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AUTHOR Corcoran, Peter Blaze; Tchen, Richard
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ABSTRACT

This paper reports on an ongoing process of identifying and meeting the professional needs of faculty in higher education environmental programs in the United States. It includes the self-reported strengths and weaknesses of environmental studies programs and the analysis of them by Kormondy, Corcoran, and Tchen (1997). It contains a descriptive analysis of the Symposium: Academic Planning in College and University Environmental Programs, held on Sanibel Island (1998), incorporating the substance of the three keynote papers and six responding papers. The results of a research survey of the participants at Sanibel are included (1999). An update on recent developments in the "Sanibel planning" process, and prospects for a newly-organized network and coming summit meeting on higher education programs for sustainability and the environment (2000), conclude the paper. (Contains 32 references.) (Author/ASK)

ASSESSMENT OF THE PROFESSIONAL NEEDS OF FACULTY IN AMERICAN COLLEGE AND UNIVERSITY ENVIRONMENTAL PROGRAMS

A paper presented to The Australian Association for Research in Education

and the New Zealand Association for Research in Education

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Peter Blaze Corcoran, College of Arts and Sciences, Florida Gulf Coast University

Richard Tchen, the Math Forum, Swarthmore College

Abstract

This paper reports on an ongoing process of identifying and meeting the professional needs of faculty in higher education environmental programs in the United States. It includes the self-reported strengths and weaknesses of environmental studies programs and the analysis of them by Kormondy, Corcoran, and Tchen (1997). It contains a descriptive analysis of the Symposium: Academic Planning in College and University Environmental Programs, held on Sanibel Island (1998), incorporating the substance of the three keynote papers and six responding papers. The results of a research survey of the participants at Sanibel are included (1999). An update on recent developments in the "Sanibel planning" process, and prospects for a newly-organized network and coming summit meeting on higher education programs for sustainability and the environment (2000), conclude the paper.

An earlier version of this paper was presented to the American Educational Research Association

in Montreal, Quebec, Canada on April 21, 1999.

Part One: *Environmental Education: Academia's Response* (1997)

> . . . relative to the magnitude of the challenges ahead, the inescapable fact is that 20-25 years of dedicated and often visionary work to build environment into the curriculum have not dented the problem. Higher education goes on much as it has for a century or more but now with computers. In the face of impending problems and potential catastrophes . . . the response of colleges and universities is generally lethargic. As a result, despite the growth in numbers of environmental studies programs, most college and university graduates are fundamentally ignorant about ecology, global environmental change, and why these things ought to matter to them. Why have institutions of higher education -- of all organizations -- been so complacent in the face of mounting evidence that humanity is in real jeopardy of mutilating its earthly home? This is not, on the surface at least, what one might expect of institutions dedicated to advancing knowledge and presumably to the health of the world their students will inherit.
>
> - David Orr
>
> Keynote address at the Sanibel Symposium

In this part of the paper, we concern ourselves with the discouraging fact that so many institutions of higher education have been and continue to be "complacent in the face of mounting evidence that humanity is in real jeopardy of mutilating its earthly home." In 1972, Kormondy co-authored the first comprehensive assessment of higher education environmental programs. He analyzed the self-assessments of fifteen programs (Aldrich and Kormondy, 1972a and 1972b). Corcoran and Kormondy wanted to look at twenty-five years of evolution in the field by surveying the programs initiated since 1972 as well as the initial founding programs (Kormondy and Corcoran, 1997). With Tchen, they analyzed progress toward the promise, offered in 1972, of problem-focused environmental study.

The daunting task of moving the global economic and social culture into a sustainable balance with the resources to support the burgeoning human population will require substantial changes in how we educate ourselves. Currently, education is characterized

by its lack of concern for the study of the human relationship to environments. As environmental educators are wont to say, all education is environmental - in what is taught and what is not taught. For most students in our culture, at all levels, the message is: the environment can be ignored. Any litany of the effects of worldwide growth of economic output and overconsumption by advanced industrial nations reminds us how high a price we pay for such ignorance.

The question we in the academy must ask is, can we change education and research about the human relationship to environments, particularly to the natural systems upon which life depends, so that it can become a priority? Can we meet our responsibility to teach about this relationship to the natural world?

In an essay entitled "The Role of Higher Education in Achieving a Sustainable Society" (President's Council on Sustainable Development, p.5), Tony Cortese writes:

> Society has conveyed a special charter on institutions of higher learning. Within the United States, they are allowed academic freedom and tax-free status to receive public and private resources in exchange for their contribution to the health and well-being of society through the creation and dissemination of knowledge and values. Higher education institutions bear a profound moral responsibility to increase the awareness, knowledge, skills and values needed to create a just and sustainable future. These institutions have the mandate and potential to develop the intellectual and conceptual framework for achieving this goal. They must play a strong role in education, research, policy development, information exchange and community outreach and support. The 3500 institutions of higher education in the United States are significant but largely overlooked leverage points in the transition to a sustainable world - they influence future leaders through their students and current leaders through their alumni. They have the unique freedom to develop new ideas, comment on society, and engage in bold experimentation, as well as contribute to the creation of new knowledge.

The response of these 3500 or so American institutions, including some twelve hundred community colleges, one hundred large, multipurpose universities, and a multitude of liberal arts colleges, to environmental education will determine the sustainability and habitability of our continent, if not the world.

According to a study by the Nathan Cummings Foundation (Strauss 1996, p.10), "perhaps a total of 400 [environmental] studies and sciences programs exist in the nation, scattered among 3700 institutions of higher education." This estimate might represent a ten-fold increase over the extant programs from which Kormondy selected the fifteen for his 1972 study.

