THE UniSCOPE LEARNING COMMUNITY

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The UniSCOPE Learning Community
University Park, Pa. 16802

EXECUTIVE SUMMARY

The current system for recognizing and rewarding University scholarship is characterized by an academic culture that shows preference for rewarding basic research and teaching over other forms of scholarship. This creates a challenge to the University as we move into the 21st century. We believe that many faculty and administrators need to develop a creative understanding of other forms of scholarship and how they can be effectively integrated into the promotion and tenure process. Others need to expand their perspective to recognize the value of outreach scholarship to the University and to society. If the University is to continue to lead the way in outreach, faculty must have a clearer understanding of its value as scholarship. University scholarship must be understood broadly enough to adequately address the needs of the professions and public. Criteria and methods of evaluation must be defined to recognize and reward all forms of scholarship equitably.

On March 24, 1998, a small group of faculty and administrators formed a learning community to engage in a deliberative dialogue about recognizing and documenting outreach scholarship in the University. We chose UniSCOPE, University Scholarship and Criteria for Outreach and Performance Evaluation, as a title to encapsulate our mission. Our goal was to consider the meaning of scholarship in the contemporary university and to consider the role of outreach therein. We did this in the context of the Penn State promotion and tenure system to gain a better understanding of its effect on scholarship. We quickly learned that outreach scholarship cannot be examined in isolation, and we broadened our deliberations to consider the full range of scholarship. This report articulates a multidimensional model of scholarship in general, of which outreach scholarship is a key component, and presents our recommendations for action.

The UniSCOPE learning community recommends a University-wide dialogue on the dimensions of scholarship in the 21st century, using the UniSCOPE model as a starting point. UniSCOPE is a multidimensional model that conceptualizes each of the three mission areas of the University – teaching, research, and service – as a continuum of scholarship. UniSCOPE recognizes that discovery, integration, application, and education are inherent in the three missions and views outreach scholarship as an integral component of each.

The UniSCOPE group recommends implementation of a model of scholarship for the 21st century that equitably recognizes the full range of teaching, research, and service scholarship and suggests consideration of the following strategies for action:

- Disseminate this proposal encouraging dialogue among leadership areas within the University, including the University Faculty Senate and its Committee on Outreach, President Spanier, the Executive Vice President and Provost, the Vice

President for Outreach and Cooperative Extension, College Deans, Promotion and Tenure Committees at all levels, Commonwealth College CEO's, and the respective administrative and faculty governance units in each for deliberation and development of appropriate action plans.

- Create a "Dimensions of Scholarship in the 21st Century" Web site to publish this proposal and further the dialogue.

- Develop a brochure and an insert in *Intercom* to guide the dialogue.

- Hold University-wide workshop(s) or conference(s) to discuss the model and refine it for implementation.

- Create a University-wide effort to define a process, criteria, and models for documenting and assessing scholarly quality and impact that are relevant to the diverse disciplines, fields, and programs of the academy.

- Revise the promotion and tenure dossiers, "the rainbow dividers" to reflect expanded lists as suggested in the report.

- Share the model widely with the National Association of State Universities and Land-Grant Colleges (NASULGC).

- Document and share enhancements and new applications allowing all departments to benefit as this work progresses.

Finally, we believe that the multidimensional UniSCOPE model provides a foundation on which the scholars of all disciplines and professions can build a structure for identifying, recognizing, and rewarding the specific types of scholarship that apply in their fields. Our recommendations are a challenge to the academic community to apply its individual and collective creativity and expertise to refine and implement the UniSCOPE model. We believe the result will be a blueprint for creating a fair and equitable system for documenting, recognizing, and rewarding the full range of scholarship in the 21st century. In this way, the University will engage society in making life better.

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FOREWORD

As we begin this new millennium, it is a perfect time to think of the future, and we can begin by examining the academy's current practices and determining ways to improve upon them to better serve society. The theme of improving the academy's responsiveness is one of the most prominent issues in higher education today. Responsiveness to the essential needs of our society is critically important for the viability and prosperity of individuals, families, businesses, communities – and universities themselves. All aspects of the academy must become more engaged than ever before in addressing current and future societal problems. We must become an essential, integral resource to our communities.

The missions of our institution – teaching, research, and service – remain constant, but the context in which we pursue these missions is in every way different from what it has been historically, even just a few years ago. The ideas detailed in this UniSCOPE report evolved from deliberations of a learning community comprised of faculty members from many disciplines across Penn State. This learning community has reviewed existing work on the issue of scholarship and creatively expanded the ideas and concepts to develop a proactive model for the 21st Century. The learning community participants spent more than two years in this collegial discussion, listening, and learning process. It is now time to share their insights and to promote a similar learning process throughout the University.

I would like to commend the UniSCOPE Learning Community for devoting their time and energy over the past two years to create this report. A special thank you goes to Dr. Drew Hyman for facilitating their deliberations and capturing them so well on paper. A thank you also goes to Dr. Elise Gurgevich for coordinating and guiding the learning community process. I must also thank the W.K. Kellogg Foundation for providing the funding and encouragement to foster this type of intellectual endeavor.

It is my fervent hope that the UniSCOPE report will generate University-wide deliberation about the critically important issue of scholarship in higher education. Whether all faculty agree with the UniSCOPE model or not, I invite them to engage in the process of discussing its underlying concepts, principles, and issues with an eye toward equitably recognizing and rewarding the various forms of university scholarship.

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Theodore R. Alter, Ph.D.
KEYSTONE 21 Project Director
Associate Vice President for
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INTRODUCTION

The public expects more from higher education now than ever before to satisfy the growing demands of living in an increasingly complex global society. The Information Age with its rapidly evolving technology demands a highly knowledgeable workforce and a civic culture of involvement and creativity. The 21st century presents major challenges and increased opportunities for University scholarship. We need to address the need for disseminating and applying state-of-the-art knowledge throughout society. We need to promote integration across disciplines and between the university and the field. Applications of knowledge to real-world issues need to be addressed in a rapid-response mode. Creativity and flexibility are required in responding to the public's need for lifelong learning.

University and college administrators and faculties are responding by rethinking what constitutes high-quality scholarship. Penn State has been seriously engaged in this discussion for several years as evidenced by the work of the University Faculty Senate and its Committee on Outreach, by the restructuring of outreach as a University-wide office under the Vice President for Outreach and Cooperative Extension, and creation of the Coordinating Council for Outreach and Cooperative Extension. Notable also is the key role Penn State President Graham Spanier has played as chair of the Kellogg Commission on the Future of State and Land-Grant Universities that published *Returning to Our Roots: The Engaged Institution*. Other visible indicators include the University's creation of the World Campus to expand outreach on a global basis and University-wide initiatives on Children, Youth, and the Family, Information Science and Technology, and the *Making Life Better* initiative for "promoting human, economic, and cultural development through the integrated missions of teaching, research, and service."

Outreach has been a critical component of Penn State's mission since its inception (see also Appendix A). It holds a long-standing and impressive record of excellence in this regard. The 1998 Penn State *Outreach Inventory* lists outreach initiatives offered in the 67 counties of Pennsylvania. Participants come from all 50 states and 80 countries. More than 1,500 faculty and instructors from all Penn State locations and every academic college in the University provide outreach programs. These efforts give Penn State the largest unified outreach effort in American higher education. But if Penn State is to continue to be a leader in outreach in the 21st century, it needs to address some major challenges and opportunities in outreach.

One major challenge to outreach programs is the current thinking about what constitutes high-quality University scholarship. The current promotion and tenure evaluation process is dominated by an academic culture that shows preference towards rewarding basic research and resident education over all other forms of scholarship. Outreach scholarship suffers because it has been judged a secondary activity or has been considered too difficult to assess.

We believe that many faculty and administrators need to gain an appreciation of outreach scholarship and how it can be effectively integrated into the promotion and tenure process.

As a result, faculty who perform outreach may not receive equitable recognition and reward. A brief perusal of the *Outreach Inventory* suggests that many tenure-track faculty are not involved in outreach as we move into the 21st century. If the University is to continue to lead the way in outreach, faculty and administrators need to have a creative understanding of outreach scholarship and how it can be effectively integrated into the promotion and tenure process. Scholarship must be redefined more broadly to adequately address the needs of the public, and criteria and methods of evaluation must be redefined to recognize and reward all forms of scholarship equitably.

On March 24, 1998, a small group of faculty and administrators decided to create a learning community to engage in a deliberative dialogue about recognizing and documenting outreach scholarship in the University (see Appendix B). We chose UniSCOPE, University Scholarship and Criteria for Outreach and Performance Evaluation, as a title to encapsulate our mission. Our goal was to consider the meaning of scholarship in the contemporary university and to consider the role of outreach therein. We did this in the context of the Penn State promotion and tenure system to gain a better understanding of its effect on scholarship. We quickly learned that outreach scholarship cannot be examined in isolation and we broadened our deliberations to consider the full range of scholarship as articulated in the Carnegie Commission (Boyer) report.

This proposal articulates the UniSCOPE learning community's suggested model for scholarship in the 21st century, of which outreach scholarship is a key component and presents our recommendations for action.

University Park, Pa.
February 2000

ACKNOWLEDGMENTS

Several works pointed the way and established a fertile atmosphere for our inquiry. In particular, the Kellogg Commission on the Future of State and Land-Grant Universities report, *Returning to Our Roots: The Engaged Institution,* and the Carnegie Foundation report, *Scholarship Reconsidered: Priorities of the Professorate*, by Ernest Boyer. We drew upon reports and documents of other Universities including Michigan State University, *A Guidebook for Planning & Evaluating Quality Outreach*; University of Wisconsin, *Commitment to the Wisconsin Idea: A Guide to Documenting and Evaluating Excellence in Outreach Scholarship*; University of Oregon, *A Faculty Guide to Promotion and Tenure at the University of Oregon*; and Portland State University, *Promotion and Tenure Guidelines*. Penn State reports reviewed include early drafts of the report of the University Faculty Senate Committee on Outreach Activities, *Engaging Tenured Faculty in Outreach Activities; Making Life Better: An Outreach Inventory of Programs and Services*.

We wish to thank faculty and administrators who shared their thoughts and insights about key aspects of our inquiry including Robert Secor, Vice Provost and Professor of English and American Studies; James Ryan, Vice President for Outreach and Cooperative Extension; Theodore R. Alter, Associate Vice President for Outreach, Director of Cooperative Extension and Associate Dean, College of Agricultural Sciences; John Brighton, Executive Vice President, Provost Emeritus and University Professor; Jeremy Cohen, Dean of Undergraduate Programs and Professor of Communications; Murray Nelson, Chair of the Faculty Senate and Professor of Education and American Studies; and Jacob DeRooy, Chair of the Faculty Senate Committee on Outreach Activities and Associate Professor of Managerial Economics.

We are indebted to the Coordinating Council for Outreach and Cooperative Extension (CCOCE) and the Faculty Senate Committee on Outreach Activities for feedback on early versions of the model. We also recognize the 1998 *Joint Retreat on Outreach Leadership Conference* at Tussey Mountain for helping frame our inquiry and the 1999 *Best Practices in Outreach Conference* at The Penn Stater Conference Center Hotel for added insights.

We also wish to thank Eileen Zuber, who read various drafts and helped structure this report; Isabel Hoover, Cynthia Carey, and Roberta Swanger who provided creative graphic assistance; and Teri Rudy, who prepared the final layout. And finally, Theodore R. Alter, Keystone 21 Project Director, for offering the possibility of a learning community and patiently supporting us through our deliberations.

THE UniSCOPE MODEL

ACADEMIC SCHOLARSHIP IN
TEACHING, RESEARCH, AND SERVICE

What Is the UniSCOPE Challenge?

The UniSCOPE learning community has responded to calls both from within the academic community and beyond to address the issue of effective and equitable recognition and rewards for all forms of scholarship. It addresses the observations of many that the promotion and tenure process shows preference in rewarding basic research and resident education over other forms of scholarship, including outreach education, research applications in the field, creative works, and service to the public. The Carnegie Foundation report, *Scholarship Reconsidered: Priorities of the Professorate*, also referred to as "the Boyer report," states: "Almost all colleges pay lip service to the trilogy of teaching, research, and service, but when it comes to making judgments about professional performance, the three rarely are assigned equal merit." (Boyer 1990:15)

The UniSCOPE learning community challenges the University community to adopt a model of scholarship that explicitly recognizes all forms of scholarship and provides an equitable process of documentation and evaluation to implement the model. This proposal presents a model for scholarship in the 21st century developed by the UniSCOPE learning community. We consider this a "work in progress" and invite the University community to become engaged in refining and applying the ideas that follow.

A key premise of the UniSCOPE model is that all forms of scholarship should be recognized equitably. A corollary is that each form of scholarship – teaching, research, and service – should be recognized for its primary product. That is, if resident education is recognized as a valued product, then extension and continuing education should receive equivalent recognition. If basic research is recognized for contributions to knowledge through refereed publications, whether or not its insights are applied in the field, then applied research should be recognized for applications in the field, whether or not insights from the experience are extended to the literature. This is not to suggest that lessons from applications should not be communicated in the literature and theoretical insights ought not to be tested in the field. The issue is that while the logical extensions of scholarship should be encouraged, each type of scholarship should be recognized mainly for its own inherent contribution.

The following sections present the results of our deliberations about the meaning of scholarship in the contemporary University. We present models of teaching, research, and service scholarship that we believe provide a framework for significant steps toward meeting the UniSCOPE challenge.

What Is University Scholarship?

We define scholarship as the thoughtful discovery, transmission, and application of knowledge. As such, academic scholarship is a term of the academy and similar activities in the community may go by other names. In this context, scholarship is rooted in the ideas and methods of recognized disciplines, professions, and interdisciplinary fields. Scholarship is informed by current knowledge in the field and is characterized by creativity and openness to new information, debate, and criticism. For scholarly activity to be recognized, utilized, and rewarded, it must be shared with others in appropriate ways.

Publication in scholarly journals or by respected presses, presentation at professional forums, and resident education are contemporary means for disseminating the results of scholarship in the academic disciplines and professions. The creation of applications in the field, active presentation of original works, utilization in practice settings, impacts in public policy, appearance of results in the media, seminars and workshops, electronic publication, technical assistance, and technology transfer are similarly important aspects of scholarship that bring the expertise of scholars to societal groups, communities, corporations, and governments. Qualified professionals regardless of the form may assess the quality of such scholarly activity, as valued by the academy. Accordingly, evaluators need to consider the nature of the scholarly activity, the appropriate method(s) for evaluation and the extent to which it effectively reaches the intended audiences or clients.[1]

We also recognize that not all forms of scholarship by faculty members are University scholarship. Faculty members may engage in one or more forms of scholarship in their roles as private individuals or citizens. Such scholarship is referred to as private scholarship, whether it be teaching, research, or service. University scholarship is scholarship that fulfills the mission of the University, in particular, the unit with which the faculty member is affiliated and utilizes the academic or professional expertise of the faculty member.

University scholarship in teaching, research, and service and the relationship of UniSCOPE to the Carnegie Foundation (Boyer) report are discussed in the next sections.

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[1]Adapted from: Michigan State University, *A Guidebook for Planning & Evaluating Quality Outreach*, East Lansing, MI.: Board of Trustees, Michigan State University, 1996, p.46. The Chang (1998) study of Penn State faculty affirms this perspective. Faculty rated the "appropriate dissemination of knowledge to users/audience" as the most important criterion for evaluating outreach, followed by "responsiveness to client/participants needs," and "degree of impact and significance."

