills needed for (1) understanding human interactions, (2) developing professional skills for leadership and change, and (3) influencing organizational culture, policy, and behavior. Our case illustrates an enormous disregard for human and other resources present in some ES programs and the institutions housing them. It is unfair, to say the least, for colleges and universities to establish interdisciplinary ES programs, hire qualified faculty, and recruit and enroll eager and competent students, only to subject them to serious barriers and their harmful consequences. These barriers and the circumstances that allow them to persist have enormous personal, individual human impacts: They deny aspiring interdisciplinary faculty opportunities for fulfilling career advancement while depriving students of the experiences needed to successfully achieve their academic and professional goals. Given the demanding problem-solving mission of the “integrationist interdisciplinarian” in ES, these barriers represent substantial losses in field-wide ambition to prepare future generations to address complex, real-world problems. One glance at the news headlines tells us that the stakes are high.

We believe that the acknowledgement of human dignity provides the foundation from which to establish and secure our community’s common interests, including a healthy environment in which to live. Broader recognition of this foundation would help address the major intellectual and pragmatic challenges that the field of environmental studies (like other interdisciplinary fields) currently faces. In the end, we hope to have contributed to an open and fundamental discussion about interdisciplinarity in ES and beyond while providing tools for understanding barriers and, we

hope, confronting and overcoming them wherever they occur.

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