This 1997 study initially surveyed those institutions with environmental sciences and/or environmental studies and/or environmental education programs, and returned to the founding institutions for in-depth follow-up and analysis to shed some light on particular questions. What has the response of the academy been to the clarion calls of the late 1960s for education that is responsive to the problems of the cultural and natural environment? How effective have the founding programs in education about the environment been? Has the promise of problem-focused education, so new to academia, been possible to fulfill? What is the response of today's generation of students to the call of their parents' generation for higher education with such a focus on environmental problem-solving? What are the strengths and weaknesses of environmental programs, as perceived by those leading them? What visions do they have for the future, which might offer guidance for the academy, 1997-2022?

By and large, the programs studied twenty-five years ago have survived and thrived. Increased student demand has, paradoxically, diminished certain student options; new faculty expertise has increased others. Institutional location and integration with other campus entities seem appropos. Planning, financial, and curricular difficulties remain considerable. The persistence of problems of academic structures which resist interdisciplinary research and teaching is not reassuring. More encouraging is the universal reassertion of the inherent value of interdisciplinary environmental education by these institutions. Their desire to sustain and promote such education by strengthening their programs is an inspiration to those newer to the effort.

Interdisciplinary study was the most frequently-reported strength of higher education environmental programs surveyed in 1997. As one respondent rendered the strength of his university's program, it is "a true interdisciplinary program in the context of the liberal arts; students are exposed to many ideas that deal with the same problem but from a different perspective." Many respondents refined this assessment so that it centered on interdisciplinary study in the natural sciences alone. One respondent, for example, began assessing his program by stating that it "is offered within a liberal arts curriculum which emphasizes interdisciplinary study," then went on to report, "[t]he students receive a strong biology background from which they can integrate additional material from chemistry and geology." Several respondents simply listed a range of requisite natural science disciplines, so that a program's strength lay in its "breadth in biology, chemistry, geology, math, and physics" or "strong basic sciences and basic principles in ecology"; or that among these strengths was "rigor (calculus, physics, chemistry - inorg[anic] & organic)." As one respondent revealed plainly in his complete response to the question of program strength, "basic sciences, a foundation for [a] student's future." The next most common specific field of study, but trailing far behind any of the natural, technical, and industrial sciences, was ethics - although it was never listed alone. Indeed, interdisciplinary or multidisciplinary study, and particularly such study within the natural sciences, was not simply the most common strength reported, but was also the most common strength that was reported alone.

Perhaps the next most frequently-reported strength of environmental programs revolved around real-world application: common terms included "hands-on approach," "active learning," "activism-advocacy," "community-based," "field-based," "fieldwork,"

"off-campus practicum"-and simply "lots of practical experience." As one respondent rendered it, among the strengths of his university's program was "direct involvement of graduate students in many professional responsibilities/experiences" (respondent's emphasis). Access to good internships, which perhaps facilitate such direct application, were not only very common, but were often reported as a program requisite; thus, strengths included "practical hands-on experience of our required internship." Responses such as "required internship program gets students into 'real world'" further confirm this possible link between the program strengths of internships and of application.

As common a response as application and internships was networking, particularly with nearby resources or even on-campus institutes. Thus, some programs reported "partnerships," "sponsorships," and "cooperative agreements" with the "private sector" and with local, state, and federal "government facilities" or "agencies." A handful of respondents reported that longevity of twenty or more years helped enhance a program - whether by establishing over such time a "tradition," a network of "over 2600 alumni," or "strong links to industrial facilities."

The next most common responses to the question of a program's strengths included flexibility; a unique program emphasis or distinctive focus; quality of faculty; and a culminating requirement for seniors, such as an internship, capstone seminar, or thesis. "Flexibility in selecting a concentration beyond required courses" was the program strength of one respondent; similarly, another wrote that "student research [is] not limited to faculty research, [as students are given] opportunities for work experience in [their own] field of interest." As for focus, a handful of respondents reported their programs' sizes as a strength: "small program - students receive close, individual attention from science faculty." However, size was far more frequently reported as a program challenge, weakness, and/or limitation, not as a strength. One among the few voices to report "small institutional size" as a strength continued that this small size, "combined with active scholarship by faculty[,] permits hands-on involvement by undergraduates." With regard to focus, one respondent asserted simply that "we do two things (program tracks) and do them well." Beyond active scholarship and mere numbers, other faculty qualities listed as strengths included "background," "commitment," "participation," and "dedication." Finally, some respondents reported as a program strength a requirement beyond the usual academic sequence. Often, this was an internship, but respondents also reported that this commitment occurred during the senior year of undergraduate education - typically, a thesis, and less frequently, a capstone seminar.

By far, the most common responses to environmental programs' major challenges, weaknesses, and/or limitations was the lack of a variety of resources. Generally, these resources fell into three categories: in order of frequency, programs reported being constrained by inadequate faculty or staffing, by physical plant, and by capital resources. Indeed, as if writing of ecological limiting factors, one respondent wrote succinctly that "[program] growth cannot continue without more resources." Although faculty resources were reported as lacking in everything from "building" or "developing" a "critical mass of students" to advising responsibilities, responses mainly revolved around balancing a strong student demand with an experienced faculty. One respondent conveyed such a trade-off in this complete response: "increasing enrollment dilutes our efforts." Yet another respondent claimed that with "too much student interest" it is "hard to maintain individual research opportunities for students" and is "very difficult for [achieving] a single capstone experience." Virtually summarizing this program challenge, weakness, and/or limitation, one program director's complete and simple pronouncement was "too many students, not enough faculty, not enough staff."