How Does the New Paradigm Articulated in the
Carnegie Commission Report Relate to the UniSCOPE Model?

The Carnegie Foundation report, *Scholarship Reconsidered: Priorities of the Professorate*, also referred to as "the Boyer report," (Boyer, 1990), recognizes teaching, research, and service as the traditional "missions" of American higher education. Penn State also defines teaching, research, and service as the three missions of the University. Boyer's consideration of the current state of the professorate suggests that the original missions of scholarship have been lost largely due to an unbalanced reward system that favors one form of scholarship over others.

Boyer traces the development of academic scholarship historically as beginning with a priority on teaching, then to the addition of service as a priority, and most recently to placing highest priority on research. Research is a relative newcomer, which emerged as a strong contender only during and after WWII. Now, he argues, the original priorities of teaching and service have been almost edged out by the newcomer.[2]

> Research and publication have become the primary means by which most professors achieve academic status and yet many academics are, in fact, drawn to the profession precisely because of their love for teaching or for service – even for making the world a better place. Yet these professional obligations do not get the recognition they deserve and what we have, on many campuses, is a climate that restricts creativity rather than sustains it. (Boyer 1990: xii)

Boyer (1990:13) says, "that for America's colleges and universities to remain vital a new vision of scholarship is required." In considering how to regain recognition for teaching and service and to develop a system of equitable rewards for each, he recommends discarding the traditional missions of the academy as being "too narrowly defined." We must create a "renewed commitment to service" and break out of the "tired old teaching versus research debate." He continues, "a more comprehensive, more dynamic understanding of scholarship can be considered, one in which the rigid categories of teaching, research, and service are broadened and more flexibly defined."

Boyer advocates replacing teaching, research, and service with four "functions" of scholarship. "The work of the professorate might well be thought of as having four separate, yet overlapping, functions. These are the scholarship of discovery, the scholarship of

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[2]Although Penn State defines its missions to comprise teaching, research, and service and faculty are awarded tenure and rank based on their achievements in these three categories, at the present time, "scholarship" is listed as a subcategory of research. The reality is as Boyer states, "Today, when we speak of being 'scholarly' it usually means having academic rank in a college or university and being engaged in research and publication." (Boyer 1990) This reality encapsulates both the Boyer findings and the UniSCOPE challenge.

integration; the scholarship of application; and the scholarship of teaching…." Boyer's intent is to create an academic culture that recognizes the "full range of faculty talent and the great diversity of functions higher education must perform." (Boyer 1990: xii, 16)

The UniSCOPE learning community deliberated on the three traditional *missions* of the University – research, teaching and service; as well as the four *functions* proposed by Boyer, and concludes that we should not consider this as an either/or proposition. We propose a both/and model in which the three traditional missions of the academy are analogous to the *forms* of scholarship and Boyer's categories identify the *functions* of scholarship.

How Do the Three Traditional "Missions" of the University Express the Forms of Scholarship?

We believe the traditional "missions" of the University express three *forms* of scholarship. Research, teaching, and service define the intrinsic characteristics and hence the *forms*, of scholarly activity (as humans are a form of animal life and democracy is a form of government). These three forms are the fundamental building blocks of a model of scholarship. Figure 1 depicts this universe of scholarship.

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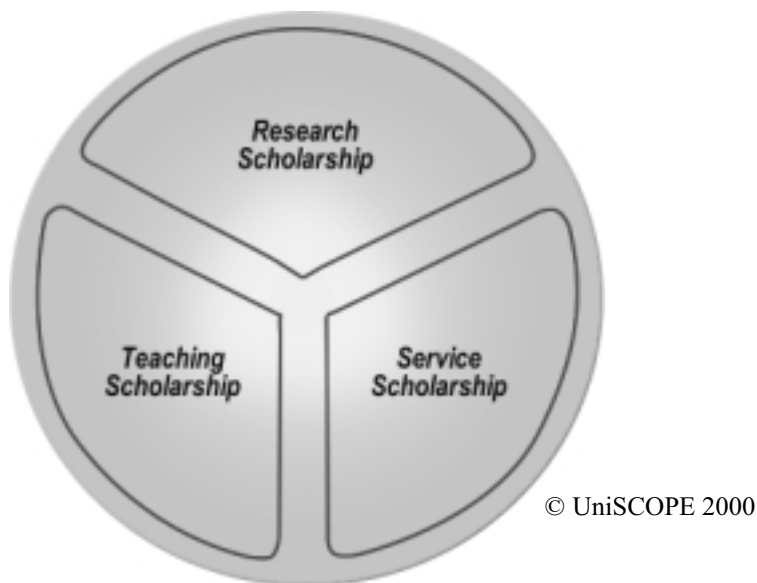
Figure 1
The Three FORMS of Scholarship

How Are the Four Functions of the Boyer Paradigm Incorporated in the UniSCOPE Model?

The Boyer report articulates a new paradigm based on four key *functions* of scholarship: the *discovery* of knowledge, the *integration* of knowledge, the *application* of knowledge, and *teaching*. The first two functions of scholarship, discovery and integration, reflect the investigative and synthesizing traditions of academic life. The third function, application, is the engagement of the scholar in extending and applying knowledge to address consequential societal problems and to improve the quality of life; this is commonly referred to as outreach.

The Boyer report identifies teaching as a fourth function that involves scholars in sharing the results of their scholarship with others. However, Boyer also recognizes that teaching "means not only transmitting knowledge, but *transforming* and *extending* it as well." (Boyer 1990: 24) We thus believe that teaching has discovery, integration, and application aspects and consider teaching to be one of the three *forms* of scholarship as shown above in Figure 1. In its place, we propose to call the fourth *function* of scholarship "education." We do this both to avoid confusion between teaching as a *form* of scholarship and to recognize that learning occurs in all three forms of scholarship. We, therefore, define the four *functions* of scholarship in the UniSCOPE model to be discovery, integration, application, and education. In this context and drawing upon Boyer, we provide the following definitions:

Discovery of Knowledge. Discovery involves being the first to find out, to know, or to reveal original or revised theories, principles, knowledge, or creations. Academic discovery reflects "the commitment to knowledge for its own sake, to freedom of inquiry and to following, in a disciplined fashion, an investigation wherever it may lead." (Boyer 1990: 17) Discovery includes identifying new or revised theoretical principles and models, insights about how empirical phenomena operate, and original creations in literature, performance, or production in the arts, architecture, design, video, and broadcast media. Discovery may be made manifest through teaching, research, and service.

Integration of Knowledge. Integration involves "making connections across the disciplines, placing the specialties in larger context, illuminating data in a revealing way, often educating nonspecialists, too." Integration creates new knowledge by bringing together otherwise isolated knowledge from two or more disciplines or fields thus creating new insights and understanding. It is "serious, disciplined work that seeks to interpret, draw together and bring new insight to bear on original research." It means "interpretation, fitting one's own research – or the research of others – into larger intellectual patterns." (Boyer 1990:18, 19) Integration brings divergent knowledge, artistic creations, or original works together. Integration may occur within or between teaching, research, and service scholarship.

Application of Knowledge. Application involves bringing knowledge to bear in addressing significant societal issues. It engages the scholar in asking, "How can knowledge be responsibly applied to consequential problems? How can it be helpful to individuals as well as institutions?" (Boyer 1990: 22) Application involves the use of knowledge or creative activities for development and change. With the first two functions, scholars define the topics for inquiry. With application, groups, organizations, community, government, or emergent societal issues define the agenda for scholarship. Application may occur through teaching, research, and service scholarship.

Education. Education involves developing the knowledge, skill, mind, character, or ability of others. It "means not only transmitting knowledge, but transforming and extending it as well." Education stimulates "active, not passive, learning and encourages students to be critical, creative thinkers, with the capacity to go on learning…. It is a dynamic endeavor involving all the analogies, metaphors, and images that build bridges between the teacher's understanding and the student's learning. Pedagogical procedures must be carefully planned, continuously examined, and relate directly to the subject taught." (Boyer 1990: 23, 24) (Note: Boyer labeled this function teaching; UniSCOPE renames this function education.) Education occurs not only through teaching but may also occur through research and service scholarship.

Although Boyer's stated intention was to replace teaching, research, and service with broader functions, we believe it is useful to postulate interrelationships between the two categories. Accordingly, both the three "forms" and four "functions" of scholarship provide the fundamental framework for the UniSCOPE model. (This is the both/and relationship mentioned earlier.) The first two dimensions of the UniSCOPE model are summarized in the box below:

- **The Forms of Scholarship: Teaching, Research, and Service.**
- **The Functions of Scholarship: Discovery, Integration, Application, and Education.**

How Do the Forms and Functions of Scholarship Provide the Framework for the UniSCOPE Model?

Each of the three forms of scholarship (teaching, research, and service) can be seen to perform all four functions (discovery, integration, application, and education). We see the relationship of the forms and functions as follows.

> *Teaching Scholarship.* The *mission* of teaching is to instruct and in so doing needs to carry out education, integration, application, and discovery *functions*. Teaching is also a *form* of scholarship in the UniSCOPE model and has the manifest objective of imparting knowledge or skills to the learner and thus to carry out the *education* function of enlightening others. Teaching others how to use knowledge

to solve problems carries out the *application* function. And to do so we often need to *integrate* material from different fields or subfields and/or to incorporate new discoveries. Finally, the process of teaching often leads to new insights and thus has a *discovery* function. All four functions may be manifest through teaching as a form of scholarship.

Research Scholarship. The *mission* of research is to establish facts, principles, and creative works through discovery, integration, application, and education. Research is also a *form* in the UniSCOPE model and has the manifest objective of careful study to establish facts or principles and the creation of new works or applications and thus to carry out the *discovery* function of creating new knowledge. To do so we often need to *integrate* ideas from different fields and from observation of applications. Research also has an *education* function when used as a pedagogical method in scientific and clinical laboratory classes, studio courses, and thesis and dissertation research to teach principles, to reveal meaning, and to stimulate creativity. All four functions may be manifest through research scholarship.

Service Scholarship. The *mission* of service is to bring knowledge to bear in addressing academic, professional, and societal issues through education, application, integration, and discovery. Service is also a *form* in the UniSCOPE model and has the manifest objective of transmitting or using knowledge and academic skills in problem solving, presenting original and creative works, and assistance to others and thus carrying out the *education* and *application* functions. Service has problem-solving, rather than disciplinary, goals and typically requires *integration* of knowledge from several fields. As noted by Boyer below, service activities often lead to new insights, the *discovery* function. All four functions may be manifest through service scholarship.

In these ways, the UniSCOPE model posits that the four *functions* of scholarship may be manifest in all three *forms*. Indeed, Boyer seems to imply a similar conclusion.

The arrow of causality can, and frequently does, point in both directions. Theory surely leads to practice. But practice also leads to theory. And teaching, at its best, shapes both research and practice. (Boyer 1990: 15-16).

Figure 2 depicts the four functions of scholarship in relationship to the three forms. The arrows depict the flow of knowledge from discovery and integration to society through education and application. It also shows that application and education, in turn, may lead to the discovery of new knowledge and its integration into one or more forms of scholarship. The UniSCOPE model of scholarship is thus a continuously iterative process wherein the knowledge and creativity of the academy are brought to the field and are, in turn, reinvigorated in the processes of application, education, and integration.

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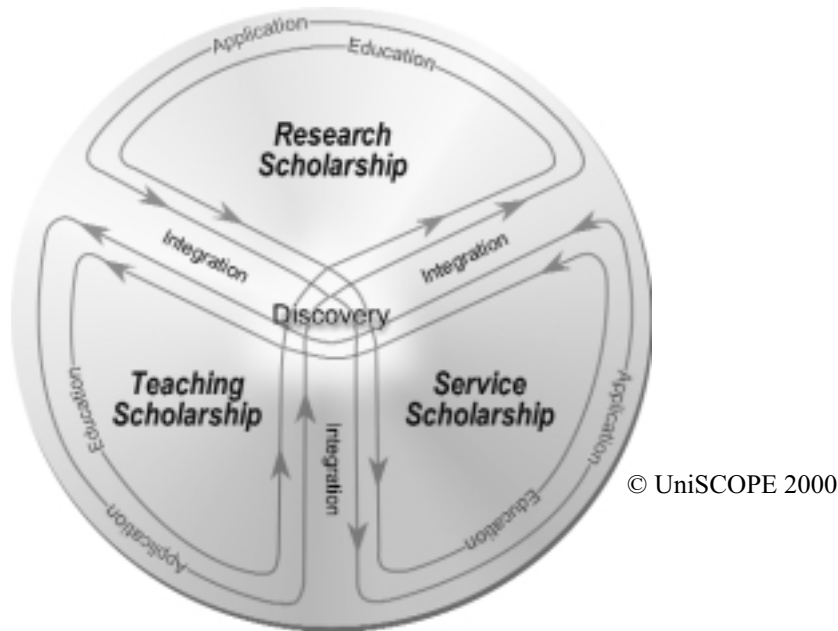
Figure 2
The UniSCOPE FORMS and FUNCTIONS of Scholarship

What Happens When the Forms and Functions Meet?

We think the main contribution of the UniSCOPE model emerges when we look at how the three forms and four functions interrelate. The intersections of forms and functions create a logical framework for classifying the traditional and familiar *types* of scholarship activities. Table 1 is a three by four table with the three forms of scholarship on the left axis and the four functions at the top. The cells of the table illustrate how the interaction of form and function creates a framework in which we can locate the full range of scholarship activities. *These intersections of form and function create what we refer to as the types of scholarship in the UniSCOPE model.*

Table 1 UniSCOPE Matrix of the FORMS and FUNCTIONS of Scholarship

UniSCOPE	The FUNCTIONS of Scholarship			
The FORMS of Scholarship	DISCOVERY of Knowledge	INTEGRATION of Knowledge	APPLICATION of Knowledge	EDUCATION Transmission of Knowledge
TEACHING SCHOLARSHIP	• course innovation • course improvement • conceptual insights from course preparation or discussion • faculty insights from supervision of theses and dissertations	• cross-disciplinary teaching • multidisciplinary teaching • integrative courses • capstone courses, e.g., Astro-biology; Science, Technology, and Society (STS); Community and Economic Development	• technical courses • clinical courses • studio courses • supervision of theses, dissertations, and student projects • professional courses, i.e., teaching where the primary impact is that people do things differently as a result	• theoretical courses • conceptual courses • problem solving • critical thinking, i.e., teaching where the primary impact is on the knowledge and learning skills of the student
RESEARCH SCHOLARSHIP	• basic research • original works • evaluation research	• multidisciplinary and integrative research • cross-disciplinary teams • integration of creative works from several fields	• applied research • policy research • performances of original works • demonstrations • technical assistance	• student laboratories • thesis and dissertation research (the objective is educating students about the research process and methods)
SERVICE SCHOLARSHIP	• participation in task forces, think tanks, and other problem-solving activities • creative, theoretical, or conceptual insights as a result of service to society	• academic governance • assistance to corporations, government and communities that involves integration across disciplines • assistance in ones' field to groups, corporations, organizations, government and communities • academic administration	• leadership in professional societies • peer-review activities • editorship of journals and professional publications	• student advising and career counseling • advising student activities and organizations • mentoring students • internships • service learning • expert testimony and consultation

"A work in progress."

For example, the intersection of *research* and *discovery* is what we typically call basic research and innovative creative works. Evaluation research is also a discovery activity. Similarly, the intersection of research and *integration* includes multidisciplinary and integrative research. The intersection of research and *application* includes applied and policy research, demonstrations, performances of original works, and technical assistance. Finally, research has an *educational* function in student laboratories, studio courses, and thesis and dissertation research, all of which use research activities to educate students about fundamental principles and concepts.

The intersection of *service* and *discovery* is manifest through faculty participation in problem-solving task forces, think tanks, and similar activities that require the use of faculty expertise creatively in problem-solving situations. Service also carries out the *discovery* function when participation and observation during service activities lead to creative, theoretical, or conceptual insights. Service requiring *integration* across disciplines can be manifest in academic governance and assistance to corporations, government, and communities. Service *applications* include leadership in professional societies, peer-review activities, and editorship of journals and professional publications. Service *applications* also extend to assistance in ones' field to groups, corporations, organizations, government, and communities. Finally, service carries out the *education* function in student advising and career counseling, advising student activities and organizations, and mentoring students. Service education is also inherent in internships and service learning activities. Finally, expert testimony and consultation, in which the faculty member is transmitting knowledge derived from other forms of scholarship to government, corporations, and community organizations, is an educational service.

The intersection of teaching and the four functions also creates familiar academic activities. Types of *teaching* involving *discovery* include course innovation, course improvement, conceptual "ah-ha moments" during course preparation or discussion, and faculty insights that emerge during supervision of theses and dissertations. Teaching *integration* occurs in cross-disciplinary teaching, multidisciplinary teaching, integrative courses, and capstone courses. We consider the *application* function to be manifest in teaching situations where the primary impact is to have people do things different as a result. Examples include technical, clinical, studio, and professional courses, and workshops. Finally, we consider the intersection of teaching and *education* to occur where the primary impact is on the knowledge and learning skills of the student. Examples include theoretical courses, conceptual courses, and courses that educate students in problem solving, critical thinking, and creativity.

Table 1 provides a simple way to illustrate how the types of scholarship are created in the UniSCOPE model. *The reader should also bear in mind that this is a work in progress, and these examples are illustrative and not intended to exhaust the range of types.* We expect that elaboration of the types of scholarship will emerge from deliberations of scholars in the

various disciplines, departments, and fields of the University. In later sections, we show how the types of scholarship identified through the UniSCOPE approach relate to the various media for delivery and the many audiences and clients for academic scholarship. Before elaborating on these dimensions of the model, however, we place our initial concern, outreach, in the context of the forms and functions of scholarship.

Where Is Outreach in the UniSCOPE Model?

In the UniSCOPE model, outreach is not a separate form of scholarship. Outreach is a concept that describes a wide range of scholarly activities that involve mainly the integration, education, and application functions of scholarship. We also recognize that important discovery events frequently occur in outreach activities. Our discussions involving faculty and administrators from the several colleges and campuses at Penn State led us to conclude that outreach is *not* synonymous with "service" nor is it limited to cooperative extension and continuing education. Rather, outreach is inherent in all of the missions of the University, specifically, teaching, research, and service.

Outreach teaching includes instruction and interpretation through cooperative extension and continuing education. Presentations to nonacademic and professional audiences, the World Campus, and other extensions of instruction to benefit society are also outreach teaching.

Outreach research includes a wide spectrum of cooperative discovery, application, and creative problem-solving interactions between the University and external audiences. It includes policy and applied research, technology transfer partnerships, demonstration projects, creative works in the arts, and related interactions between University scholars and external audiences to discover, explore, and disseminate knowledge in practice.

Outreach service involves faculty sharing their expertise with a variety of audiences including service to the various professional and learned societies, participation in community affairs as a representative of the University, and service to communities, governments, and corporations. It includes clinical service delivery, participation in task forces, authorities, public hearings, professional performances, and other venues based on the expertise of faculty members.

We believe this conceptualization of outreach is compatible with the University Faculty Senate's definition of outreach:

> *Outreach is the generation, transmission, application, preservation, and enhancement of knowledge between the University and external audiences, within the Commonwealth, nationally, and internationally.*[3]

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[3]From the draft Penn State Senate Committee on Outreach Activities advisory and consultative report, "Engaging Tenured Faculty in Outreach Activities," (12/14/99).

Penn State faculty, too, are aligned with this perspective. A 1998 study finds that almost two-thirds of Penn State faculty report being involved in outreach activities. Among faculty reporting outreach activities, 57 percent are involved in outreach teaching, 30 percent in outreach research, 60 percent in outreach service, and 19 percent in integrative outreach involving two or more of the forms of scholarship.[4] (Chang 1998)

At the same time we recognize that current practice tends to view outreach as a product of cooperative extension, continuing education programs, and selected laboratories and clinics. For example, the College of Agricultural Sciences typically speaks of "teaching, research, and extension," with the latter being synonymous with outreach. Other colleges may refer to teaching, research, and outreach. These categorizations tend to obscure the breadth and depth of outreach scholarship that exists in the University.

Nor are we consistent about how outreach relates to other activities in the University. The Penn State home page (www.psu.edu), for example, has a mixed approach to categorizing scholarly activities. Undergraduate, graduate, and international teaching are categorized as "academic programs." Cooperative extension, continuing education, distance education, and public broadcasting are categorized as "outreach." The World Campus is a category to itself. The UniSCOPE learning community considers all of these scholarly activities to be types of teaching. Similarly, grant information, the research park, technology transfer, research by colleges, and graduate education are categorized as "research." While the home page is likely organized to highlight items for external audiences, we believe this application is also reflective of the pattern of thinking about scholarship.

It thus became important for the UniSCOPE learning community to try to sort out and clarify the various aspects of scholarship and to develop a multidimensional model that includes all three forms of scholarship — teaching, research, and service — regardless of who performs the academic activities or where they occur. To help us with this process, we invited guest speakers who had expertise in different areas to join us for extensive discussions on the different forms of scholarship and discussed scholarship activities in relationship to outreach. As illustrated above, we found that faculty scholarship is not easily categorized as outreach and non-outreach. There are many "fuzzy boundaries."

After considering many examples, making many lists, and through extended deliberations, *we agreed that it is most appropriate to conceptualize each of the three forms of scholarship as a continuum*. When we do this, "outreach" is another label for many activities carried out through our teaching, research, and service missions. Figure 3 is our

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[4]The study is representative of all Penn State faculty by rank and gender. Also, 74 percent of the respondents were tenured vs. 77 percent in the University. On extent of faculty involvement in outreach, 36 percent reported "a great extent" of outreach, 41 percent "a fair amount," and 23 percent "a little." (Chang 1998)

depiction of outreach on the model presented earlier (Figure 2). As with the others, this figure depicts the flow of scholarship from the academy to society and the professions, which, in turn, enrich the knowledge and creativity of the academy.

As a result, the UniSCOPE learning community recommends a model of scholarship that includes what has been traditionally called "outreach" as an integral part of the scholarship of teaching, research, and service. We believe that this approach is most appropriate for a broadly engaged University that is committed to encouraging and recognizing the full range of scholarship.

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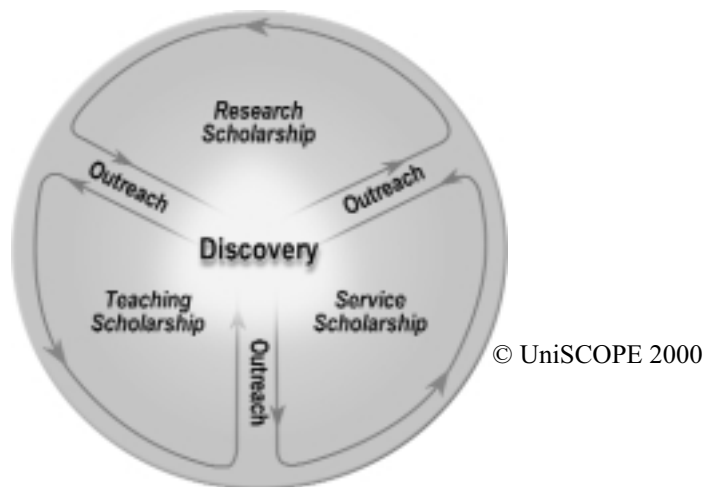
Figure 3
Outreach and the UniSCOPE Model

WHAT IS THE FULL UNISCOPE MODEL?

We believe that a multidimensional model based on the forms and functions of scholarship identified above provides a foundation on which the scholars of all disciplines and professions can build a structure for identifying, recognizing, and rewarding the specific types of scholarship that apply in their field. While our deliberations revealed that a single list of characteristics will not adequately encapsulate the disciplinary and professional diversity of scholarship that exists in the University, we offer the following sections as a framework on which the disciplines and professions, colleges, campuses, and departments, can develop specific criteria for equitable recognition and reward for the full range of scholarship in the University.

While the full range of scholarship is a much more complex and diverse phenomenon than identified above, we can conceptualize each type of scholarship as a continuum with many more types of scholarship than are identified in Table 1. Consider again Figure 2 presented earlier. The forms and functions are depicted as being continuously interrelated. For example, as research moves from discovery to application and education it shades into teaching. As service applications lead to new insights and enrichment of theory it takes on discovery research characteristics. Therefore, the types of scholarship identified in the cells of Table 1 are only some of those that can be seen to exist. Thus, *we find it appropriate to conceptualize the types of scholarship as having an infinite set of gradations, as a continuum*. Most accurately, there is a continuum in each of the three forms of scholarship.

Moreover, the *media for communication* and transmission of scholarship and the *audiences for dissemination* are also conceived as continua in the UniSCOPE model. The complete UniSCOPE model is based on these five dimensions of scholarship, which are summarized below.

THE DIMENSIONS OF THE UniSCOPE MODEL

1. The *Forms* of Scholarship: Teaching, Research, and Service.
2. The *Functions* of Scholarship: Discovery, Integration, Application, and Education.
3. The *Types* of Scholarly Teaching, Research, and Service.
4. The *Media* for Delivery of Scholarship.
5. The *Audiences* or Clients of Scholarship.
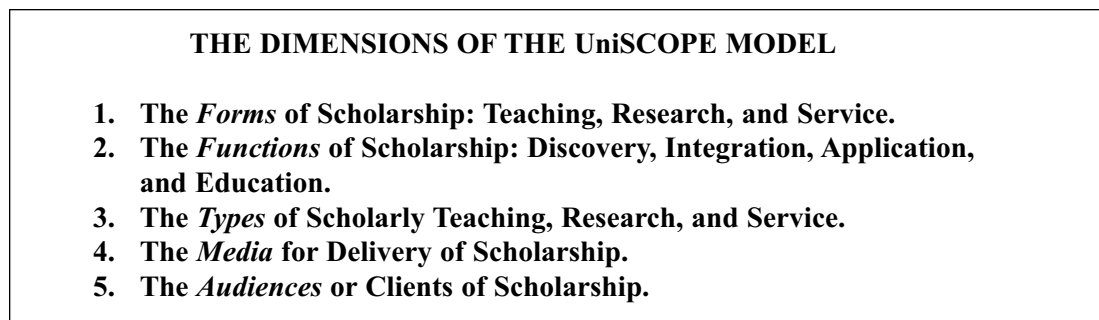
Figure 4 The Dimensions of the UniSCOPE Model

Our reasoning is as follows. The previous sections identified the forms and functions of scholarship. The intersections of forms and functions create the types of scholarship. The types of scholarship, the media for delivery, and the audiences for scholarship can each be seen as a continuum. When taken together, they create a multidimensional model of scholarship.

The next section shows how these dimensions create the multidimensional UniSCOPE model of teaching scholarship and in turn, a framework for documenting the full range of teaching scholarship. Comparisons are made to the categories used for preparing dossiers under HR23 (the "rainbow dividers" of Penn State's promotion and tenure system). Examples of how current University scholarship fits the model are also provided. We then present multidimensional models of research scholarship and service scholarship.

WHAT IS TEACHING SCHOLARSHIP?

Teaching Ability and Effectiveness

The ability to convey subject matter to intended audiences or clients of the University; demonstrated competence in teaching and capacity for growth and improvement; ability to maintain academic standards, the ability to train others in research methods and practice and to stimulate the interests of those in the field.[5]

Three Continua of Teaching Scholarship

Teaching scholarship involves guiding, educating, training, or instructing others in acquiring academic or professional knowledge or skills. Teaching scholarship is informed by current knowledge and is consistent with unit and University missions. The objective and expected impact of teaching scholarship is increased knowledge, skills, technological capacity, or enjoyment in the audience or client group. Considering the last three dimensions of the model (Figure 4), teaching scholarship is conceived as a continuum with several types, media for delivery, and audiences or clients. These dimensions of teaching scholarship are also each depicted as a continuum in Figures 5, 6, and 7.

What are the types of teaching scholarship? We conceptualize teaching scholarship as a continuum from pure academic teaching through various types of what are typically called outreach teaching. While the list below is intended as suggestive not definitive, we consider the types of teaching scholarship to include theoretical, technical, clinical, professional, special, and general pedagogy.

Figure 5
Types of Teaching Scholarship

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[5]This statement is similar to Penn State's official guidelines (HR23, II, 1) with a few modifications: (1) the phrase, "and the ability to train students in research methods and practice" was previously under research scholarship and has been added here as most appropriate to be included under teaching scholarship; (2) the phrase "effectiveness of counseling, advising, and service to students" has been moved and is included under service scholarship; and, (3) "students" has been changed to reflect the UniSCOPE concept of audiences or clients.

What are the media for teaching? The media for delivery of teaching scholarship may be manifest in formal, residential courses directed primarily to teaching theories, concepts and practices of a field, profession, or discipline. Teaching scholarship may also be manifest in teaching that extends scholarship to off-campus or nontraditional audiences. Teaching scholarship includes use of instructional technologies and creates access for people at a distance to the resources of the University. The media for delivery may include resident education, distance and extension education, professional conferences, technical workshops and seminars, exhibits, performances, addresses, speeches, and public broadcast media.

Figure 6
Media for Delivery of Teaching Scholarship

What are the audiences for teaching? Various audiences for, or clients of, teaching scholarship include undergraduate students, graduate students, postgraduate, professionals in the field, certificate students, special interests, and the general public.

Figure 7
Audiences for Teaching Scholarship

How Do These Three Dimensions Fit Together?

The breadth and depth of University scholarly teaching may thus be conceived as a multidimensional model of teaching activities. Figure 8 combines the three continua of teaching scholarship above into a single model. It shows the interrelationship of these three dimensions of teaching scholarship. On the left end of the model is the teaching of basic concepts and derivations of education theories predominately researched within the University. The middle of the continuum recognizes the technical, clinical, and professional education that is essential to the University. On the right are special and general types of teaching scholarship. The figure also shows the various media for dissemination and the

several audiences or clients for teaching scholarship. This multidimensional model of teaching scholarship ranges from resident to external audiences, from discovery of theory to public interest education, and from written articles to public addresses. The intersection of the three dimensions of teaching scholarship can be seen as a "scholarship event" or "academic activity" that can be documented and evaluated.
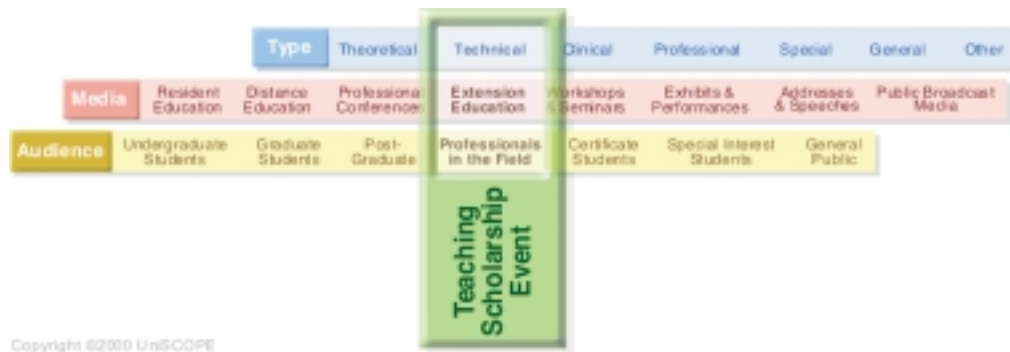
Figure 8
A UniSCOPE Multidimensional Model of Teaching Scholarship

The "mix and match" features of the UniSCOPE model are apparent. For example, teaching of theoretical concepts can be delivered as part of a resident education curriculum to undergraduate students. That same theoretical material could also be delivered through extension education or technical workshops to professionals in the field or certificate students. Many other combinations are also possible. We believe this model has the essential concepts for developing a comprehensive, fair, and equitable approach to recognizing and rewarding the full range of University teaching scholarship.