Additionally, some respondents invoked the classic liberal arts question of breadth versus depth. One respondent, as if commenting on the strength of program flexibility, reported "covering all of the areas of interest in the environmental field" as a challenge, weakness, and/or limitation; another rendered this as "maintaining a balance between breadth of offerings and detailed content." This challenge of balancing interdisciplinary course offerings resurfaced as a challenge for the faculty themselves: "20+ discipline-trained faculty designed and proposed the major (as opposed to hiring a new department of interdisciplinary-trained faculty)," reported one respondent; another listed "ambivalence of faculty, [as there are] no faculty with core interest in environment." Similarly, another respondent reported a challenging by-product of program interdisciplinarity: "Working with and maintaining the peace in seven departments is tough!!" This balance between breadth and depth was crystallized in one respondent's reporting of "diversity" as both his program's strength as well as its major challenge, weakness, and/or limitation; and another's listing "interdisciplinary focus & faculty" as a strength, and "interdisciplinary approach in traditional academic structure" as a challenge, weakness, and/or limitation. In short, "staffing is a major challenge - student demand has made it difficult for us to offer sufficient numbers of sections and courses," and "we lose a lot when [we] cannot provide each student with the personal help [she or he] might require."

Physical plant resources reported as lacking were focused primarily upon laboratory facilities, both in the field and in-house, with respondents deeming as challenges simply "keeping up with technological change" and "keeping informed on new methods of analysis on ecosystems." To a much lesser extent, respondents identified inadequate library resources as a program challenge, weakness, and/or limitation. Fewer cited inadequate funding - whether these capital resources were in the form of grants or endowment. One respondent's complete reply to this question demonstrates that one area which capital could support was the very same most commonly-reported program strength: his program's challenge, weakness, and/or limitation was "funding for a truly inter-disciplinary effort; lack of real team work among disciplines." Indeed, while many respondents reported that a lack of physical plant and capital resources challenged, weakened, and/or limited their programs, a few respondents included them as strengths - when such resources were recently upgraded or increased. Finally, a few respondents named space outright as a program challenge, weakness, and/or limitation: "at present," one respondent reported, "we lack a physical home."

Extending the claim that a lack of faculty resources most hinders programs, one respondent wrote "we are facing escalating enrollments with little institutional support"; another, that "university support has not increased in spite of increased student numbers [in the program]." This low institutional or administrative support was among the next most frequent theme of

responses to the question of major challenges, weaknesses, and/or limitations to environmental programs. One respondent conveyed this in the term "administrative neglect"; another rendered the position of his program as "marginalized politically within [the greater] institution." Some respondents suggested reasons for such lagging administrative support:

> because we're interdisciplinary and because of our activist-preservationist orientation,
>
> some administrator[s] seem to feel environmental issues are temporary fad[s],
>
> [it is difficult] trying to operate an interdisciplinary program in an administrative unit governed by strict disciplinary traditionalists who have a 'specialist' paradigm of education and problem solving,
>
> administration doesn't understand [the] importance of [our] science-based environmental program,
>
> [a challenge to our environmental studies program is] the increasingly narrow perspective of some college deans who would narrow the field to "environmental science," and
>
> we have difficulty overcoming departmental biases and compartmentalized (i.e., discipline-based) thinking, especially among administrators.

The next most commonly-reported challenges, weaknesses, and/or limitations were student support and student academic background. The first of these was characterized in terms such as "volatile" and "waxes and wanes"; one respondent elaborated his concern as "maintaining student interest in a climate where governmental intervention is considered counterproductive." Still others bridged student support and academic background by identifying "a need for strong high school graduates to enter program" and "continuing to get strong incoming students." One respondent listed as a program challenge, weakness, and/or limitation "convincing 18 year-old freshmen that Env[ironmental] Sci[ence] is more than recycling." Most responses, however, refined this shortcoming of student academic background: "humanities students at times find the strong science background (even at intro[ductory course] level) to be a hinderance," wrote one; another reported that "'hard' sciences [are] weak in some study plans." Finally, one respondent claimed that "we could attract more student[s] if curriculum were less heavily based in sciences," while another wrote "'Environmental science' title captures imagination of many students with weak background in natural sciences and mathematics - so we began Env[ironmental] Studies minor to help address that segment of student pop[ulation]."

The self-reported strengths tell us a great deal about the increasing student interest in this field. Strengths are consistent with popular trends to multidisciplinary study, direct experience, and cooperative enterprises. Good faculty and culminating academic experiences are always remembered as important by students, we suspect. The strengths draw large numbers of students who clearly put demands on resources. The challenges of interdisciplinary study to generate committed administrative support bedevil many programs. It is interesting to note that several respondents actually repeated this program strength as the very same feature that administration might consider a program challenge, weakness, and/or limitation.

We were alarmed that a field of this magnitude of student interest and a twenty-five year-history of seeking a toehold has not yet found a stronger place in the academy. Serious limits on faculty, physical plant, and capital resources pose enormous problems for the schools in our study. Also worrisome is the lack of administrative support for environmental programs in spite of growing student interest, expanding public attention, and the realization of the enormity of environmental degradation. Some programs report being marginalized. Is this a reflection of the field's novelty? Or do these fields inherently threaten to upset academic traditions with their interdisciplinary initiatives, application-based learning, and action-taking nature?

Student interest is burgeoning: The majority of respondents reported that it was increasing, and from a level that was high to begin with. Responses indicating the rate of increase ranged from "growing about 2%/year," to "expanding," to "rapid growth," to "soaring." Another respondent reported that "student interest has skyrocketed in recent years. During the Reagan/Bush years, student interest was very low. It began to pick up about 1988." On the whole, however, responses indicating a high increase were far more common than were those reporting a low increase.

Among the terms used to describe the level of student interest were "very high," "very strong," "very interested," "intense," and "enthusiastic!" Additionally, a few respondents reported that interest came from a diversity of students, whether in terms of national origin, ethnicity, or gender. One respondent reported "We've . . . taken on several students before the program is [even] official." Another characterized both the level and rate of student interest with this complete response: "Overwhelming. [Student interest] has grown very large in recent years. Hopefully, [it] will level off." Such statements support other respondents' claims that their programs are as large as the largest "traditional" majors of their universities; or that environmental sciences, environmental studies, and/or environmental education constituted "one of the most rapidly growing undergraduate majors on campus" - or that such programs were even the single most popular major on campus now.

Degree programs in environmental sciences, environmental studies, and environmental education are experiencing dramatic growth in numbers of enrolled students as compared with twenty-five years ago. The data suggest that some students are seeking professional and marketable skills in entering the fields of environmental sciences, environmental studies, and

environmental education, and that, relative to those previously, those presently may be doing so more. Students are also reportedly entering these programs to follow the passion for environmental protection which is characteristic of their generation. There is some suggestion of a discontinuity between the needs of non-science-oriented students and program offerings.

To what extent is the academy receiving these students for advanced study, for research, and into the professoriate? The data suggest that very few programs offer advanced degrees relative to baccalaureate degrees, despite the high and growing student interest at all levels. This finding is consistent with several studies of the post-secondary level from the 1970s and 1980s (Creager 1975; Wolman 1977; McCormick and Barrett 1979; Disinger and Schoenfeld 1987; Weis 1990). It is also consistent with three reviews of the status of environmental education in higher education (Gabrial 1996; Bernstein 1996; President's Council on Sustainable Development 1995). Is this relative paucity of advanced-degree opportunities parallel to other fields, or are institution inhibitions heightened in the case of environmental sciences, environmental studies, and environmental education? How can we construct a stronger base in graduate studies?

We concluded that some questions were answered by this modest study; many others remained. This work indicated a great deal of diverse activity in a variety of institutions, across many fields - almost all of which were met with increasing student interest by enrollment. It also indicates the enormity of the larger task of education for sustainability in liberal studies and interdisciplinary study, and of research capable of resolving ecosystem-threatening environmental problems. Solving the problems of education still awaits academia's response.

Part Two: *Symposium: Academic Planning in College and University Environmental Programs* (1998)

> Stakeholders in environmental academic programs in higher education lack a learned society in which to share research, common concerns, and program development ideas even as the fields of environmental studies, environmental sciences, and environmental education evolve significantly. . . . [T]here is a great need among practitioners to share theory, practice, and institutional response as regards academic and scholarly agendae.
>
> - Sanibel Symposium Conference Program

The Sanibel Symposium process grew from identification of the professional needs of stakeholders in college and university environmental programs. The conclusions of the 1997 study, *Environmental Education: Academia's Response* (Kormondy and Corcoran), pointed the way to the Symposium aims and to the inclusion in the program of an opportunity to conduct a further, informal needs assessment.

In the winter of 1998 in the subtropical warmth of Sanibel Island, Florida, an unusual gathering of stakeholders in environmental studies, environmental sciences, and environmental education took place. "Symposium: Academic Planning in College and University Environmental Programs" was directed toward two compelling problems for environmental studies in North America. First, little coordinated academic planning or exchange of ideas takes place among professors working in college and university environmental programs. Second, many academicians in North American environmental programs lack a learned society in which to share research, common concerns, and program development ideas.

The Kormondy, Corcoran, Tchen study pointed to a variety of questions related to lack of faculty resources, administrative neglect, lack of collegiality, marginalization within the departmental structure, and isolation both within institutions and within the academy at large. The Sanibel Symposium was designed both to begin addressing these questions and identify further ones. The Symposium sought to speak to these daunting problems by convening a diverse group of stakeholders for a substantive agenda of scholarly papers on rethinking the environmental curriculum, for lively discourse on the papers, and for a proceedings to make the ideas available to a wider audience in academe. The Symposium also sought to engage participants in the questions of their professional needs and of the viability of establishing an ongoing society to meet those needs.

The Symposium consisted of three keynote addresses followed by two responding addresses each. These papers were available in writing by electronic transmission in advance of the Sanibel meeting to registered participants. This advance preparation raised the level of discourse and made for lively and engaging discussion. Each participant was also a member of a working group based on a chosen type of environmental program: Environmental Sciences in Universities, Environmental Education in Teacher Education, or Environmental Studies in Liberal Arts Colleges.

In the Introduction to *Academic Planning in College and University Environmental Programs: Proceedings of the 1998 Sanibel Symposium* (Corcoran, Elder, Tchen, 1998), James L. Elder effectively summarized the talks and working group activity. Here we quote at length, keeping the present tense of the text.

> David Orr articulates in his keynote address the crisis in which our academic institutions often wallow, blissfully unaware. In particular, he challenges all to recognize that the buildings in which we reside are in fact a large part of our own environment on a daily basis and that they reflect how we relate to our larger environment. We tend to dismiss buildings as inconsequential to the process of education. We are mistaken. Buildings are an intimate, if hidden, part of our pedagogy. Buildings teach, quietly but forcefully. They speak volumes to students about our values and about how we expect people to relate to each other and the environment. . . .

Jack Crocker responds to Orr with a concise description of his perspective in a unique venture to redesign the old methods of academic production. He was hired as the first Dean and charged with creating a vision for a new university, Florida Gulf Coast University (FGCU). FGCU is not aiming to completely break the mold; it is an evolving attempt to take some risks in combining the traditional university model with significant alterations. The tenure system, which some feel has outlived its initial purpose and now is part of the problem rather than part of the solution, has been replaced at FGCU with multiyear contracts. Thus the whole power structure of the academy has shifted. A departmental structure has been replaced with program clusters, thus helping to blur discipline-based identities. Interdisciplinary collaboration in curriculum and college management is a requirement. Application and action components have been added to theory in designing programs. A required core of courses aims to integrate curriculum and disciplines, create problem-based learning, and confront major contemporary issues. And most importantly, ecological literacy has been made a university-wide student learning outcome. This courageous initiative goes a long way towards addressing the challenges articulated by Orr.

W.J. Rohwedder also responds to Orr with an inspirational example of how he has managed to put to work his and Orr's understandings about the impact of that physical constructed space in which we reside. He explores how place is a teacher, how our interior and exterior landscapes interact, how both our explicit and implicit values are manifested in the structures we build. He concludes that our campus buildings simply do not support our environmental values or our intentions to produce environmentally literate graduates. . . .