How Is Teaching Scholarship Assessed?

The UniSCOPE Model contains three continua for teaching scholarship, one for each of the main dimensions (type of scholarship, media for delivery, and audience or clients), which reflect what is taught, how it is delivered, and to whom. Teaching scholarship events (e.g., classes, seminars, and workshops) are a "mix and match" among the three dimensions resulting in a potentially large number of permutations and combinations. Assessing teaching scholarship requires a system comprehensive and flexible enough to recognize the wide range of possibilities and to evaluate the quality, quantity, and impacts of scholarly work in each.

For example, Figure 9 illustrates the mix and match feature identified above. That is, theoretical teaching may be directed to organized systems of theories, concepts, principles,

and/or hypotheses related to a specific field in the arts or sciences, which is taught in resident education classrooms to undergraduate students. Theoretical teaching may also be delivered through workshops or seminars to professionals in the field. Professional teaching may emphasize the knowledge, principles, tools, and techniques needed for a profession or career and may be delivered in resident education to post-graduate students, or in other ways as through workshops and seminars to professionals in various field settings. Similarly, clinical teaching is typically associated with direct observation and involvement with the treatment of patients, but other combinations of the dimensions of teaching scholarship are possible. Technical instruction is primarily skill-directed toward a specialization usually in the applied arts or sciences. Other forums of teaching scholarship include special and general education. In sum, each of the different types of teaching scholarship has an array of media for delivery and various possible audiences.
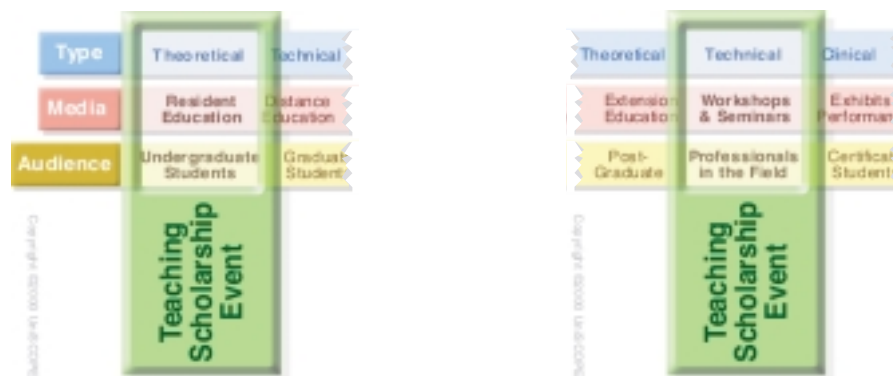
Figure 9
Illustrations of Two Teaching Scholarship Activities

We believe that assessment should place highest priority on recognizing the nature and intent of all combinations of teaching scholarship and provide for documentation of the quantity of scholarly activity, its quality, and the ultimate impact.[6] Location on the model is not an indicator of importance of quality. The model makes it clear that neither geographic location nor the credit/noncredit distinction should be defining criteria for assessing teaching scholarship. Resident education is generally taken to mean education in a formal university setting. Distance and extension education extend instruction beyond the physical boundaries

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[6]In the Chang (1998:100) study, Penn State faculty rate "evaluation of teaching effectiveness by participant," "content of course/program syllabi," and "evaluation of teaching effectiveness by colleague" as the most important types of information useful for evaluation.

of a campus to individuals (students) in corporations, governments, and communities. Continuing education and education via the Internet, such as Penn State's World Campus, blur the "where" issue, since they may use either residential or distant settings to provide credit-based or noncredit education.

Performances of other than original works (such as those of the classics) are similar to teaching in that they bring the works of others to students and the public. Professional conferences may provide opportunities for teaching scholarship when the intent is to educate people about something new as with research findings and insights. Exhibits, workshops, and seminars are teaching opportunities that bring new or revised knowledge to students in various settings. Other means for delivering teaching scholarship include addresses, speeches, and instructional pieces in the general public media.

The UniSCOPE challenge, therefore, is to create comparable means of documenting and equitable criteria for assessing any and all permutations and combinations of the dimensions of teaching scholarship.

What Categories Are Appropriate for Documenting Teaching Scholarship ("Rainbow Dividers")

Although this model of teaching scholarship appears complex, we believe that the documentation required to implement the model is in keeping with current practice in the University. The categories used by Penn State for documenting teaching scholarship (the "rainbow dividers" as the multicolored separators for dossiers are called) are generally appropriate for guiding the documentation process, with a few changes to fine tune the system to the UniSCOPE model. The resulting categories could be operationalized as follows:[7]

- Courses taught in *resident education*: academic, professional, technical, creative, and clinical, including *mentoring students in research or clinical processes* (e.g., theses, dissertations, clinics, internships).

- Courses taught in *extension, continuing education, and distance education*, including World Campus courses.

- *International education* programs.

- Development of case studies and materials, class materials, course portfolios, and teaching portfolios that document teaching scholarship.

- Workshops and seminars.

- Teaching of research and creative processes during supervision in *dissertations, theses, projects, performances, productions, and exhibitions*.

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[7]Italicized items are from the Penn State dossier and divider lists.

- Teaching of the subject matter of the faculty member's expertise to professional audiences, to technical audiences, and to general audiences.

- *New courses and/or educational programs developed.*

- *Grants and contracts for improvement of instruction and education.*

How Does Current Teaching Scholarship Fit the UniSCOPE Model?

The members of the UniSCOPE learning community identified examples of teaching scholarship in their fields and took on the task of fitting them into the model. Table 2 on the following page shows first that we are able to classify present forms of University teaching scholarship according to the model and second that many forms of teaching scholarship exist in the system. We intend these examples to be illustrative and not definitive. Given the diversity and complexity of what exists, we emphasize that all programs, disciplines, and units need to be involved in operationalizing the model.

Consider the first item on the list. Political Science 583 is a formal class in modern political and social theory. The type of scholarship is theoretical. The medium for delivery is resident education. The audience is graduate students. Documentation is through the uniform student evaluation (SRTE) and peer evaluation. The UniSCOPE model makes it clear that this is not the only way this type of scholarship could be presented. The same knowledge could be presented through a workshop to members of a governmental agency. In the former case, resident education, the objective and expected impact on the audience would be to increase graduate student knowledge about the subject matter as part of their education. In the latter case, the objective and expected impact might well be that the government employees develop the capacity to use political and social theories to more effectively establish policy options for decision makers. The documentation would seek indicators that the participants are able to use the theories in developing policy options. The other examples in Table 2 might have comparable sets of permutations and combinations of the various dimensions of scholarship.

What Is to Be Done?

The primary challenge is to extend our collegial creativity in developing appropriate criteria and processes for recognizing and rewarding the full range of teaching scholarship. We need to initiate a process for creating comparable means of documenting and assessing the many combinations and permutations of University service scholarship. The process must recognize the diversity of teaching in the different programs, disciplines, and units in the University. The result must be simple, effective, and acceptable criteria comparable to refereed publications for research and course evaluations for resident education. This process will implement the new system and lead to all forms of teaching scholarship being valued.

Table 2 Examples of Teaching Scholarship (See Figure 8)

EXAMPLE	TYPE	MEDIUM	AUDIENCE	DOCUMENTATION
Pl. Sc. 583 Modern Political and Social Theory	Theoretical	Resident Education	Graduate students	• SRTE • Peer Evaluation
Geosciences 20	Service courses to non-majors	Resident education: classroom and lab.	Undergraduate students	• SRTE • Peer Evaluation
Geosciences 452	Professional training courses	Resident education: classroom and lab.	Undergraduate students	• SRTE • Peer Evaluation
Sustainable community development	Technical	Extension	Local Officials	• Participant Evaluation • Peer Evaluation
Chemistry short course on chromatography	Professional	Lecture & Lab	Professional Chemists	• Participant Evaluation • Peer Evaluation
Chemistry 12 & 14	Theoretical	Lecture & Lab	Undergraduate students	• SRTE • Peer Evaluation
Better Kid Care	Professional and Semi-Professional Training	Videotape Workshops Satellite consulting	Child care staff In-home providers Regulatory staff	• User evaluations • Changed practices in the field • Use of educational videos • Reports to agencies
POLEX: Executive Development Training	Professional	Continuing Education	Police Officers	• Participant Evaluation • Sponsoring Organization Evaluation • Peer Evaluation
Dietetic Technician Program	Technical	Continuing Education	Certificate students	• Student Evaluation Form • Customer satisfaction • Retention data
Mine Ventilation Short Courses and Workshops	Professional training	Continuing Education	Professionals in industry, government, and academia	• Participant evaluations • Professional certification
Ground Water Short Courses and Workshops	Professional training	National organizations, e.g., Ground Water Assn., Army Corp. Engineers	Professionals in industry, government, and academia	• Participant evaluations • Professional certification • Peer Evaluation
Parents as Partners	Special	Continuing Education	Parents of children in child-care programs	• Participant Evaluation • Peer Evaluation
Management Development and Executive Programs	Professional Training	Workshops and Seminars	Business and Industry	• Participant Evaluation • Changed practice in the field • Peer Evaluation
Child Care Center Mgmt	Professional	Continuing Education	Child Care Directors	• Participant Evaluation • Participant integration of concepts into practice • Impact Indicators of integration on management practices • Peer Evaluation
Food Service Managers 2000 Conference	Professional	Continuing Education	Food Service Managers	• Participant Evaluation • Participant integration of concepts into practice • Impact indicators of integration on outcomes (e.g., profitability)
Nutrition 251	Theoretical	Distance Education	Undergraduate students	• SRTE • Impact on student performance • Extended access/quality control measures
CEDEV 500	Theoretical & professional	World Campus	Professionals in the field	• Course evaluation • Reports of use in the field • Peer evaluation

"A work in progress."

WHAT IS RESEARCH SCHOLARSHIP?

Research or Creative Accomplishment and Scholarship

Competence, usually demonstrated through publication, exhibition, performance, application, demonstration, evaluation, technology transfer, or presentation of scholarly papers, to carry out research or creative work of high quality and scholarly significance, evidence of thorough understanding of the field; maintenance of high levels of academic performance; recognized reputation in the subject matter field; evidence of continued professional growth and active contribution to professional organizations; indicators of impact in addressing technological and social problems; and enhancing the quality of life in society.[8]

Three Continua of Research Scholarship

Research scholarship involves the discovery, learning, collection, interpretation, integration, or application of theories and/or facts about a particular subject; and, creation of new and original works or applications of knowledge. Research scholarship has several types and is conceptualized as a continuum from pure basic discovery research, original performances and creativity through applied policy and action research, and technical assistance. The overall objective and expected impact of research scholarship is in addressing conceptual, technological, and social problems and enhancing the quality of life in society. Considering the last three dimensions of the model (Figure 4), research scholarship is conceived as a continuum with several types, media for delivery, and audiences or clients. These dimensions of research scholarship are each depicted as a continuum in Figures 10, 11, and 12.

What are the types of research scholarship? We conceptualize the types of research scholarship as a continuum from basic research and original works through applied research to expert consultation. While the list we provide is intended as suggestive not definitive, we consider the types of research scholarship to include basic research, original works and performances, applied and policy research, demonstration and implementation, evaluations, technology transfer, and technical assistance. Similarly, expert testimony that brings original research findings to the field, and consultation that helps create or apply new knowledge are considered research scholarship (compared to testimony or consultation that has teaching or service goals).

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[8]This statement is similar to Penn State's official guidelines (HR23) with a few modifications: (1) the words application, demonstration, evaluation, technology transfer, are added to reflect the types of research scholarship; and (2) evidence of impact in addressing technological and social problems and enhancing the quality of life in society are added to reflect the mission of engagement in contemporary society.
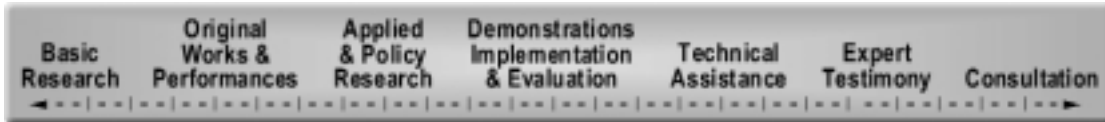
Figure 10
Types of Research Scholarship

What are the media for research scholarship? The media for delivery of research scholarship include traditional channels such as refereed journals, books, chapters, original works, reports to sponsors, and non-refereed publications. Research scholarship may also be manifest in applications created, creative and artistic presentations, demonstrations and pilot projects, competitive grants and contracts, patents and licenses, exhibitions and performances, and other media for bringing research expertise to bear on addressing technological, cultural, and societal issues.

Figure 11
Media for Delivery of Research Scholarship

What are the audiences and clients for research? Various audiences for, or clients of, research scholarship include colleagues and professionals in the disciplines, journal subscribers, professional and scholarly organizations, corporations and communities, government agencies, and other users of research scholarship.
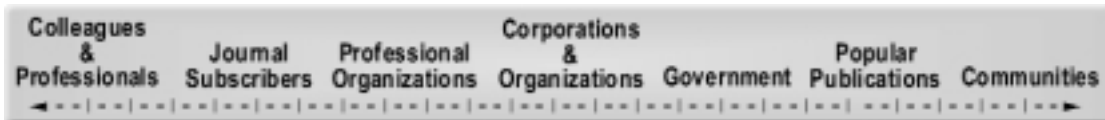
Figure 12
Audiences for Research Scholarship

How Do These Three Dimensions Fit Together?