Louise Chawla next calls for us to engage our students with the community, and eloquently explains why we need to do so. She too recognizes that place is a teacher. She expands on Orr's and Rohwedder's sense of place to include the community along with the campus environment. Confining education to the classroom, or even to the campus and classroom, sends the message to all involved that learning and the real world have no connection. What an odd message to send, when many colleges pride themselves for producing life-long learners. Where will these life long learners learn, if not in the real world? Building links with the community can refocus environmental education programs on people, and thus diminish this false people/environment separation. Too many academic programs assume that environmental problems will be solved by an elite group of leaders in science who will somehow influence business and government. Instead, the failures of international development have demonstrated quite clearly that solving environmental problems will often be accomplished only with the involvement of local citizens. Growing Up in Cities, a multinational initiative to engage urban youth in efforts to change policy-making, is a wonderful success story on how to do just that. It recognizes that today's environment belongs more to tomorrow's citizens than the generation now in charge. Withholding youth from participation in those issues that are their birthright is not only immoral, it ought to be criminal. We are depleting their environment, not ours - they have a far more inherent right to it than we do. And the huge degree of learning and excitement generated in students who participate in community based programs leaves absolutely no doubt about the effectiveness of such pedagogy. . . .

Responding to Chawla, Charles Hopkins reasserts the critical role of education in achieving environmental progress, and the reasons why our institutions belong in the community and the community in us. He acknowledges the need to engage youth in their community, and expresses concern about how poorly we relate to youth in general. We need to learn with and beside youth, as partners in the learning process.

Eric Pallant describes a brilliant program at Allegheny College that achieves all that Chawla asks and more. Pallant has reached out to the community, and found an eager and grateful partner in the educational process. As a result, his students benefit, and the community benefits. He has built a model of what many call service learning in environmental studies. Such environmental studies programs are "messy" education. They do not fit well within conventional academic structures, whether they be promotion and tenure systems, short classes, or traditional student evaluation approaches. They are difficult to manage, compared to more conventional pedagogical approaches. They require skills not often possessed by faculty (e.g., complex project planning, political negotiation, etc.). They generate all manner of ethical issues unfamiliar to most faculty. And their educational benefits are uncertain, in that the tools for evaluating their educational effectiveness have not yet been fully developed. Nonetheless, those of us who have built such programs are convinced beyond doubt that they involve a much more effective and powerful learning process than conventional techniques. As Pallant notes, his students are emerging from college with the tools - and commitment - for being active, engaged citizens in whatever communities they reside. There must be a reason why conventional education evolved the operating structures to which it still clings so tightly today. Perhaps these structures allow faculty and administrators to more easily manage the otherwise very personal and eclectic process of learning. The question, of course, is whether or not we have lost the heart of education in the process of making it more manageable. In other words, the messier the educational process perhaps the better it may be -- and correspondingly, the more difficult it is to manage.

Milton McClaren turns next to yet another place, beyond the classroom and the community, to the Internet as an emerging tool for education. What does the Internet implicitly teach as a place? What will the impact be of the technological revolution, which in turn is creating a societal revolution, on environmental education? Fraught with potential as well as pitfalls, the net can help us get connected, or help us become even more disconnected, with both ourselves and our environment. . . . We need to find ways to use opportunities offered by this revolution, especially collaborative knowledge building, to further understanding about our environmental condition and the options for going forward. And ultimately, we need to know when to turn off the machines and go for a walk in the woods. In responding to McClaren, George Davis points out that the manner in which we train teachers to be environmental educators can also be part of the problem. He sees the recent development of standards throughout K-12 education as revolutionizing teacher training. He urges us to seize this development as an opportunity to redirect our efforts from in-service EE training towards including a quality EE component into pre-service preparation for all K-12 teachers, thus helping to integrate environmental education into the mainstream K-12 curriculum. . . . The congruence between the goals of the national educational reform movement and the methods used in environmental education present us with a huge opportunity to influence all of society - if we can figure out how to take advantage of it. He goes on to elaborate those qualities that make for good environmental education, which, while intended for K-12 EE programs, also are equally applicable to environmental studies and environmental science programs.

Mary Paden responds by developing some of McClaren's points further. She too sees cyberspace as holding peril as well as promise. She hopes that an information-based economy might allow the world economy to grow with less material input, thus sparing the environment; she fears that it can also increase an already strong sense of separation from the environment. She ponders the impact of learning via computer compared to learning from nature, concluding both are valuable. The computer opens up education to an entirely new audience: those of us unable to attend classes because we are too busy or because we live where classes are not available. She emphasizes that Internet access changes the role of the teacher from information provider to guide. In addition to the computer's role in communications, it has a critical role in developing critical thinking skills, especially those quantitative skills needed to sort through the mass of information and databases available.

Finally, we present reports of three working groups in the symposium. Each set off on its own journey to further explore some of the issues raised by speakers. The group facilitated by Anthony Cortese and recorded by Ed Kormondy mentally tore down the entire university structure and rebuilt it from the bottom up, beginning with reconceptualizing the fundamental purpose of a university. Little was left of the original structure when they finished. Instead, they created the framework for an entirely new organization designed to build computers, rather than typewriters. Collette Hopkins led her group in an exploration of preservice teacher training. They found agreement that the best such programs provide real life experiences as part of the curriculum. But preservice programs are not widespread and often suffer from inconsistent quality, and a lack of consensus about what constitutes environmental education. The working group that I facilitated tackled some of the challenges and risks of working in and with the local community. . . . In designing this Symposium, we intended to bring together members of the higher education community who had thought deeply, often over decades, about environmental programs. We wanted to begin a larger discussion of the challenges confronting the field as a whole, and what might be done to help the field develop and grow. We had to face the fact that higher education environmental programs have an unusually complex history. In short, this history is an amalgamation of not only related disciplines such as ecology and biology but also of many prior (and still extant) fields such as conservation education, nature studies, interpretation, outdoor education, and natural resource studies. Adding to this complexity is the fact that, within the current field of environmental programs, there are at least three distinct subfields: environmental studies, environmental education, and environmental science - each with a very different take on its mission, content, scope and pedagogy. To make matters even more challenging, new fields such as global studies, sustainable development, education for sustainability, conservation biology and others all have a constantly evolving and intimate relationship with environmental programs. How can we get our minds around the future of this amorphous field when we are not even clear on its relative boundaries - what it does and does not include?

What we found by the end of the weekend on Sanibel was that, despite the differences within the subfields of environmental programs, there was also a great degree of commonality, a commonality not always visible to those of us who haven't rubbed shoulders much outside our own subfield.

A key aspect of the Symposium was a closing session on the need to build community in higher education and the possibility of a learned society to meet professional needs. The session was entitled "Whither? A Learned Society for Faculty in College and University Environmental Programs." (pp.5-9)

Writing of this session in his Afterword to the *Proceedings* , Anthony Cortese, who co-facilitated the closing session, said:

> the participants discussed strategies for a stronger community among college and university environmental programs (no matter how narrowly or broadly they are defined), as well as the possible creation of a new initiative, such as a professional society, to meet this need. The participants discussed several organizational options to meet these needs. While a new organizational effort is sorely needed, the consensus was that building a new organization or society was premature at this point. They suggested that because NAAEE has some existing structure in place to support liberal arts-based college and university environmental programs and is a well known and respected environmental education organization, we should build upon that structure (at least initially). They also wanted to build on existing regional efforts, such as North East Environmental Studies, which meets annually, to build synergy with these and other programs. These efforts discussed and developed at the Sanibel Symposium are very exciting and important and should be pursued with great vigor and speed. However, we must not lose sight that they represent a tiny fraction of the effort that is needed to move higher education and society on a just and sustainable path in the next twenty to forty years. As we focus on strategies for education reform and local, national and international governmental policies for a just and environmentally sustainable future, we must remember that education for a sustainable relationship with our life support system is the *sine qua non* of a successful effort. (p.116)

The final session "Whither? A Learned Society for Faculty in College and University Environmental Programs" generated the statement of many pressing professional needs:

empowerment of environmental educators at colleges and universities,

concrete programs/strategies to advance college and university environmental programs,

an international network, electronic resource linkages, personal connections, or

linkages/discussions with other academic organizations, science organizations,

other NAAEE sections, and student groups to increase opportunities to share

ideas, experiences, problem solving, and success,

an academic journal,

nurturing of junior colleagues,

mutual support of isolated academics,

standards for quality and excellence in college and university environmental programs,

mutual program review, and

brokering of faculty exchanges.

The on-site open-ended evaluation form indicated uniform satisfaction with the quality of the papers, the level of discourse, and the substance of the meeting. Tchen and Corcoran designed a follow-up instrument to gather data on the suggestions raised in this closing session of the Sanibel Symposium.

Part Three: *Analysis of Sanibel Symposium Participant Follow-up Survey* (1999)

> In two weeks, I am gathering a Sanibel Symposium Planning Group. I ask your assistance in preparing for that meeting. Your timely completion of the following questionnaire would be greatly appreciated and would guide us in our decision-making.
>
> The planning group includes attendees such as Nan Jenks-Jay, Collette Hopkins, Louise Chawla, David Orr, Jim Elder, and
>
> Tony Cortese; and several key stakeholders in environmental studies who were unable to join us on Sanibel, such as Dan Durett and Jean MacGregor. We will be guided by your responses.
>
> - Questionnaire cover letter

Thirty-eight of eighty participants responded, the great majority by e-mail. Seventeen respondents reported participating in the Environmental Education in Teacher Education Programs work group; twelve in the Environmental Studies in Liberal Arts Colleges work group; and nine in the Environmental Sciences in Universities work group.

Of those who identified membership in professional associations, the great majority (over 80%) identified the North American

Association for Environmental Education (NAAEE). Other associations included North East Environmental Studies (NEES), the American Educational Research Association (AERA), the Ecological Society of America (ESA), and the National Association for Interpretation (NAI). Fourteen (over one-third) listed multiple affiliations, and only three did not report membership in any professional association whatsoever. Twenty-nine respondents answered that they would rather work through the College and University Environmental Programs Section (CUEPS) of NAAEE, as opposed to establishing a new organization, in order to meet the professional needs of professors in environmental studies, environmental education, and environmental sciences; four stated no; three gave no response; and one reported "don't know."

Preference for the most important next step to serve the field varied widely. Emerging themes included reaching consensus on program guidelines, standards, or criteria; generating curricular and sustainability models, examples, or modules; establishing advocacy or credibility,

particularly within the academy or university administrations; curbing or limiting professional opportunities to avoid information overload; creating communication vehicles such as journals or regular meetings; and continuing dialogue, both within environmental programs and across other disciplines.

The most significant need of professionals at respondents' home institutions were even more fractured, with little overlap, suggesting a diversity of local needs. These included raising awareness of the integral necessity of environmental literacy, environmental education, or sustainability; expanding opportunities for professional connections or meetings; improving professional development and other training opportunities; increasing communication through vehicles such as journals; establishing greater credibility within the institution; limiting professional opportunities; filling additional faculty appointments; disseminating innovative teaching methods or models; building physical centers on campus; creating advanced degree programs; and receiving tech support.

Several respondents misinterpreted the survey instructions when it came time to rank the five most important needs from the list of nine generated at the Sanibel Symposium: some ranked all nine needs, while others simply checked needs without ranking them. The need most often ranked as first (by half of the respondents) was concrete programs/strategies to advance college and university environmental programs; this need also earned the most cumulative

rankings (see Figure "Ranking of Needs"). The two next-most highly ranked needs, together earning half of the second-place rankings, were an international network, online resources, face-to-face communication, or similar linkages/discussions with other academic organizations, organizations, NAAEE sections, student groups; and empowerment of environmental educators at colleges and universities. Together, these three needs received two-thirds of the first or second rankings. The next most frequently ranked needs were an academic journal; standards for quality and excellence in college and university environmental programs; and mutual support of isolated academics. The remaining three needs -- peer-reviewing one anothers' programs, nurturing of junior colleagues, and brokering of faculty exchanges -- received low and few rankings.