The breadth and depth of University scholarly research may thus be conceived as a multidimensional model of research activities. Figure 13 combines the three continua of research scholarship above into a single model. It shows the interrelationship of these three aspects of research scholarship. On the left end of the model, research scholarship includes discovery research, which provides for the identification and testing of new and basic concepts and theories, their assimilation and synthesis in a discipline or across disciplines, and academic creativity that involves the creation of new and original works. The middle of the continuum recognizes integration and applications of knowledge and the demonstration and evaluation of new and innovative applications in the field. On the right are types of scholarship that interpret research findings to academic and nonacademic audiences through such activities as technology transfer, technical assistance, demonstration projects, performances, and evaluation of ongoing programs. The intersection of the three dimensions of research scholarship can be seen as a "scholarship event" or "academic activity" that can be documented and evaluated.
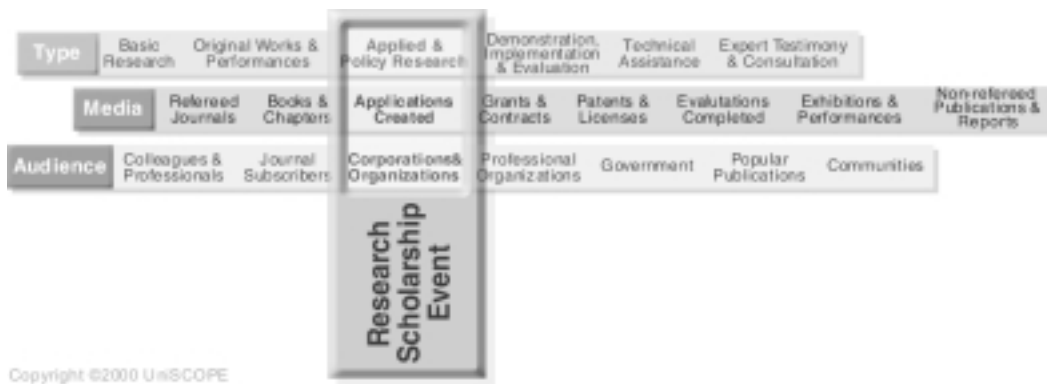
Figure 13
A Multidimensional Model of Research Scholarship

The "mix and match" features of the UniSCOPE model are apparent. For example, the results of basic research can be published in refereed journals for colleagues and professionals. That same information can also be used for creating applications through grants and contracts for corporations, communities, or government agencies (See Figure 14). Many other combinations are also possible. We believe this model has the essential concepts for developing a comprehensive, fair, and equitable approach to recognizing and rewarding the full range of University research scholarship.
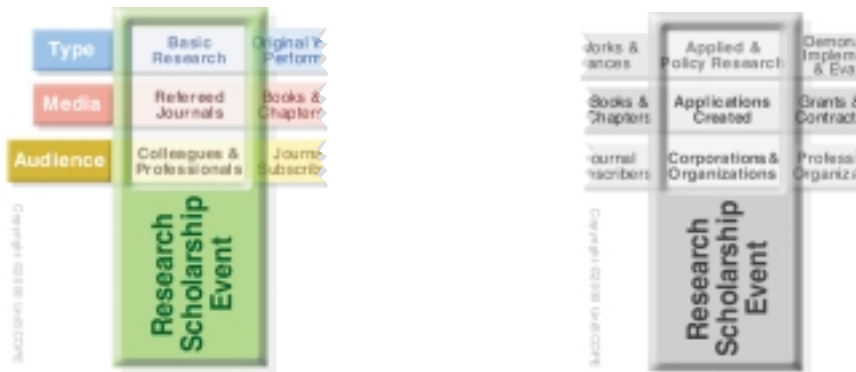
Figure 14
Illustrations of Two Research Scholarship Activities

How Is Research Scholarship Assessed?

The UniSCOPE Model contains three continua for research scholarship, one for each of the main dimensions (type of scholarship, media for delivery, and audience or clients) that reflect what is studied, how research products are delivered, and to whom. Research scholarship events (e.g., experiments, projects, creative works, applications, and evaluations) are a "mix and match" among the three dimensions resulting in a potentially large number of permutations and combinations. Assessing research scholarship requires a system comprehensive and flexible enough to recognize the wide range of possibilities and to evaluate the quality, quantity, and impacts of scholarly results in each.[9]

We believe the assessment of research scholarship requires recognition of the various types of research and identification of appropriate means for documenting the quantity of scholarly activity, its quality, and indicators of the ultimate impact. Location on the model is not an indicator of importance of quality. Research scholarship includes both the discovery and integration of knowledge *of* a field and its application *in* societal contexts. For example, basic research is generally construed to include systematic, original inquiry that extends the body of theoretical knowledge *of* a field or fields.[10] Original works and performances are

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[9]In the Chang (1998:103) study, Penn State faculty rate "evaluation of research quality by client," "projects accomplished," "materials produced for client," and "evaluation of research quality by colleague" as the most important types of information useful for evaluation of outreach research. Papers at professional meetings and published books and articles in professional journals are rated fifth and sixth after the previous criteria.

[10]Abraham Kaplan, *The Conduct of Inquiry*, San Francisco: Chandler Publishing Co., (1964), p. 381 comments on the difficulty of labeling scientific research. "...much of what is called 'applied' science can be seen as such only in a subsequent reconstruction: a theory is developed in the course of dealing with a problem of so-called 'application,' it is abstracted from such contexts, then afterwards referred back to them as 'applied science.' A great deal of science, in other words, is 'applied' long before it is 'pure.'"

considered basic research scholarship in appropriate fields. Applied and policy research focus more on the relevance of applying knowledge *in* rather than *of* a field.

This *of/in* distinction was made several decades ago by Lasswell[11] who argues that nations could not develop nuclear science without both the basic knowledge of nuclear physicists and engineers and their skills and techniques for applying that knowledge in practical applications. Similarly, the health professions could not design programs "to eliminate smallpox, cholera, or any infectious disease without relying on medical scientists" to create applications that effectively address the societal problem involved. It follows that assessment of scholarship should place highest priority on recognizing the inherent nature and intent of the research activity and on documenting the primary impact thereof.

> The same point applies to problems that go beyond political security, economic stability, or public health. The problem may be [not necessarily to discover but] to plan or evaluate programs of mass communication, education, family planning, human rights, the prevention of criminal conduct, or whatever.[12]

It follows that demonstration, implementation, and evaluation research and technical assistance are types of research that extend the discovery and inquiry capabilities of the University into the field, and in turn, frequently extend the boundaries of science by providing insights for the laboratory and the classroom. Expert testimony and consultation are research scholarship to the extent that they involve applying the results of the expert's own research in the field. In sum, each of the different types of research scholarship has an array of media for delivery and various possible audiences, all of which need to be included in the recognition and reward system.

We believe that assessment should place highest priority on recognizing the nature and intent of all combinations of research scholarship and provide for documentation of the quantity of scholarly activity, its quality, and the ultimate impact. The UniSCOPE model makes it clear that neither type of research nor the medium for delivery should be defining criteria for assessing research scholarship.

Basic research is generally taken to mean research in a laboratory or other formal University setting. However, Kaplan notes that frequently, "...a theory is developed in the course of dealing with a problem of so-called 'application,' it is abstracted from such contexts, then afterwards referred back to them as 'applied science.' A great deal of science, in other words, is 'applied' long before it is 'pure.'" Other types of research, applied and policy research, for example, extend research beyond the conceptual realm to impacts in

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[11]Harold Lasswell. *A Pre-View of Policy Sciences*, N.Y.: American Elsevier Publishing Co., (1971), p. 2.

[12]ibid

programs, corporations, governments, and communities. Demonstrations, evaluations, technical assistance, and expert testimony are noteworthy less for what is learned than for what is accomplished. The UniSCOPE challenge, therefore, is to create comparable means of documenting and equitable criteria for assessing any and all permutations and combinations of the dimensions of research scholarship.

What Categories Are Appropriate for Documenting Research Scholarship ("Rainbow Dividers")?

Although this model of research scholarship appears complex, we believe that the documentation required to implement the model is in keeping with current practice in the University. The categories used by Penn State for documenting research scholarship (the "rainbow dividers") are generally appropriate for guiding the documentation process, with a few changes to fine-tune the system to the UniSCOPE model. The resulting categories could be operationalized as follows:[13]

- Research and/or scholarly *publications published or accepted for publication including refereed articles in journals, books, parts of books, articles in non-refereed professional journals, articles in in-house organs, research reports to sponsor, cooperative extension service bulletins, and circulars.*

- *Creative accomplishments: exhibition, installation, production, publication or performance of original dance, design, electronic media, film, literary, musical, visual arts, or theatrical works.*

- *Papers presented at technical and professional* meetings that communicate original, creative, or discovery findings.

- Applications of research scholarship in the field including government agencies, professional and industrial associations, educational institutions, etc.

- *Funded projects, grants, commissions, and contracts (completed, in program, proposed)* that specify research scholarship products, *and/or improvement of instruction.*

- *Patents*, licenses, and other evidence of new product development, *new art forms, citation index analysis, etc.*

- *Pursuit of advanced degrees and/or further academic studies*; participation in seminars and workshops for professional development in one's field.

- *New computer software programs developed.*

- Incorporation of research findings into new methods of teaching established courses and/or programs.

- Consulting involving new knowledge or new applications with governments, community groups, companies, or individuals based on the faculty member's expertise.

- *Honors or awards for research* scholarship, *professional,* or creative *activity*.

- New applications developed and tested; implemented.

- New or enhanced systems and procedures demonstrated.

- Technology transferred or adapted in the field.

- New programs and systems developed, implemented.

- Evaluations completed.

- Technical assistance provided.

- Other evidence of impact in society (either known or predicted) of research scholarship.

How Does Current Research Scholarship Fit the UniSCOPE Model?

The members of the UniSCOPE learning community identified examples of research scholarship in their fields and took on the task of fitting them into the model. Table 3 below shows first that we are able to classify present forms of University research scholarship according to the model and second that many forms of research scholarship exist in the system. We intend these examples to be illustrative and not definitive. And, given the diversity and complexity of what exists, we emphasize that all programs, disciplines, and units need to be involved in operationalizing the model.

Consider the first item on the list. Earth systems research involves basic research through experiments. The medium is grants and contracts. The audience is governmental agencies. Documentation is primarily through reports to sponsors and patents. The fourth item, substance abuse prevention programs, involves applied and policy research. The medium is program design and demonstration projects. The audience is the federal government. Here the documentation and evaluation would emphasize designs and recommendations delivered and evaluations of programs demonstrated. The other examples in Table 3 might have comparable sets of permutations and combinations of the various dimensions of scholarship.

Table 3
Examples of Research Scholarship (See Figure 13)

EXAMPLE	TYPE	MEDIUM	AUDIENCE	DOCUMENTATION
Earth Systems Research	Basic Research, Experiments	Contracts and grants: analysis and synthesis of data	NSF, NASA, DOE, DOD, etc.	• Reports to sponsors • Patents • Peer review publications
Study of Aggregates and Concrete in Highways	Applied Research	Contracts and grants: analysis and synthesis of data	PENNDOT, NRC, DCNR, USGS, DOD, Industry (such as Dow and Corning)	• Applications created and adopted • Reports to sponsors • Patents • Peer review publications
Traffic Engineering Study — to determine the visibility of traffic turn signal arrows	Applied Research	Applications Created	Pennsylvania Transportation Institute	• Redesign of traffic lights • New state policy/ regulations • Report to sponsor
Substance abuse prevention programs — develop and implement	Applied & Policy Research	Design and demonstration project	U.S. Dept. of H&HS (SAMHSA)	• Designs and recommendations delivered • Evaluations of implementation. • Reports to sponsor
NSF or NIH funded research projects	Basic	Prof journal publications	Other Scientists	• Journal articles & papers
Governor's Action Center Information and Evaluation System Project: Citizen's Complaints as Social and Organizational Indicators	Basic & Policy Research	Design & Development	Governor's Office	• Development of system, database, and analysis • Technical assistance on a real-time basis • Use of reports and analysis in policy settings • Scholarly papers and articles (secondary)
PA Blueprints: Library of image situations that depicts "best practice" planning concepts and design standards	Applied Research; Technical Assistance	CD-ROM	Local Officials, Professionals, Planners	• Publication and distribution of CD-ROM • Use in the field • Professional and peer evaluations (letters)
Evaluation of the Effectiveness of USDA's Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)	Applied Research and Evaluation	Contracts	Program educators; Government colleagues	• Focus group results • Reports to Sponsor (USDA) • Refereed manuscripts
An Epidemiological Study of Food-Drug Interactions in Pennsylvania Older Adults (ACTIVE)	Applied Research	Grants and Contracts	Colleagues; professionals	• Development of drug-safety interventions • Evidence of improved drug safety • Refereed journal articles
Project PA: An Evaluation of School Food Service Personnel's Implementation of Dietary Guidelines	Demonstration, Implementation, and Evaluation	CD-ROMs, Teleconferences	Government; Colleagues & Professionals	• CD-ROMs • Report to sponsor (PA Department of Education) • Evidence of use in the field
Community Health Demonstration Project	Demonstration, Implementation, and Evaluation	Center for Substance Abuse Prevention Grant	Professionals, community organizations, colleagues	• Technical assistance provided • Testing of Community Systems Model • Evaluation reports • Refereed manuscripts
PENNTAP Projects	Applied Research & Technical Assistance	Grants, Contracts, and Consulting	Corporations and Communities	• Applications created. • Technical assistance provided • Changed technology & practices in the field

"A work in progress."

What Is to Be Done?

The primary challenge is to extend our collegial creativity in developing appropriate criteria and processes for recognizing and rewarding the full range of research scholarship. We need to initiate a process for creating comparable means of documenting and assessing the many combinations and permutations of University research scholarship. The process must recognize the diversity of research in the different programs, disciplines, and units in the University. The result must be simple, effective, and acceptable criteria comparable to refereed publications for basic research and course evaluations for resident education. This process will implement the new system and lead to all forms of research being valued.

WHAT IS SERVICE SCHOLARSHIP?

Service to the University, the Professions, and the Public

Effectiveness of counseling, advising, and service to students; participation in University, college, departmental, and unit affairs; participation in the affairs of professional and learned societies; and competence in extending and applying specialized knowledge to the University and to the public.[14]

Three Continua of Service Scholarship

Service scholarship involves the use of academic or professional knowledge or skills for assisting or enhancing the University, the professions, communities, government, or society. Service scholarship is informed by current knowledge and is consistent with unit and University missions. The objective and expected impact of service scholarship is its contribution to the efficiency and effectiveness of University, professional, corporate, community organizations, and societal programs. Service scholarship has several dimensions and also is conceptualized as a continuum from service to students and the University, through service to professional organizations, service to corporations, government, and communities.

We recognize that service scholarship may have "fuzzy boundaries" that overlap with aspects of teaching and research. In general, *service scholarship is distinguished from teaching in that its main objective is to perform or to assist in performing an activity rather than to teach someone how they might do it. Service scholarship is distinguished from research in that the objective <u>to do</u> is distinguished from the objectives of creating or testing*

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[14]This statement is similar to Penn State's official guidelines (HR23) with two modifications: (1) the phrase, "effectiveness of counseling, advising, and service to students" has been moved to this section from the teaching section; and, (2) the last phrase is added to recognize service to the professions.

new applications in the field or learning about what is being done. Like the other forms, service scholarship has several types, has a range of media for delivery, and has several audiences. These dimensions of service scholarship are depicted as a continuum in Figures 15, 16, and 17.

What are the types of service scholarship? Service scholarship may be manifest in student advising, academic governance and decision-making, academic administration, leadership in professional societies, assisting corporations and communities, and consulting based on the scholarly expertise of the faculty member. As with the other forms of scholarship, the list below is intended as suggestive not definitive. We consider the types of service scholarship to include advising, academic governance and administration, leadership in professionals associations and societies, assisting corporations and communities, and consulting in the field of expertise of a faculty member.

Figure 15
Types of Service Scholarship

What are the media for service scholarship? The media for delivery of service scholarship range from one-on-one assistance to organizations, task force participation, committee work, public meetings, and group or public presentations. As with the other forms of scholarship, faculty service is scholarship inherent in the application of appropriate expertise to an issue or problem and not because of the means by which it is delivered.
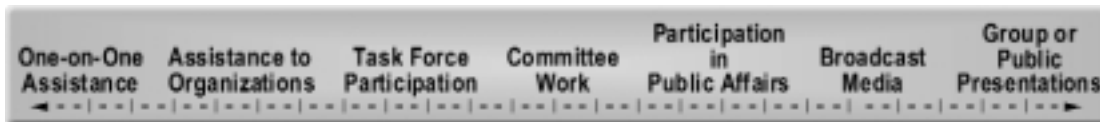
Figure 16
Media for the Delivery of Service Scholarship

What are the audiences or clients for service scholarship? The audiences or clients for service scholarship include working with individual students, colleagues, and members of the public, through work with groups and organizations, and to governments and communities. They include resident and nonresident students, colleagues and organizations in the various disciplines and professions, academic departments, colleges, and other units of the University, as well as governments, corporations, private, and nonprofit organizations and communities.

Figure 17
Audiences for Service Scholarship

How Do These Three Dimensions Fit Together?

The breadth and depth of University scholarly service may thus be conceived as a multidimensional model of activities. Figure 18 combines the three continua of service scholarship into a single model. It shows the interrelationship of these three aspects of service scholarship. The types of service scholarship include what are traditionally known as academic service involving activities that support students, faculty, administration and the disciplines or field(s) of a scholar. Service scholarship also includes outreach service that extends specific expertise and creative capabilities to serve society at large and may include participation on advisory boards, involvement in technology transfer projects, exhibitions and performances, policy analysis and consulting based on academic programs, or the advancement of a department or unit mission. The intersection of the three dimensions of service scholarship can be seen as a "scholarship event" or "academic activity" that can be documented and evaluated.

Figure 18
A Multidimensional Model of Service Scholarship

The "mix and match" features of the UniSCOPE model are apparent. For example, academic advising and career counseling are often provided through one-on-one assistance to resident students. These services may also be provided to non-resident students. Service involving assisting corporations or communities could be one-on-one, through task forces, or public participation to organizations (See Figure 19). Many other combinations are also possible. We believe this model has the essential concepts for developing a comprehensive, fair, and equitable approach to recognizing and rewarding the full range of University service scholarship.
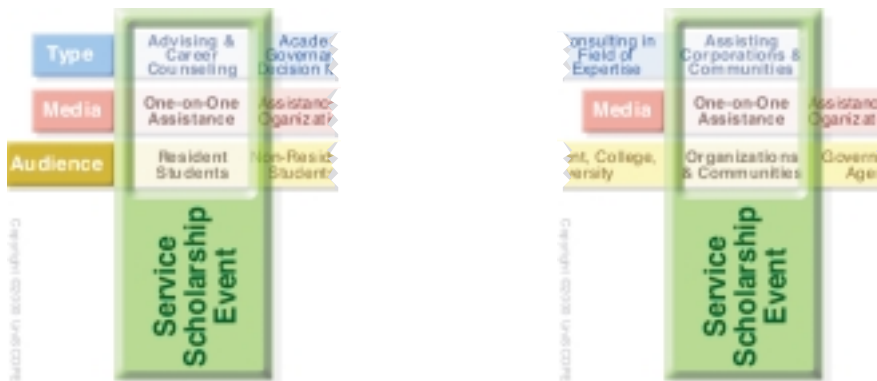

Figure 19
Illustrations of Two Service Scholarship Activities

How Is Service Scholarship Assessed?

The assessment of service scholarship can be guided by the three continua of the UniSCOPE model (type of scholarship, media for delivery, and audience or clients), which reflect what is provided, how service is delivered, and to whom. Service scholarship events are a "mix and match" among the three dimensions resulting in a potentially large number of permutations and combinations. As with the other forms, assessing service scholarship requires a system comprehensive and flexible enough to recognize the wide range of possibilities and to evaluate the quality, quantity, and impacts of scholarly results in each.

The assessment of service scholarship requires both recognition of the various types of service in its several dimensions and identification of appropriate means for expressing the quality and quantity of performance in each.[15] Advising students and career counseling is mainly service (rather than teaching) in that it is essentially assistance to the student in curricular and life-related issues not teaching the content of a discipline or applying it in a research sense. Academic governance, decision-making, and administration are services to the University in a similar sense.

Leadership in professional societies involves primarily service to such organizations on behalf of colleagues and like-minded persons to assure the enhancement of disciplines or professions compared to discovery, research applications, or teaching about the discipline. Service involving assistance in bringing the creative arts to University or public audiences or clients is an important way to apply the creative insights and expertise of scholars. Assisting governments, corporations, and communities and consulting in one's field of expertise toward addressing issues and solving problems are service *per se* and should be recognized as manifesting the expertise of the faculty member.

Assessment of service scholarship activities should place highest priority on recognizing the intent of the service activity and on documentation of the primary impact thereof. Procedures should provide for documentation of the quantity of scholarly activity, its quality, and the ultimate impact.

The UniSCOPE model makes it clear that the use of the scholar in addressing student, University, professional, or public issues and problems is the primary criterion for evaluation, not the means of delivery nor its documentation. That is, service should be recognized for its contribution to the intended audience or client and not on creating still another product, such as a journal article about the service. At the same time, insights discovered through service scholarship should be considered by faculty as opportunities to

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[15]In the Chang (1998:107) study, Penn State faculty rate "evaluation of service quality by client," "evidence that problem is resolved or understood," "leadership position held in service activities," and "evaluation from reviewers at other institutions as the most important types of information useful for evaluation of outreach service.

extend the knowledge base to others in the field, much as discovery research should eventually be tested in the world of action.

The UniSCOPE challenge, therefore, is to create comparable means of documenting and equitable criteria for assessing the many permutations and combinations of service scholarship.

What Categories Are Appropriate for Documenting Service Scholarship ("Rainbow Dividers")?

Service scholarship has been generally tolerated as a necessary activity and not one that we find to be readily documented and recognized. This perspective must change. As with the other forms, the model of service scholarship appears complex. However, the documentation required to operationalize the model is in keeping with current practice in the University. Specifically, the categories used by Penn State for documenting service scholarship (the "rainbow dividers") are generally appropriate for guiding the documentation process, with a few changes to fine-tune the system to the UniSCOPE model. The resulting categories could be as follows:[16]

- Service to Students including *advising* graduate, undergraduate, nondegree, continuing education, and extension students regarding curriculum and University policies and procedures, and career counseling of students and prospective students.

- *Service to the University – committee work, University governance bodies, administrative support work, contributions to programs to enhance equal opportunity and cultural diversity, and* related services *at department, college, campus, and university levels*.

- *Service to the Profession – participation in professional and learned societies – offices held, committee work, and other responsibilities*.

- *Outreach Service as Representative of the University – Participation in community affairs, service to governmental agencies, to business and industry, to public and private organizations, and* related service *at local, state, federal, and international levels*.

- Service to citizen/client groups that draws on the expertise of the faculty member.

- Clinical service delivery as through a University clinic, hospital, or laboratory (and which is not clinical teaching as described in earlier sections).

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[16]Italicized items are from the Penn State dossier and divider lists.

- Acting as an expert witness based on the faculty member's expertise.

- Presentations or performances for the public based on the faculty member's expertise.

- Participation in task forces, authorities, meetings, etc., of public, nonprofit, or private organizations based on the faculty member's expertise.

- Consultation service activities with governments, community groups, companies, or individuals based on the faculty member's expertise.

- Assistance to student organizations.

- Organizing conferences; service on conference committees.

- Membership activities in professional and learned societies.

How Does Current Service Scholarship Fit the UniSCOPE Model?

The members of the UniSCOPE learning community identified examples of service scholarship in their fields and took on the task of fitting them into the model. Table 4 below shows first that we are able to classify present forms of University service scholarship according to the model and second that many forms of service scholarship exist in the system. As with the other two forms, we intend these examples to be illustrative and not definitive. And, given the diversity and complexity of what exists, we emphasize that all programs, disciplines, and units need to be involved in operationalizing the model.

Consider the first item on the list. Visioning for Pennsylvania Transportation Systems for the 21st Century involves consulting in the field of expertise of the faculty member. The medium is through task force participation. The audience is a governmental agency. Documentation could be in the form of evidence of active participation, letters from officials citing the contributions of the faculty member, and might include a policy paper or chapter in a governmental document. Similar scholarship could be for private corporations or community groups. The medium could involve leadership of or presentations to groups. The other examples in Table 4 might have comparable sets of permutations and combinations of the various dimensions of scholarship.

Table 4 Examples of Service Scholarship (See Figure 18)

EXAMPLE	TYPE	MEDIUM	AUDIENCE	DOCUMENTATION
Visioning for Pennsylvania Transportation Systems for the 21st Century	Consulting in field of expertise	Task Force Participation	Government: PA Department of Transportation	• Participation on task force • Letters documenting contributions • Article/chapter in plan
Audiology	Clinic Testing and Evaluation	One-on-one assistance	Individuals with hearing disability	• Clients tested • Quality of results
Otitis Media Project	Testing and Evaluation	One-on-one	Children with Otitis Media	• Clients tested • Quality of results
Otitis Media Project	Assisting Communities/ Organizations	Group Presentations	Day Care Staff	• Training delivered • Improved knowledge and service by staff
Assoc. Editor of JACS (*Journal of the American Chemical Society*)	Leadership in Professional Societies	Journal editing	Readers of journals, professional society members	• Track record of accomplishment in making journal work
Symposia: World class ore deposits	Assisting Professionals in the Field	Hands-on demonstrations, lectures	Academic colleagues, government, industry	• Service manuals • Abstracts • Publications
Junior Education Day (Minerals)	Assisting Individuals	Demonstration in museum	Grade school students	• Student/teacher evaluations • Handouts of specimens • Brochures
Junior Museum and Workshops	Assisting Community Organizations	Museum activity	Grade and high school students	• Student evaluations • Brochures and handouts
Nittany Mineralogical Society	Lectures and sponsored talks to the public	Museum activity	General public	• Participant evaluations • Memberships
Clearing House (Public Enquiry)	Identification of minerals, rocks, fossils, and meteorites	Laboratory identification & instrumental analysis	General public	• Verbal & written reports • Market demand statistics
Radio or TV interview/talk	Assisting Special populations	Radio or TV studio	General Public	• Viewership • Demand data
Consulting	Special topic expertise	Professional activity	University, state, federal, industry, private citizen	• Reports • Recommendations • Impact in the field
CSIS Database for Public Utility Commission	Data analysis and evaluation	Assistance to Public Organizations	Government Agency	• Analysis to sponsor • Improved governmental activity
UniSCOPE Learning Community	Service to the University and the Field	Faculty Task Force/Learning Community	Colleagues and administrators	• Reports/peer evaluation by participants • Policy paper & recommendations to faculty • Evidence of impact

What Is to Be Done?

The primary challenge is to extend our collegial creativity in developing appropriate criteria and processes for recognizing and rewarding the full range of service scholarship. We need to initiate a process for creating comparable means of documenting and assessing the many combinations and permutations of University service scholarship. The process must recognize the diversity of service in the different programs, disciplines, and units in the University. The result must be simple, effective, and acceptable criteria comparable to refereed publications for service to the University, the professions, and to society. It will provide for implementing the new system and lead to all forms of service scholarship being valued.

WHAT ABOUT THE "FUZZY BOUNDARIES" AND RELATIVITY OF SOME FORMS OF ACADEMIC SCHOLARSHIP?

Scholarship that creates synergies and linkages between forms of scholarship enhances the impact of scholarship and cuts the time of implementation. For example, a faculty member or team that creates new knowledge through basic research may also take that knowledge to the field directly through applied research or demonstration. In this case, the former is documented through peer-reviewed journal articles and the latter through evidence of applications in the field. Similarly, applied research may lead to field observations and insights that contribute to basic theoretical concepts. The applied research should be recognized for its contributions to society and the theoretical work for its contributions to knowledge.

Many examples of academic activity simultaneously provide one or more of the three forms of scholarship. In other cases, the form of scholarship may be relative to the audience and purpose of the specific scholarly event. In the former case, simultaneity, for example, applied or policy research may involve both discovery and theory testing as well as service to a government, corporation, or community. Clinical teaching scholarship may also include research involving testing theories and concepts. When multiple activities occur, each should be recognized for its inherent scholarly contributions.

Regarding relativity, a presentation to colleagues that reports research results mainly to educate or instruct others about the insights derived by the researcher, would be teaching scholarship. The same, or similar, presentation to colleagues involved in a collaborative project that has the objective of engaging them in a common team effort to discover new principles would be a research scholarship activity. And, the same presentation as part of performing a service activity for corporations, government, or communities in addressing a key issue would most correctly be labeled service.

We suggest that in cases where multiple or simultaneous types of scholarship are involved, that a formula identifying the percentage of effort directed to each form of scholarship may be appropriate. In such cases, the informed judgment of the scholar and peers should recognize the character of the scholarship and exercise good faith in rewarding its results.

WHERE DO WE GO FROM HERE? THE UNISCOPE CHALLENGE AND RECOMMENDATIONS FOR ACTION!

The importance of addressing the UniSCOPE challenge directly is well documented. The reports of the Kellogg Commission on the Future of State and Land-grant Universities (Kellogg Commission 1999) and the Carnegie Foundation for the Advancement of Teaching (Boyer 1990) are two of the most notable works in this regard. The Kellogg Commission (1999) report, *Returning to Our Roots: The Engaged Institution*, recognizes the knowledge, creativity, and capability of our colleges and universities and challenges them to become engaged in addressing community, national, and global issues.

> One challenge we face is growing public frustration with what is seen to be our unresponsiveness. At the root of the criticism is a perception that we are out of touch and out of date. Another part of the issue is that although society has problems, our institutions have "disciplines." In the end, what these complaints add up to is a perception that, despite the resources and expertise available on our campuses, our institutions are not well organized to bring them to bear on local problems in a coherent way. (Kellogg Commission 1999: vii)

Several common themes or lessons to address unresponsiveness highlighted by the Kellogg Commission include the need for a clear commitment to engagement, strong support for infusing engagement into the mission of the institution, diversity and creativity in approaches and efforts, leadership and funding as necessary elements, and *accountability "lodged in the right place"* (italics added). The report concludes that a key to accountability is recognizing and rewarding all forms of scholarship.

> Of all the challenges facing the engagement effort, none is more difficult than ensuring accountability for the effort. The effort to encourage accountability must see to it that student needs are served, the quality of community life (however defined) is enhanced, and that engagement flows out of the university's basic mission of teaching and research. In this context, incentives for motivating faculty involvement must be put in place. (Kellogg Commission 1999: 28)

The Carnegie Foundation report, *Scholarship Reconsidered: Priorities of the Professorate*, also addresses the issue directly: "What's really being called into question is

the reward system and the key issue is this: what activities of the professorate are most highly prized?" (Boyer 1990: xi)

> Ultimately, in the current scheme of things, the nation loses, too. At no time in our history has the need been greater for connecting the work of the academy to the social and environmental challenges beyond the campus. And yet, the rich diversity and potential of American higher education cannot be fully realized if campus missions are too narrowly defined or if the faculty reward system is inappropriately restricted. It seems clear that while research is crucial, we need a renewed commitment to service, too…. It's time to recognize the full range of faculty talent and the great diversity of functions higher education must perform. (Boyer 1990: xii)

Engagement in addressing both academic and societal challenges has been a keystone of scholarship at The Pennsylvania State University. The 1998 outreach inventory, *Making Life Better*, notes that over Penn State's 14 decades, outreach activities have expanded to involve faculty and staff from almost every part of the University. Outreach initiatives are offered in all 67 counties of Pennsylvania and participants come from all 50 states and 80 countries throughout the world. More than 1,500 faculty and instructors from all Penn State locations and every academic college in the University provide outreach programs. These efforts give Penn State the largest unified outreach effort in American higher education.[17] *This level of involvement creates a pressing need to identify and evaluate faculty outreach activities so that they can be properly acknowledged and rewarded.* The UniSCOPE learning community is a natural outgrowth of Penn State's engagement of key issues of scholarship by its faculty.