Based on these needs, an open-ended question on the follow-up survey invited participants to extrapolate or forge vision statements for an association for professors of college and university environmental programs. Of the few offered, they ranged far and wide:

> Create an open process and access for building constituency and structure in an organic rather than power based process.
>
> Creating and maintaining organizations is time consuming. I think we should "piggy back" on an amenable existing organization.
>
> The next step is to coordinate our efforts with both professional organizations (practitioners) and with State Departments of Education.
>
> I don't think a new association is required. Make NAAEE work better . . .
>
> The association would have to define a new discipline with academic credibility. The new discipline would justify creation of departments and faculty positions.
>
> A low key organizational structure that facilitates the colleagial sharing of work and ideas regarding environmental education . . . one that allows comfortable, free-ranging discussion and feedback, builds collaborative possibilities and breaks down the competitive wall that keeps us from moving forward. We should be talking ourselves out of jobs in the long term . . . not insuring that our work has to continue forever.

Half of the respondents offered information about the number of undergraduate students in their academic programs since 1995, with two-thirds identifying baccalaureate enrollment as increasing and the rest either stable or increasing dramatically. With respect to masters programs, only a few respondents furnished any information, and it tended to be that enrollment was stable or increasing; and the response for doctoral programs was negligible. These enrollment data from the very limited sample of Sanibel Symposium participants are depressed, compared with the unequivocal findings of increasing enrollment at all academic levels as reported in *Environmental Education: Academia's Response 1972-1997* , which asked the same questions of a much broader audience.

On the whole, respondents described their relationships with other colleagues as supportive or constructive. Relationships with other departments and home institution's administrations tended to elicit a wider range of descriptions, from "keen interest for more deliberate integration" and "remarkably supportive"; to "amicable disregard," "aloof," and "in abeyance"; to "detente, rare interest and support." Respondents tended to describe their relationships with their students most favorably of all: "enthusiastic," "exciting and dynamic," and "wonderful."

The single most significant factor limiting development at individual home institutions clustered around inadequate funding and faculty, but also touched on "perceptions of funding limitations" and dilemmas of interdisciplinarity: "The interdisciplinary nature of our field is contradictory to the practice of higher education -- that is, the compartmentalization of subjects/departments -- which influences workload and recognition for what we do."

From these data, we conclude that most Sanibel Symposium participants affiliate with professional associations such as NAAEE; and that they would rather work through NAAEE CUEPS, as opposed to establishing a new organization, in order to meet the professional needs of professors in environmental studies, environmental education, and environmental sciences. Participants ranked needs into roughly three tiers of priority: 1) concrete programs/strategies to advance college and university environmental programs; an international network, online resources, face-to-face communication, or similar linkages/discussions with other academic organizations, science organizations, NAAEE sections, student groups; and empowerment of environmental educators at colleges and universities; 2) an academic journal; standards for quality and excellence in college and university environmental programs; and mutual support of isolated academics; and 3) peer-reviewing one anothers' programs; nurturing of junior colleagues; and brokering of faculty exchanges.

Part Four: *"The Call from Sanibel"*

> Our initial strategy is simple: to create a national environmental education for sustainability higher education network and make the start-up of this new initiative as inclusive as possible. Through the Higher Education Network for Sustainability and the Environment we seek to create the largest possible community of related efforts, a community where everyone can fit in, where our individual efforts are magnified. We seek to provide the impetus for a "big tent" which will include all who have a sincere desire to effect educational change. All initiatives that move us forward will be embraced, to enhance without affecting, existing identity or efforts. We seek to identify others engaged in change and what they are learning from their successes/failures. We wish to enlist in this initiative all who view their educational efforts as grounded in such areas of work as:
>
> > an interdisciplinary approach among the arts, humanities, religion, social sciences, physical and natural sciences and the professional programs of engineering, architecture, business and health,
> >
> > working with communities on environmental and sustainability issues,
> >
> > a new relationship between humankind and the environment,
> >
> > social justice regarding the human/environment relationship, and
> >
> > finding environmentally sustainable and just ways to meet human material and non-material needs.
>
> - "The Call from Sanibel" (revised)

In order to continue the momentum established at Sanibel, Corcoran and Tchen proposed and organized a small planning group of academicians and stakeholders in higher education to discuss next steps to move the Sanibel conversation forward. The project called for the conversation to continue in two to three conference calls and a face-to-face meeting on Sanibel Island among eleven participants. In our funding proposal and invitation, we enumerated the expected outcomes of using the meeting to prioritize needs identified on Sanibel, of planning next actions to take, of finding individuals to move such actions forward, and of writing a report to The Nathan Cummings Foundation, including minutes of calls and of the meeting.

Conference calls and the Sanibel Island meeting took place as planned with excellent attendance and participation. As the Sanibel Symposium Planning Group worked through the agenda on the Island, it became clear that a number of the needs identified at the Symposium could best be met by advancing two larger concepts - a national network and a working gathering of higher education stakeholders in education for sustainability. The notion of a network was a recrudescence of an idea underlying the Sanibel Symposium - the forging of a network of professors and academics committed to environmental literacy. The "summit" meeting on sustainability in higher education would, perhaps, include professional schools in health, architecture, engineering, law, and divinity. Once we realized the need for a bold vision of national, broad-based initiatives to strengthen education for sustainability and justice, we systematically set out to discuss how such a summit could best be organized and how it could meet the needs of the profession identified on Sanibel.