We believe the UniSCOPE model provides a paradigm for engaging the University in the full range of scholarship, which is the sine qua non of the land-grant system. While our deliberations revealed no single list of characteristics can adequately encapsulate the disciplinary and professional diversity of scholarship that exists in the University, we offer the UniSCOPE model as a framework on which the disciplines and professions, departments, colleges, and campuses can find common ground and develop appropriate criteria.

UniSCOPE is a multidimensional model that conceptualizes each of the three mission areas of the University – teaching, research, and service – as the forms of scholarship. UniSCOPE also recognizes that the functions of scholarship – discovery, integration, application, and education – are inherent in these three forms of scholarship and views outreach scholarship as an integral component of each. Finally, the types of scholarship, the media for delivery, and the audiences for scholarship can each be seen as a continuum.

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[17]*Making Life Better: An Outreach Inventory of Programs and Services*, University Park, Pa: The Pennsylvania State University, (1998 edition), p. 26.

These five dimensions are used to create a multidimensional model of scholarship.

This conceptualization of scholarship as a multidimensional model of continua in all three missions of scholarship – teaching, research, and service – provides a framework for recognizing and rewarding all types of scholarship (Figure 20). We believe the model is consistent with the Faculty Senate's policies in HR23 and it adds a perspective for recognizing and documenting each form of scholarship for its primary products.

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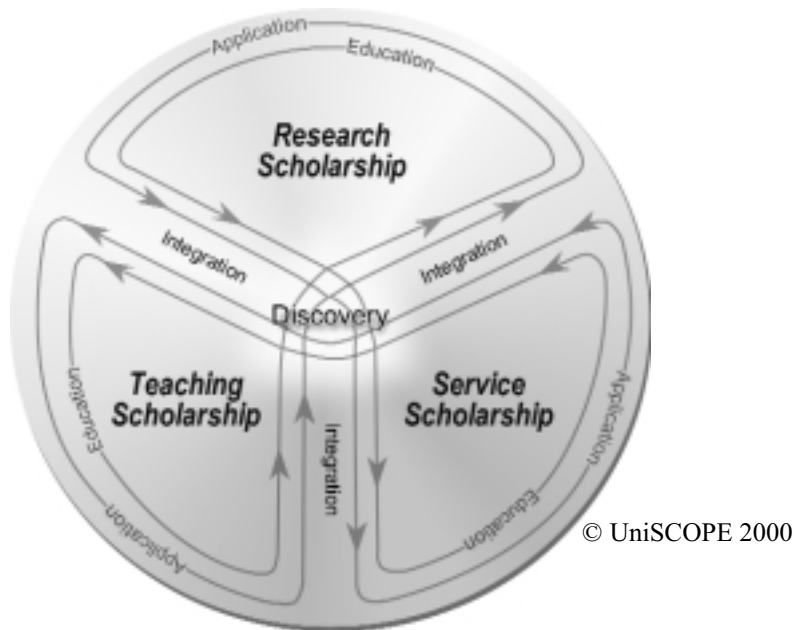
Figure 20
The UniSCOPE Model of Scholarship

We also recognize that establishing specific criteria for the documentation of scholarship is a faculty prerogative that should recognize the similarities and differences of the various academic disciplines and professional fields. Thus the lists and examples herein are meant to be suggestive and illustrative, not definitive. It is our belief that the collegiality, dedication, and creativity of faculty in each department, college, and campus will allow a culture to emerge that acknowledges and rewards all forms of scholarship. President Graham Spanier has stated that Penn State is inventing a new model of what land-grant universities must be and must do in the 21st century, and that "Penn State's goal is to be the national leader in the integration of teaching, research, and service."

This model centers on the integration of our missions, the rapid deployment of our resources, collaboration across disciplines and delivery units and partnerships with a wide variety of public and private organizations. Fused with a number of program priorities in areas that impact greatly on the quality of life–areas such as information science and technology; children, youth, and families; the life sciences; materials science; and environmental concerns–our model will make a significant contribution to the Commonwealth's economic and community development and make life better for Pennsylvanians.[18]

The UniSCOPE learning community challenges our colleagues and the administration to implement a model of scholarship for the 21st century that equitably recognizes the full range of teaching, research, and service scholarship and suggests consideration of the following strategies for action:

- Disseminate this proposal encouraging dialogue among leadership areas within the University, including the University Faculty Senate and its Committee on Outreach, President Spanier, the Executive Vice President and Provost, the Vice President for Outreach and Cooperative Extension, College Deans, Promotion and Tenure Committees at all levels, Commonwealth College CEO's, and the respective administrative and faculty governance units in each for deliberation and development of appropriate action plans.

- Create a "Dimensions of Scholarship in the 21st Century" Web site to publish this proposal and further the dialogue.

- Develop an informational brochure and an insert in *Intercom* to guide the dialogue.

- Hold University-wide workshop(s) or conference(s) to discuss the model and refine it for implementation.

- Create a University-wide effort to define a process, criteria, and models for documenting and assessing scholarly quality and impact that are relevant to the diverse disciplines, fields, and programs of the academy.

- Revise the promotion and tenure dossiers, "the rainbow dividers" to reflect expanded lists as suggested in the report.

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[18]Graham B. Spanier, "A Message from the President," in *Making Life Better: An Outreach Inventory of Programs and Services*, University Park, Pa: The Pennsylvania State University, (1998 edition), p. 3.

- Share the model widely with the National Association of State Universities and Land-Grant Colleges (NASULGC).

- Document and share enhancements and new applications allowing all departments to benefit as this work progresses.

Finally, we believe that the multidimensional UniSCOPE model provides a foundation on which the scholars of all disciplines and professions can build a structure for identifying, recognizing, and rewarding the specific types of scholarship that apply in their fields. Our recommendations are a challenge to the academic community to apply its individual and collective creativity and expertise to refine and implement the UniSCOPE model. We believe the result will be a blueprint for creating a fair and equitable system for documenting, recognizing, and rewarding the full range of scholarship in the 21st century. In this way, the University will engage society in making life better.

University Park, Pa.
2/22/2000

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Appendix A
Penn State and Outreach:
A Historical Perspective

Professional men, educated farmers, and state and county agricultural leaders founded The Pennsylvania State University, chartered by the Pennsylvania Legislature as the Farmers' High School in 1855. A faculty of four met the incoming class of 69 students in February 1859. Graduate work was offered as early as 1862. In May 1862 the institution was renamed the Agriculture College of Pennsylvania, recognizing its collegiate level. Two months later, on July 2, President Abraham Lincoln signed the Morrill Land Grant Act; this gave free land to each state to endow institutions of higher learning whose "leading object shall be to teach such branches of learning as are related to agriculture and the mechanic arts ... in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life." On April 1, 1863, the state legislature declared that the Morrill Act was accepted by the state of Pennsylvania with all its provisions and conditions. The faith of the state pledged to carry the same into effect. The legislature then designated The Agricultural College of Pennsylvania as the land-grant college of the Commonwealth.

Within a short period of time, the college broadened the scope of its instruction. It began to admit female students. It increased its enrollment and enlarged its physical plant. In 1874 the college was renamed The Pennsylvania State College.

During the University's early years, faculty focused most of their energy on their on-campus responsibilities. But some faculty began to take on outreach research roles; for example, in the 1880s, Whitman Jordan, an agricultural chemist, began issuing short bulletins for farmers on the results of his experiments with fertilizers and crops. With the passage of the Hatch Act in 1880 and subsequent creation of the Agricultural Experiment Station, the responsibility of the agriculture faculty for both applied and basic research became more clearly defined. The agriculture faculty moved into another outreach area with the beginning of home correspondence courses for farmers in 1892. On-campus agricultural short courses were instituted at about the same time. The faculty undoubtedly was involved in many forms of outreach service activities in the first five decades of the University's life. The leadership of William Frear in the drive for pure food legislation at the state and national level is a particularly notable example.

New emphasis was placed on the outreach activities of the University with the beginning of the presidency of Edwin Sparks in 1908. The on-campus Farmers Week provided a week of lectures, demonstrations, and displays for farmers who were able to come to campus. Special agricultural trains with cars fitted for lectures and exhibitions traveled the state to

reach those who could not come. The efforts of agricultural extension were further expanded with the placement of the first county-level agents in 1912. The passage of the Smith-Lever Act in 1914 provided funds that facilitated further expansion of agricultural and home economics extension at the county level.

At about the same time, the faculty of the Schools of Engineering, Mines, and Metallurgy began lecturing to industrial groups around the state. In 1910 the School of Engineering organized and began teaching off-campus technical courses for high school students and railroad apprentices in a few locations. The success of these offerings gave rise to a flood of requests from other parts of the Commonwealth, such as summer sessions for elementary and secondary school teachers. A variety of subjects were offered, with emphasis placed on technical and scientific ones. As the need to upgrade the skills of elementary and secondary school teachers came to be recognized in the 1920s, the University began to offer extension courses for teachers – first by correspondence, then through centers in Harrisburg and Pittsburgh. In this same period, enrollments in engineering correspondence courses and classroom extension courses rose sharply. These efforts were a culmination of efforts initiated by Evan Pugh, who as early as 1859 convinced the state legislature to transfer the Pennsylvania State Mineralogical and Geological Collection to the Farmers' High School. Although parts of this collection have been on display in various buildings on campus, it was not until 1930 that formal, dedicated space was made available in the newly constructed Mineral Industries Building.

In 1921 a new outreach medium was added with the creation of the college radio station. The new station was used to disseminate agricultural reports, faculty lectures, and musical programs.

A major effort aimed at providing "educational forces" to help Pennsylvanians become more "mineral-minded" was promoted by Edward Steidle, after he became dean of the School of Mines and Metallurgy in 1928. The success of the Agricultural Experiment Station spurred Dean Steidle to establish the Mineral Industries Experiment Station in 1931 (although it was phased out in 1986). An art gallery of paintings depicting the mineral industries was opened in a wing of the museum on April 10, 1935. The Earth and Mineral Sciences Museum and Art Gallery is the only facility of its kind in central Pennsylvania. Outreach activities include structured tours for school groups, a home for special interest groups such as the Nittany Mineralogical Society and community educational programs for the Junior Museum and Junior Education Day. The idea of an engineering experiment station also gained momentum at about this time. Such an entity was still a novel idea. Only two Midwestern colleges had them in 1911, when Penn State's station was created. In 1915, Penn State established Management Education, one of the nation's first continuing education programs for business and industry, boosting Pennsylvania's economy by tailoring instruction to thousands of clients statewide. Outreach research activities further expanded

with the creation of the Mining Experiment Station in 1919, although the new station's efforts languished because of inadequate funding.

Outreach teaching activities expanded during the 1930s. Extension courses in petroleum and natural gas engineering were delivered to a number of locations in western Pennsylvania. The number and variety of correspondence courses offered were expanded, with business, mathematics, and cultural self-improvement courses being the most popular.

As war loomed in 1940, the College assumed new outreach responsibilities: it developed and offered courses for supervisors and foremen in defense industries throughout the Commonwealth. The new courses emphasized mathematics, engineering, and metallurgy topics. New research projects, which were primarily defense-related, were undertaken under the auspices of the Engineering Experiment Station and the Petroleum Refining Laboratory.

In 1953 the College's name was changed again – this time to The Pennsylvania State University – in formal recognition of what Penn State had long since become, one of the country's leading universities.

In recent decades, the growth and strengthening of the University have further broadened its outreach activities. The College of Medicine has provided traditional outreach teaching and research activities since its creation in the 1960s. In association with The Milton S. Hershey Medical Center, it serves a central role in providing clinical services for the Commonwealth and beyond. The College offers the medical doctorate (M.D.) degree, the master of science (M.S.), and doctor of philosophy (Ph.D.) in life science disciplines. As early as 1965, PENNTAP began its innovative approach to the outreach mission by providing support to small business thus linking research-based solutions with local problems.

The University has also greatly broadened its offerings for nontraditional students. These include programs, conferences, institutes, and seminars on specialized topics, most often drawing on the expertise of University faculty. Longer-duration programs in this area include the College of Agricultural Sciences' Ice Cream Short Course, The Smeal College of Business Administration's Executive Management Programs, and the summer sports camps for youth. The College of Health and Human Development has developed both formal and informal outreach activities across the life span – from child development day care to aging-related topics, including an aging information services hotline. The programs and exhibitions provided by the arts, music, and theater faculties and students have provided a showcase for their talents and increasingly have enriched the cultural life of the Penn State community and the region.

In July 1997 The Dickinson School of Law in Carlisle, Pennsylvania, officially merged with Penn State to become The Dickinson School of Law of The Pennsylvania State University. Dickinson School of Law offers the degrees of juris doctor and master of laws in comparative law.

Penn State's ten undergraduate colleges now offer 151 baccalaureate and 24 associate degree majors. Penn State Erie, The Behrend College, offers 22 complete baccalaureate programs. Penn State Harrisburg offers 28 baccalaureate degree majors. The Pennsylvania College of Technology, an affiliate of Penn State, offers baccalaureate and associate degrees focused on applied technology. Penn State graduate students may choose from 154 approved fields of study. The Farmer's High School's original student body of 69 in 1855 has grown to 80,873 and the faculty of four to 5,791. Beginning with an educational program that offered 40 courses, Penn State today offers 5,422 undergraduate courses, 2,297 graduate courses, 178 medical courses, and 132 law courses. The University, whose prime purpose has always been to serve the people and the interests of the Commonwealth, the nation, and the global community is accredited by the Middle States Association and is a member of the Association of American Universities.[19]

As a major multicampus institution serving the Commonwealth and beyond, Penn State is devoted to learning and service enlightened by vigorous scholarship. As a land-grant university, Penn State provides high-quality teaching in a wide array of undergraduate and graduate programs in the arts, humanities, and sciences, as well as in a balanced offering of programs in professional and technical disciplines. As the preeminent institution of higher education in Pennsylvania and as one of the leading research universities of the nation and the world, Penn State accepts the dual responsibility to excel and to provide service to both the public and private sectors of our society. Penn State shares three traditional responsibilities with other major universities:

- Teaching. Penn State strives to create new dimensions in the lives of its students by introducing them to the collective knowledge, wisdom, and experience of human society, by encouraging them to acquire the skills and intellectual discipline to comprehend the complexities of our times and by motivating them to consider the values and aspirations that will guide their future.

- Research. Penn State strives to broaden human horizons by promoting innovation, creativity, the advancement of knowledge and dissemination in the local and global society, thus enhancing our understanding of ourselves and the many worlds around us.

- Service. Penn State strives to contribute to economic and societal vitality by offering informed views on critical and recurring issues, by providing opportunities for cultural and intellectual enrichment, and by contributing new ideas and new techniques to advance both private and public endeavors.

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[19] *From: Making Life Better: An Outreach Inventory of Programs and Services,* 1998 Ed., University Park, PA.: The Pennsylvania State University. (1998), p. 25.