There was considerable discussion on both points. The Sanibel Symposium Planning Group was divided several times on the questions, in particular, of whether a meeting would meet the daily professional needs of faculty in college and university environmental programs. The compelling nature of the need for transformation of the institution of higher education and the challenge to extend our reach to grasp an undertaking of significance again and again emboldened us to see that the best way to achieve such needs as the "empowerment of environmental education at colleges and universities," the "nurturing of junior colleagues," and the "mutual support of isolated academics" was through a summit. The summit would be the genesis of a network, the network would have the capacity to attempt to meet the needs of faculty ongoingly.

Through a new grant from Nathan Cummings Foundation, we have received funds to plan for a Higher Education Network for Sustainability and the Environment (HENSE). The slightly renamed Sanibel Planning Group organized a facilitated gathering at Clark Atlanta University, a member of America's Historically Black Colleges and Universities and Minority Institutions, on September 16-19, 1999 to bring together thirty to forty respected leaders from the academy, government, business, NGOs, and foundations to organize the summit meeting and plan for the network. This meeting was postponed due to the transportation difficulties caused by a monster Hurricane Floyd and is rescheduled for January 14-17, 2000. Since the September postponement a HENSE planning group has met weekly by telephone conference call and recently completed a two-day meeting in Boston. A strong proposal for an organizational structure, a clear plan for the Atlanta meeting, and a timeline for the national summit in October 2000 were crafted. Major contributions from existing organizations such as University Leaders for a Sustainable Environment of Washington, D.C. and Second Nature of Boston were accepted.

The Higher Education Network for Sustainability and the Environment seeks to make environmental education for sustainability effective on a much larger scale. It seeks to extend environmental education's reach, both by heightening the credibility of environmental and sustainability programs and by building bridges between these programs and other disciplines/professions.

According to Anthony Cortese writing for the Sanibel Planning Group:

> The Network will carry out a number of functions environmental educators need. Some of these functions would be: to share ideas, experiences, success stories and problem solving; provide a web-based clearinghouse; provide active, online networking; produce an electronic professional journal; support professional development; connect with a large number of professional societies; include and support students and student organizations; highlight these efforts in public as well as professional media, in order to inform the public at large about the need for education for sustainability in higher education. Such an initiative is not a new idea - but it is an idea whose time we believe has come. Indeed, many of these activities are underway, but are not large enough in scope or impact to make the necessary educational thrust comprehensive or fast enough.
>
> - "The Call from Sanibel"

The Sanibel Planning Group, in its calls and meetings, realized the vision of a Higher Education Network for Sustainability and the Environment; and committed itself to taking responsibility for moving forward by means of meeting which will gather leaders with the diversity, credibility, and commitment to build such a network. This is the hope of "The Call from Sanibel" which will go out to harken such leaders to Atlanta to continue to plan for a network and a national summit on sustainability and the environment that will meet the professional needs of faculty in college and university environmental programs.

Part Five: *Conclusion*

Given the environmental climate of the late 1960s and early 1970s, a sage might have predicted that higher education would respond by developing environmentally-oriented courses and programs to capitalize on the burgeoning public, and student, concern and interest. However, of the relatively few programs that had emerged by the early 1970s, only fifteen were identified as being potential bellwethers in environmental education (Aldrich and Kormondy 1972a and b, 1973). In a follow-up study of twelve of these programs twenty-five years later, two of these programs had become extinct, two continue more or less in the same vein, and the others had undergone varying degrees of change (Kormondy and Corcoran 1997). Further, this study indicated that of the some 3,500 U. S. higher education institutions, only 360, or a modest ten percent, had programs in environmental education, environmental science, or environmental studies.

Why only some ten percent of American higher education has developed environmentally-oriented programs devolves from the conflicting nature of environmental problems and the structure of academe. Too many departments, in both small and large institutions, jealously guard their disciplinary territory and remind their members where their tenure and promotion are decided. Administrations, as well as granting agencies, are often culprits as well by failing to develop new budgeting approaches to units that don't fit standard formulas. When interdisciplinary programs, environmental or other, founder, it is often because of the lack of one or more to the three "f"s - faculty, facilities, and funding.

Concerned about these limitations on environmental programs and wanting to support academic planning to mitigate them, North American Association for Environmental Education and Florida Gulf Coast University convened a symposium on Sanibel Island in March, 1998. This meeting and a follow-up study of the participants made clear the stakeholders in higher education environmental programs have much to gain from continued professional discourse and have specific priority professional needs, including concrete programs/strategies to advance college and university environmental programs; an international network,

online resources, face-to-face communication, or similar linkages and discussions with other academic organizations; and empowerment of environmental educators at colleges and universities.

Seeking to build on the momentum of the Sanibel Symposium, NAAEE continued to explore the ways to meet these needs through the convening of a Sanibel Symposium Planning Group on Sanibel Island in November, 1998. This group, now the Sanibel Planning Group, committed in "The Call from Sanibel" to the development of a Higher Education Network for Sustainability and the Environment to be developed at a high level planning meeting on the campus of Clark Atlanta University in January, 2000, and announced at a national summit in October, 2000.

This paper provides a descriptive analysis of the process of events and of the research results influencing the process. Details of the studies and further developments subsequent to the 2 December 1999 conclusion of the AARE-NZARE Conference are available from the authors.

Peter Blaze Corcoran

Professor of Environmental Studies and

Environmental Education

Florida Gulf Coast University

19501 FGCU Boulevard South

Fort Myers, FL 33965-6565

United States of America

tel: 1 941 590 7166

facs: 1 941 590 7200

email: <pcorcora@fgcu.edu>

Richard Tchen

Project Coordinator

The Math Forum

Swarthmore College

500 College Avenue

Swarthmore, PA 19081-1397

United States of America

http://forum.swarthmore.edu/

tel: 1 610 328 8225

facs: 1 610 328 7824

email: <richard@forum.swarthmore.edu>

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	E-Mail Address: pcorcora@fgcu.edu Date: 6 AUGUST 2001

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