The University encourages the interplay of individual creativity and intellectual diversity as the source of true understanding. It cultivates appreciation of human capabilities and human diversity as the pathway to individual and societal achievement. Penn State is thus committed to creating and maintaining an intellectual and an educational environment that reflects diverse values and needs; it fosters appreciation of a multicultural human society and seeks greater involvement with our increasingly interdependent world.

Penn State is a single university with many campuses, many strengths, and many ambitions. It is uniquely qualified to provide academic programs, continuing education, and public service and economic development programs that enhance the well-being of all citizens of the Commonwealth and the nation.[20]

The 1998 Penn State Outreach Inventory notes that outreach initiatives are offered in all 67 counties of Pennsylvania and participants come from all 50 states and 80 countries. More than 1,500 faculty and instructors from all Penn State locations and every academic college in the University provide outreach programs. These efforts give Penn State the largest unified outreach effort in American higher education.[21]

Penn State President Graham Spanier has stated that Penn State is in the process of inventing a new model of what land-grant universities must be and must do in the 21st century.

> This model centers on the integration of our missions, the rapid deployment of our resources, collaboration across disciplines and delivery units, and partnerships with a wide variety of public and private organizations. Fused with a number of program priorities in areas that impact greatly on the quality of life – areas such as information science and technology; children, youth, and families; the life sciences; materials science; and environmental concerns – our model will make a significant contribution to the Commonwealth's economic and community development and make life better for Pennsylvanians.[22]

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[20]Adapted from: *Making Life Better: An Outreach Inventory of Programs and Services*, 1998 Ed., University Park, PA.: The Pennsylvania State University. (1998), p. 24.

[21]*Making Life Better: An Outreach Inventory of Programs and Services,* University Park, PA: The Pennsylvania State University, (1998 edition), p. 26.

[22]Graham B. Spanier, "A Message from the President," in *Making Life Better: An Outreach Inventory of Programs and Services*, University Park, PA: The Pennsylvania State University, (1998 edition), p. 3.

Appendix B
Creation of UniSCOPE:
A Learning Community for Institutional Change

In the spring of 1998, the KEYSTONE 21 Advisory Committee[1] met to discuss how it could promote leadership for innovation and change in the University. We were looking for ways to create new definitions of scholarship for the 21st century. Scholarship that would value outreach and reward socially relevant forms of research, teaching, and service. We discussed and reviewed the current University reward system. We acknowledged the existence of University policies developed by the University Faculty Senate and administration for recognizing outreach in the three mission areas of teaching, research, and service. But we also noted that problems existed for implementing them within colleges and departments, where promotion and tenure decisions are made. Specifically, we noted that outreach teaching scholarship and outreach research scholarship have not been receiving fair and equitable evaluation in comparison to basic research scholarship. Nor is the current policy addressing the issue of service scholarship in a complete and equitable manner.

Although University policy formally recognizes these critical components of the land-grant mission, the evaluation process is dominated by an academic culture that primarily recognizes non-outreach and non-service activities. And we are concerned about the implications of this policy, particularly, how it could adversely affect the University's land-grant mission. We understand that these concepts are not easily understood and that discrepancies in interpretation and implementation exist between colleges. And we realize that this poses a serious challenge to the three areas of the University's land-grant mission: teaching, research, and service. And that such a challenge demands to be pursued with a novel approach. After considerable reflection and deliberation, we decided it was necessary to broaden this discussion. Our goal was to create a "learning community" to explore the criteria and methods for a land-grant institution to evaluate scholarship and outreach activities in the 21st century.

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[1] Members of the KEYSTONE 21 Advisory Committee included Theodore R. Alter, KEYSTONE 21 Project Director, Associate President for Outreach, Director of Cooperative Extension and Associate Dean, College of Agricultural Sciences; John E. Ayers, Professor of Plant Pathology; Erskine H. Cash, Professor of Animal Sciences; Robert O. Herrmann, Professor Emeritus of Agricultural Economics; Drew Hyman, Professor of Public Policy and Community Systems; and M. Susie Whittington, Associate Professor of Agricultural and Extension Education.

A learning community is a group of people who agree to engage in an open conversation of discovery about a topic of mutual interest. Its members enter into the relationship with an assumption of competence on the part of each and trust in all. The conversation is characterized by curiosity in exploring new ideas, openness to all perspectives and points of view and a commitment to working toward a collaborative result. As noted by Charles Hardy (1995) at the London Business School, "Lonely learners are often slow and poor learners, whereas people who collaborate learn from each other and create synergy."[2] Such communities are held together not by authority or influence but by a commitment to a common goal and a promise to continue the conversation.

> Learning organizations are a space for generative conversations and concerted action. In them, language functions as a device for connection, invention, and coordination. People can talk from their hearts and connect with one another in the spirit of dialogue (from the Greek dia + logos-moving through). Their dialogue weaves a common ongoing fabric and connects them at a deep level of being. When people talk and listen to each other this way, they create a field of alignment that produces tremendous power to invent new realities in conversation and to bring about these new realities in action.[3] (Krofman & Senge 1995)

As a result a five-phase process was created:

Phase 1: Initiation. As a first step, we established a broad-based learning community among a small but dedicated group of Penn State faculty and administrators. Potential members were identified by nominations of the KEYSTONE 21 Advisory Committee, the Vice-Provost and the Vice President for Outreach, Director of Cooperative Extension and Associate Dean, College of Agricultural Sciences. At an organizational meeting, the purpose and challenge of the learning community was introduced. Nominees were invited to engage in a 6- to 12-month deliberative dialogue. Refine the topic. And indicate their commitment to the learning community. The meeting concluded with all nominees agreeing to become members. Learning community members[4] made a commitment to attend all of the meetings.

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[2] Charles Handy, "Managing the Dream," in Sarita Chawla and John Renesch, eds., *Learning Organizations*, Portland, OR: Productivity Press, (1995), p. 47.

[3] Fred Kofman & Peter Senge "Communities of Commitment," in Sarita Chala and John Renesch, eds., *Learning Organizations*, Portland, OR: Productivity Press, (1995), p. 33.

[4] Learning Community members include John E. Ayers, Professor of Plant Pathology; Erskine H. Cash, Professor of Animal Science; Donald E. Fahnline, Associate Professor of Physics; David P. Gold, Professor Emeritus of Geology; Elise A. Gurgevich, KEYSTONE 21 Project Coordinator; Robert O. Herrmann, Professor Emeritus of Agricultural Economics; Drew Hyman, Professor of Public Policy and Community Systems; Peter C. Jurs, Professor of Chemistry; David E. Roth, Associate Professor of Engineering; John D. Swisher, Professor of Counselor Ed./Psychology/Rehab Ed.; M. Susie Whittington, Associate Professor of Agricultural and Extension Education; and Helen S. Wright, Professor of Nutrition.

Complete assigned tasks between meetings. And come to the meetings prepared to participate in deliberating the issues.

The ground rules for the learning community were established as follows:

- All participants would have equal status regardless of University position.

- The format and agenda of each meeting would be flexible – the direction could change as the dialogue proceeded.

- All ideas would be valued.

- The goal would be to create a common understanding on the meaning of outreach scholarship in teaching, research, and service.

Phase 2: Establishment. The learning community chose UniSCOPE, University Scholarship and Criteria for Outreach and Performance Evaluation, as a title to encapsulate its chosen mission. Its task would be to explore the criteria and methods for a land-grant university to evaluate scholarship and outreach activities in the 21st century. As a learning community, UniSCOPE would be open to redefinition and change as the process unfolded. Initial discussions addressed the following questions: What is scholarship in a land-grant university setting? And what is outreach in this context? Later deliberations addressed issues of design and implementation of processes for documenting and evaluating all forms of University scholarship.

Phase 3: Implementation. The learning community process of discovery and deliberation to date has addressed the following topics:

- March 24, 1998: Organizational Meeting: Theodore R. Alter, KEYSTONE 21 Project Director

- April 13, 1998: Penn State's Definition of Scholarship – Dr. John Brighton, Provost. Learning Community Members Definitions of Scholarship – Drs. Drew Hyman/Susie Whittington

- May 14, 1998: Reward and Recognition Structure for Faculty Outreach Activities – Jacob DeRooy, Chairman of Faculty Senate Committee on Outreach

- June 11, 1998: What We've Learned and Where Are We Going as a Learning Community?

- July 14, 1998: The Scholarship of Teaching – Jeremy Cohen, Interim Dean, College of Communications

- September 30, 1998: Penn State's Definition of Outreach and Service Scholarship – James Ryan, Vice President for Outreach and Cooperative Extension

- October 22, 1998: Discussion of Progress to Date and Next Steps

- November 24, 1998: Tussey Mountain Retreat; Discussion of final product possibilities

- December 22, 1998: David Roth, Senate Committee on Outreach, joins the learning community as liaison. Consideration of Wisconsin and Michigan State outreach evaluation documents. Developed an outline for a UniSCOPE position paper.

- January 28, 1999; February 25, 1999; March 31, 1999; May 14, 1999; June 11, 1999; August 24, September 13, October 18, 1999; November 15, 1999; December 6, 1999; January 18, 2000; February 14, 2000; March 14, 2000; April 10, 2000; and May 23, 2000 to date. Discussed and refined the development of the UniSCOPE models of scholarship and the draft of *UniSCOPE 2000: A Multidimensional Model for Scholarship in the 21st Century*.

Phase 4: Creating a Model of Scholarship. The UniSCOPE learning community formulated a model of University scholarship. The model is grounded in three main missions of the University: teaching, research, and service. The Advisory Committee provided information and engaged the learning community in considering what outreach and outreach scholarship is for each of the three main missions of the University. Documents from other Big Ten universities (Wisconsin, Michigan State, and Illinois), and Oregon State and Portland State were consulted. They were valuable materials for developing this document. We expect the model to unfold and evolve as the dialogue continues.

Phase 5: Products. Suggestions for final products of the UniSCOPE project include the following possibilities:

- A policy paper on scholarship and its meaning for teaching, research, and service in the 21st-century land-grant institution.

- Development of a format and materials for a deliberative dialogue to be used in University colleges and departments toward both implementing the results of the UniSCOPE learning community and developing unit-specific criteria for evaluating teaching, research, and service scholarship.

- Initiation of a University-wide learning community process for both

implementing the recommendations of the UniSCOPE learning community and developing unit-specific criteria for evaluating teaching, research, and service outreach.

- A University-wide conference or series of workshops to discuss and implement the results of the UniSCOPE process.

- An "Internet Forum" open to all faculty to present the UniSCOPE model(s) and engage the University community in a deliberative dialogue about scholarship and its meaning at Penn State. The result would be a refinement of the model(s) and suggestions for applications in the University.

- Other (as emerges from the process).

UniSCOPE is thus one of the many activities of the University that is addressing issues of appropriate recognition of outreach and other forms of scholarship. The University Faculty Senate Committee on Outreach, and the Office of the Vice President for Outreach and Cooperative Extension are the respective units representing Penn State faculty and the administration with interest in this issue. UniSCOPE seeks to contribute to the emergence of an academic culture that equitably recognizes, respects, and rewards all dimensions of scholarship as we look toward the 21st century.

Appendix C
Pennsylvania Food System Professions Education Project

Overview

KEYSTONE 21 is a partnership among The Pennsylvania State University College of Agricultural Sciences, The Pennsylvania State University Commonwealth Educational System, Cheyney University of Pennsylvania, and the Rodale Institute Experimental Farm. KEYSTONE 21, funded by the W.K. Kellogg Foundation, is one of 14 university-based projects that collectively form the Food Systems Professions Education Initiative.

The W.K. Kellogg Foundation has been committed to agriculture, nutrition, and efficient food systems since its founding in 1930. With the Food Systems Professions Education initiative, the foundation offers universities the opportunity to design and implement new food systems education programs for the 21st century. This process involves long-term planning, innovative approaches to problem solving, and new collaborations among higher education, communities, voluntary organizations, government, and business. The long-range goal of this effort is the creation of environmentally and economically sustainable food systems for the coming century.

Our food system is a complex web comprised of environmental, economic, social, political, and scientific dimensions. Maintaining the balance necessary for the system to function effectively is becoming increasingly difficult in this era of rapid change and instability. Many factors, including droughts, deforestation, population shifts, poor farming practices, and global trade policies threaten the viability of local, national, and international food systems. Food systems professionals will need new skills and new opportunities for growth and knowledge if they are to function effectively in such a dynamic environment.

KEYSTONE 21 will contribute to the creation of an improved food system by pursuing two objectives. First, we will prepare food systems professionals for the 21st century through the development of new formal and nonformal educational programs. The second goal of the project is broader in scope and focuses on strengthening the ability of land-grant universities to meet the challenges posed by rapid social change. If land-grant universities are to remain socially relevant, they must address the public's changing needs, values, and priorities. KEYSTONE 21 will address this issue by encouraging new forms of teaching,

research, and service that demonstrate our commitment to all residents of the Commonwealth. In order to achieve both project goals, KEYSTONE 21 sought innovative proposals that address one or more of the following initiatives:

Improve Interdisciplinary Learning and Information Sharing. In an increasingly complex world, institutional and disciplinary boundaries can be an impediment to creative problem solving. KEYSTONE 21 will meet this challenge by encouraging the creation of interdisciplinary educational programs designed to provide students with an understanding of the linkages among the scientific, social, economic, and political dimensions of the food system. In addition, the project encourages the development of new mechanisms for improving the flow of information between academic disciplines and between higher education and other segments of society.

Establish Collaborative Partnerships. Collaborative partnerships will be essential if new interdisciplinary learning programs and information sharing arrangements are to result in long-term societal benefits. In fact, such partnerships are becoming increasingly important in an era of scarce resources. With these issues in mind, KEYSTONE 21 encourages the formation of new partnerships at all levels of the educational system and between the educational system and the private, public, and nonprofit sectors.

Create Regenerative Community/Agriculture Programs. The food system is the largest industry in Pennsylvania and more than 40% of the state's agricultural output is concentrated in 10 of the Commonwealth's most densely populated counties. This situation is not sustainable given projected population trends. If Pennsylvania is to maintain a strong agricultural economy, it is imperative that we develop programs, policies, and partnerships that work to create a healthy balance between agriculture and other land uses – especially at the rural-urban interface. KEYSTONE 21 encourages the creation of educational programs that prepare students, community leaders, and the general public to develop environmentally sensitive communities with strong agricultural economies.

Create New Definitions of Scholarship and New Reward Systems. The public, policy-makers, and elected officials are demanding that higher education demonstrate its relevance to changing societal needs, values, and priorities. KEYSTONE 21 encourages exploration of this issue and the creation of new definitions of scholarship that value and reward socially relevant forms of research, teaching, and service.

Develop Learner-Centered Education Programs. KEYSTONE 21 is committed to preparing food system professionals who can think critically and work well with others in a wide variety of settings. The traditional lecture format, in which the student is a passive recipient of knowledge, is not always the most effective means of fostering these characteristics. In contrast, learner-centered approaches to education involve the student as an active participant in a learning process where teacher and students work together in a collaborative fashion.

This approach improves critical thinking ability and enhances interpersonal skills. KEYSTONE 21 encourages the creation of formal and nonformal educational offerings based on the learner-centered approach. Examples might include learning through teamwork and learning as service to the community.

Develop Leadership Skills. The food system will change dramatically in the coming years and skillful leaders will be needed within the food system and in countless other arenas if change is to be directed in ways that maximize societal well-being. KEYSTONE 21 encourages the creation of leadership development activities at every level of the food system. Leadership development should foster teamwork, partnerships, and collaboration.

Notes: