

RESEARCH MANAGEMENT REVIEW

The Journal of the
National Council of University Research' Administrators

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NCURA's annual membership dues pays for the subscription to *Research Management Review*.

One-year subscription rate is \$20.00. Orders for single copies must be accompanied with prepayment of \$10.00.

Subscription requests and changes of address should be sent to *Research Management Review*, One DuPont Circle, Suite 618, Washington, D.C. 20036. Printed in the U.S.A. © National Council of University Research Administrators (NCURA), 1988.

NCURA National Office, One DuPont Circle, N.W., Suite 618, Washington, D.C. 20036, (202) 466-3894.

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Editor's Preface

This issue concludes the publication of papers based on presentations at the NCURA-sponsored national conference on "Strengthening the Cooperative Effort in Biomedical Research" with two manuscripts addressing human subjects issues.

Arthur Smith's paper is a brief summary of the elements of informed consent for the participation of human subjects in research. The emphasis in the information describing subject liability reflects the evolving standard of "what the subject needs to know!" His article also reminds us again of the critical involvement of the institution in the consent process, insuring that the subject's relationship is not merely with the physician/researcher.

Allen Wagner's technical and complex paper analyzes the difficult and, as yet unresolved, questions about ownership issues in biomedical research. The paper is drawn from his conference presentation but is significantly altered to focus on property issues. While the application of property law to human subjects research may not be of general interest, many research administrators and Institutional Review Boards find their institutions confronted with real and theoretical scenarios based on these concerns. The analytical application of property law may not satisfy the question of what are the rights of the individual; but it is an important and necessary context from which to draw institutional policy.

Two papers, authored by research administrators sharing their experiences in long range planning and implementation of strategies of change, offer replication possibilities in many other institutional settings.

Ignasius' paper lays out a chronology of joint university long range planning, drawing conclusions about the lessons learned and, in hindsight, evaluating the success of the strategies. The author's earlier report on the interinstitutional planning effort between agricultural research administrators was a contributed paper at the NCURA national meeting in 1984; the current paper reviews the planning effort and evaluates the outcomes from the longer time perspective.

Another model of an administrative initiative to advance the research awareness and productivity of the institution is articulated and evaluated by Hickey and King. Many regional comprehensive universities are in the delicate and demanding process of change from teachers colleges having graduate programs of restricted scope and limited research activity into components of a state university system offering a wide range of masters programs and intensified faculty research. The

authors describe a set of institutional programs to increase faculty scholarly activity; their observations may be helpful to others in similar situations.

James Kenny's manuscript identifies an interesting issue for those universities which may be experiencing a shift in sponsored programs from a heavy emphasis on research to more service-oriented programs. The author makes some practical recommendations about how an internal dialogue can be undertaken in a comprehensive university in order to achieve a consensus on the "mission" of the institution and, based on that consensus, what determines an appropriate mix of research and service programs. More broadly, the article is asking us to assess our own institutional objectives: is the perception of mission changing in a world which appears to be making new non-traditional demands on the university.

We continue to solicit papers and responses to papers previously published on topics of interest to the general community of research administrators and research management and policies.

Mary Ellen Sheridan
Editor
February, 1988

Human Subjects and Informed Consent

Arthur A. Smith, Jr.

Abstract. The doctrine of Informed Consent has been enumerated to protect the rights of human subjects involved in biomedical research. This doctrine is constantly evolving, and there is increasing awareness of the rights of subjects and the liability of research institutions. The elements of Informed Consent are summarized along with the changes of emphasis that have evolved. The issue of liability and means for minimizing its impact are discussed, along with advice on the need for contractual agreements between the researcher and the subject.

INTRODUCTION

Medical ethics and the law have long recognized the right of a person to self determination over the use of his or her body or its parts in medical research. The doctrine of Informed Consent has evolved as a mechanism for protecting this right. Informed Consent basically means that a subject has the right to receive enough information from the researcher about the proposed experiments to form a reasonable judgment as to the pros and cons of his or her participation.

The recent explosion of biomedical and biotechnology research, with the attendant recognition of property rights and licensing potential has focused increased attention on the elements of Informed Consent and the rights and obligations of the participating researchers and subjects. This increased awareness has caused the medical and legal professions to re-evaluate the traditional approaches to this subject as part of the continuing evolution of the doctrine itself.

Informed Consent in the 1980s touches not just on the individual relationship of the researcher to the subject, but on the relationship of both these parties to the research institution itself, and to the agency or company sponsoring the research. It raises questions of liability and, more recently, potential property and licensing rights.

The issue of proprietary rights in a subject's cells, tissues or other

organs and questions of ownership and ultimate commercialization are undergoing often agonizing reappraisals within the courts as well as the medical profession as exemplified by cases such as Moore v. University of California. The subject of this paper concentrates on the doctrine of Informed Consent and attendant liability of the researcher, the research institution, and the sponsor.

EVOLUTION OF THE DOCTRINE

The courts have traditionally held that there is a fiduciary relationship between the investigator and the subject, an unequal relationship favoring the researcher. Consequently, it is imperative that the researcher inform the subject in advance of the potential benefits and risks of the contemplated research. The test of the adequacy of the disclosure to the subject has been the so-called “medical professional standard,” i.e., has the physician disclosed risks and benefits to the extent and in the detail that a reasonable physician would under the same or similar circumstances? This standard of disclosure has been recognized by the courts in almost all jurisdictions, not only in the United States but in many of the European countries.

More recently, however, the emphasis has begun to shift from the “reasonable physician” rule to that of the patient’s or subject’s needs in order to determine the extent of disclosure required of the physician or researcher. Many of the courts are beginning to judge the adequacy of disclosure by the needs of the subject or patient, rather than what is reasonable for the medical community at a particular time and under specific conditions. This newly evolving approach has been termed “the patient needs standard.” What this means in practical terms is that more emphasis is definitely being placed on the rights of the patient or subject, as opposed to the “reasonable physician” criteria as judged by the standards of the medical community in which the physician practices.

ELEMENTS OF INFORMED CONSENT

Obviously, the subject of the proposed research must have the legal capacity to give his or her consent, i.e., the ability to understand the nature of his or her participation to the extent any reasonable person would under the circumstances and the capability of making a choice, and to then actually give that consent. The consent must be freely given, it cannot be forced or achieved through fraud or deceit, nor even by the exercise of undue influence. A good example of the latter would be a system where the reward to the subject would be so large as to improperly overshadow the attendant risks.

Of primary importance is the disclosure itself. The subject must

be informed of the intended procedure to be followed, the potential risks and hazards of the research, the availability of alternate procedures, and anticipated benefits. Additionally, in the case of medical treatment the patient must be informed of the diagnosis, the purpose of the treatment, the probability of success, and the prognosis if the treatment were not given.

It is important to remember that the courts are paying increasing attention to the fact that the patient/subject's rights are paramount to those of the physician/researcher. What does this mean as regards liability?

LIABILITY

Without doubt, the liability of the researcher, the institution and the sponsoring agency are increasing dramatically. The carefree days when a sponsor could by-pass the institution and deal directly with the researcher are over. There is too much at stake! If the constantly evolving doctrine of Informed Consent teaches us anything, it teaches extreme care-in the agreement with the subject, in the involvement of the institution and with the sponsor.

There is no doubt that the research institution assumes a liability in every instance where a researcher employed by or on the faculty of the institution enters into a relationship with a subject (oral or written) under which the research, clinical trials, or other experiments are to be conducted using the institution's funds and/or facilities. So also is the sponsoring agency. Hence it is to everyone's advantage, including the subject or patient, that an Informed Consent procedure is established and faithfully followed and that a clear contractual basis is established from the outset between the sponsor, the institution, and the researcher.

In other words, the institution that employs or otherwise retains a researcher for experiments or tests involving human subjects assumes the liability for ensuring that a proper Informed Consent agreement is secured by the subject prior to the initiation of any research in this area. The HHS regulations clearly recognize this liability and require the institution, through its IRB, to assume the responsibility for compliance with proper Informed Consent procedures. So also, in the case of a private sponsor, where the FDA regulations apply.

Any institution involved in the conduct of human subject research, whether or not funded by government agencies, should enunciate a clear procedure in writing on the issue of informed consent and liability. When the sponsor is a company or industrial concern, the research contract should address this issue and formulate a contractual basis

between the parties concerning questions such as insurance coverage, indemnification and the like. (No agreement which seeks to obtain a patient's complete release of an institution or sponsor from all potential tort liability in advance of the research will be enforceable.)

In many instances the researcher is a physician and may well view the relationship with the subject as a physician-patient one. However, a properly formulated Informed Consent agreement and procedure as part of the institution's policy, coupled with a clear contractual relationship between the institution and the sponsor should in no way interfere with any such physician/patient relation. Rather, it should complement this relationship and enhance the rights and obligations of the subject and the researcher, as well as those of the institution and sponsor.

Unique Ownership Issues in Biomedical Research

Allen B. Wagner

Abstract. This paper examines the application of the principles of property law to the results of the research process, and specifically as applied to the use of human tissue in biomedical research. It concludes there is nothing “unique” or “new” about the property issues involved, that is, lawful access of research material, whatever its nature, provides sufficient dominion to preclude any asserted claim by the source of research material over the results of the research process. A deviation from that general scheme of property interest is not justified, and would be contrary to firmly established public policies, whether or not a tangible property interest existed in the source of human research tissue prior to its lawful access.

INTRODUCTION TO THE RESEARCH PROCESS

If an orthopedic surgeon’s intellect is stimulated by the presentation of a patient’s deformed knee, does the patient thereby have any right, title, or interest in the surgeon’s newly designed knee joint? Would it make any difference if the surgeon removed and studied the patient’s deformed knee before designing the new artificial joint? What if a molecular biologist conducted research upon human tissue and, by synthetic reproduction, produced a DNA gene sequence of interest? Would it make any difference if our molecular biologist produced the DNA gene sequence by direct transplantation from the research tissue?

The research process may be viewed as the pursuit of curiosity into the physical environment producing new understanding and new arrangements of physical matter. Our property analysis of research results requires a distinction between discoveries, advancements (inventions), and the prior and new arrangements of physical matter. To do so, we initially distinguish between intangible and tangible subject matter,

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that is, between the conception of a thing by the mind and its reality independent of the mind. Intangible subject matter is comprised of all known and unknown ideas, that is, the subjective domain of conception. Tangible subject matter, on the other hand, is comprised of all physical matter, that is, the objective domain of material reality or that which is perceptible to the senses. Thus, for example, one can distinguish between the intangible conception or idea of a machine's mechanics and its tangible expression or embodiment which exists in material form.

Discoveries resemble advancements. Roth were previously unknown. Put another way, they share intangible or subjective novelty. Yet, they differ in regard to their material form or tangible arrangement prior to becoming known. A discovery discloses, reveals or exposes what already physically exists. An advancement, by contrast, did not previously exist in physical form. It was previously unknown subjectively *and* nonexistent objectively. Advancements move, progress or improve physical reality by contributing new arrangements of matter in form or process.

In addition to the new intangible knowledge of discoveries and advancements, research results often involve tangible research products. These tangible results include several possibilities. They may embody or express the discovery of a prior physical arrangement or the advancement of a new physical arrangement. Quite independent of those possibilities, they may also express or embody some inherent, still unknown characteristic of the material's prior or new arrangement.

The University of California has been involved in three recent controversies regarding the tangible and intangible results of its research efforts in biotechnology:

1. In the first circumstance, possession of an unpatented cell line was transferred from UCLA to the National Cancer Institute under a covenant permitting research but *not* commercial use. It was subsequently transferred to Hoffman-LaRoche and through them to Genentech. A controversy arose involving both the tangible and intangible interests over the cell line.
2. In a second circumstance, a specimen of cancerous tissue removed from the cervix of a Japanese national was used to create a hybridoma. Later, the heir to the Japanese patient asserted a claim to the tangible hybridoma and over an associated intangible patent application.
3. In a third circumstance, a specimen of a patient's therapeutically excised and malignant spleen was utilized in research leading to a patented cell line. The patient now claims, among other things,

a property interest in the tangible cell line, and its related intangible patent.

All three controversies involved issues of ownership over the results of the University's research. The latter two involved the interest of the source of human research tissue, while the first involved the prospective rights of researchers versus those who wished to use the research results commercially. The first two were resolved by negotiated settlement agreements. The third case continues and is a matter currently pending before a California appellate court, which is reviewing the trial court's ruling that, after repeated attempts, the source of the malignant spleen was unable to state a legally cognizable claim against the University or its research physicians. Nothing is final until the appellate court completes its review of the matter. Nonetheless, this paper offers one examination of the issues that are involved in the analysis of such property interest.

Property law provides the rules by which we determine our dominion or possession over all that stuff found in the tangible realm. "Ownership" is, simply put, the transferable right to exclude others from the use or enjoyment of the subject matter. Property's subject matter may be tangible or intangible; however, its possessory interest is *always* limited to the tangible realm. That is, one may have a possessory interest over a thing as the tangible thing itself or as a tangible expression of an intangible (patented) idea.

Ownership issues surrounding research involve the intangible new ideas of discoveries and advancements, and the tangible research results which embody those new ideas and ideas still unknown. Our property analysis of research results then, include the questions: What results may be subject to ownership; in whom do incipient interests vest; and what effect does ownership of the prior research material have upon the first two questions?

PROPERTY INTEREST IN RESEARCH RESULTS

Property Interest in the New Ideas of Research

Under the jurisprudence expressed in the court decisions of our common law, there were no exclusive rights available for ideas. Every inventor or discoverer was awarded a "property" right to make, use and sell his own invention or discovery; however, this "property" right passed to the public when the discovery or invention was put into public use with his consent. Thus, the common law inventor or discoverer had the positive right to practice but not the negative right to exclude the practice of others. He was free to keep the idea a secret, and maintain

as personal, the common law “property” right to practice; however, any other who came upon the same invention or discovery, possessed the same positive- “property” right to practice it and to pass it to the public upon use with consent.

That common law scheme continues today as the trade secret alternative to the federal patent system, and the notion of a “property” interest remains. Indeed, as one California appellate court observed:

“[A] trade secret is private property and belongs in the public domain if, and only if, the inventor sees fit to divulge it!”

In 1984, the United States Supreme Court cited Blackstone’s *Commentaries on the Common Law*, and John Locke’s *The Second Treatise of Civil Government*, in holding:

“[T]he general perception of trade secrets as property is consonant with the notion of ‘property’ that extends beyond land and tangible goods and includes the products of an individual’s labor and invention.”²

Yet, trade secret judicial protection is dependent upon maintained secrecy (or circumstantial exclusivity) and does *not* include an exclusive property interest (or legal exclusivity). Trade secret protection is generally comprised of contract law (for breach of confidential disclosures) and tort law (for theft or other wrongful taking).

Thus, trade secrecy is an apparent anomaly to the law’s general rule that property ownership includes the right to legal exclusivity. Nonetheless, it is wholly consistent with our fundamental notions of natural law, i.e., one lawfully possesses the result of his expended labor. And so, under the common law (and current trade secret law) that lawful “possession” or property right is absent the legal authority to exclude others who also come to possess the intangible idea in a lawful manner.

Within that common law context, the statutory patent system was enacted as a means of awarding a complete property interest, by adding a limited term negative right of exclusion, in exchange for public disclosure of inventions, but not discoveries. Thus, unlike our common law inventor, a patentee can exclude others from making, using, or selling tangible embodiments of his patented invention.

The law’s refusal to award the negative right to a discoverer rests upon a fundamental public policy which precludes the removal of anything already available in the public domain, whether or not it is known or understood. As stated by the United States Supreme court in the now famous *Chakrabarty* decision, while patentable subject matter

includes “anything under the sun,” it does so only to the extent that such is “made-by man.”³ It does not include new knowledge or understanding of what is already, in physical form or arrangement, available in the public domain, for such is not “made” by man. In effect, patentable subject matter is limited to the intellectual advancement brought forth by an inventor who contributes a new physical arrangement (in matter or process) to the public domain for our common enjoyment. There are two aspects of that limitation that are relevant to our inquiry:

1. Since scientific principles and natural phenomena occur by nature’s design, they are not “made by man” and their discovery is not patentable. Such natural qualities, the Supreme Court tells us, “are manifestations of laws of nature, free to all men, and reserved exclusively to none.”⁴
2. The discovery of an advantage or mere idea inherent in an available material arrangement is also unpatentable. Here the Supreme Court instructs

“Where there has been use of an article. . . more than a mere advantage of the product must be discovered in order to claim invention.”⁵

This “doctrine of inherency” requires a physical difference between what is already in the public domain, and what is sought to be patented.

While there may be some uncertainty over the patentability of any particular subject matter, there is no confusion over where the incipient ownership interest rests. All incipient right, title, and interest in a patent is awarded only to the inventors of the patent’s subject matter; that is, the natural persons who first conceived and reduced the subject matter to practice. The patent award is the consideration offered in exchange for the inventor’s waiver of the common law right to maintain the invention’s subject matter in secrecy. No right may be acquired in a patent except as, or through, an inventor.

Thus, in sum, a researcher has a positive common law right to possess the new understanding or knowledge of his research, quite independent of any precedent property interest in the research material. The researcher also has a common law right to maintain that knowledge in confidence or to pass it on to others. Furthermore, the researcher has the common law right to enjoy the use and practice of the ideas, subject only to any prior and included patent rights of others. Finally, any such patent exclusivity is awarded only to inventors and only to

the extent the new ideas constitute advancement and not mere discoveries.

Property Interest in Tangible Research Products

The legal “property” interest of a patent in an intangible invention is distinguished from the invention’s physical embodiment. The subject matter of the patent award is in the intangible conception, although its possessory interest is in all tangible embodiments of the conception. A second ownership interest may also be involved if the owner of the specific constituent tangible materials is someone other than the patentee. So common is their concurrence that the distinction may be missed; however, dominion over tangible use of a specific idea is quite distinct from the general dominion over the use of specific tangible material. The latter may exist in the prior research material, but the intangible patent interest can arise only through the research process. While both are lawful property interests providing exclusivity over their subject matter, the patent interest dominates the tangible material interest (by way of an action for patent infringement) until such time as the tangible material is rearranged to no longer express the patented invention. Thus, the owner of material may enjoy it in any arrangement or rearrangement he may make, except for those arrangements that comprise a patented invention owned by others.

In contrast, the only lawful property interest over tangible embodiments of a discovery is the property interest in the specific tangible material since there is no legal exclusivity awarded for a mere discovery. Furthermore, where a tangible research product has some inherent, still undiscovered but useful characteristic, it too is subject to the lawful property interests in the specific tangible material. Thus, absent a dominant patent interest, our property analysis of tangible research products is an analysis of the property interest in the constituent tangible materials, to which we now turn.

As a general rule, all tangible matter is subject to ownership and is continuously owned until title changes by the intentional acts of the owner (in transfer or abandonment), or by succession upon the owner’s death. Two important exceptions to this rule are the principles of “specification” and “accession” through which ownership interest may change because of changed circumstances of the material after lawfully obtained. Thus, in addition to the owner’s intentional acts, tangible property interests are determined by comparing the material’s physical state at the time of inquiry with its state at the time it was

lawfully obtained. Thus, in addition to the owner's intentional acts, tangible property interests are determined by comparing the material's physical state at the time of inquiry with its state at the time it was lawfully obtained. There are three possibilities in such a comparative analysis.

1. Its physical state may be unchanged. If so, the manner of initial access determines whether ownership has changed between the parties by transfer, abandonment or operation of law. If title did not pass, the unchanged property of another must be returned upon demand, unless otherwise prohibited by law.
2. The physical state may be changed or transformed. For example, where wine is made from grapes or meal from corn. Here, under the principle of "specification," the transformer has a superior title to the new material, subject to paying the fair market value to the prior owner of the untransformed material.
3. The physical state may be unchanged but the material may have been combined with other material so that they can not be separated or separation would destroy some value of their combination. For example, where the wheat of two persons is mixed or cloth is woven using one person's green wool and another person's brown wool. In such cases, under the principle of accession, the combination belongs to the owner of the principal part of the original material subject to paying the fair market value of the other owner's interest in the uncombined material. The principal part is measured by its value or utility, or by its size or bulk.

Thus, each tangible research product requires a separate analysis to determine if title to the precedent research material vested in the researcher by act of the parties prior to the research process, or if title to the tangible research product arose as a result of the research process.

We turn now to examine how we might apply this matrix of property interest to the research process involving human tissue.

HUMAN TISSUE RESEARCH

The Uncertain "Property" in Human Tissue

Our legal relationship to our physical bodies is less than certain. Tort law provides the right to be free from physical or emotional injuries caused by the intentional or negligent acts of others. The protection of liberty under our Constitution provides the right to be free from governmental restraint or interference with personal action; however, both those bodies of law address interpersonal relationships and presume an identity of persona (or subject of rights) and its physical body. In

contrast, our question involves the intrapersonal relationship, that is, whether humans legally own their bodies as private-property or merely possess them with a right to quiet enjoyment. That question presumes a premise which may not be valid, i.e., if the human body is owned by the persona which it embodies, it becomes a subordinate object having something less than full human dignity. Yet humans cannot exist without their bodies. Absent such separate existence, the infused dignity of the human persona may prevent the private property subordination of human bodies, at least while the body supports human existence.

The historic common law rules states there is no property or possessory interest in human bodies or their parts, when they are no longer directly involved with physical human existence. Where human existence is involved, the law's treatment is more a matter of "personal liberty," than "private property." To distinguish "property" from "liberty" recall that property is the disposable, exclusive, possessory interest over its subject matter in the tangible realm, that is, rights appurtenant to physical stuff. Personal liberty, on the other hand, includes the several rights of action, association and expression, that is, rights appurtenant to our precepts of individuality. Liberty can be expressed only through the tangible embodiment of human existence and is available only to natural persons. And so, notions of liberty quite properly pervade our reflection on the manner, or methods used, to access human tissue research. Yet, once lawfully removed, for example with consent, our notions of liberty are no longer applicable to the removed tissue and any remaining interest could only be in contract or tort, since such tissue (like the tissue of a corpse) no longer supports human existence. It is no longer the persona of constitutionally protected liberty or personal tort interest. It is the stumbling around the notions of "personal liberty," that gives rise to claims that human tissue research involves "unique" property interest.

Whether or not we have a tangible property interest in our physical bodies will in large measure depend upon whether we can bargain and barter that tissue in the marketplace, for sale to the highest bidder. However, in addition to the absence of any common law property interest, there are several statutory enactments that appear to express a public policy against such sale. For example, after significant public policy debate, the recently enacted National Organ Transplant Act prohibits the sale of many body parts. And, while the Uniform Anatomical Gift Act does permit the transfer of human tissue and organs by gift, such a transfer is considered a *service* and not a product. In the historical absence of a property interest in human tissue, the

Uniform Anatomical Gift Act merely provides a means of post-mortem disposition by gift, and nothing more. Nonetheless, that common law and statutory context arose in the absence of the current biotechnology commercial advancements. The possible sale of human tissue, and therefore determination of its property nature, remains somewhat uncertain. Yet, our researchers quite reasonably ask what effect the use of human tissue in research may have over the disposition of research results, and how they may access such tissue and retain the right to disclose and disseminate the results of research?

Analysis of Human Tissue Research

What claim of property interest could the source of human tissue make into the results of research? Only two appear to reason:

1. Where there is tangible continuity between research material and research results, the source might assert a tangible property claim in the tangible research results.
2. Where new knowledge or understanding is produced by the research process, the source might assert an intangible property claim over the new knowledge based upon a claim over the previously unknown and inherent characteristics of the human tissue used in research.

Let's look at each possible claim separately.

There are four generally recognized and accepted methods to lawfully access human tissue for research purposes, two of which are statutory post-mortem methods. They include the Uniform Anatomical Gift Act and state unclaimed dead body statutes. Both provide for the use of human tissue for scientific purposes. The third and fourth methods of access are "inter vivos" methods. Both require informed consent for the physical risks involved in removing the tissue. The third method is the removal of pathologic or diagnostic tissue for medical treatment. The final method is the removal of tissue for express research purposes.

In addition, state health and safety statutes usually authorize scientific use of removed human tissue without mention of any interest in the human source. While such statutes do not provide a separate method of access, they do regulate possessory interest and disposition after removal, usually by limiting the use to designated medical and public health institutions.

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Thus, even if a prior property interest in the research tissue existed in the human source, access under any of these methods-transfers or relinquishes that interest. The inter vivos consent to research removal and a gift under the Uniform Anatomical Gift Act constitute donations for research purposes. A therapeutic removal may also be a donation, although the patient probably intends to abandon the tissue as repugnant material. An abandonment may also occur with unclaimed dead bodies, however, such an analysis is unnecessary since the statutes provide a sufficient, independent possessory interest,

In addition, as previously noted, once lawfully obtained the principles of specification and accession would effect a further transfer of title, even in the absence of any intention by the source of the tissue, whenever research material is transformed or combined with other material. For example, the creation of a cell line or hybridoma would likely be considered a transformation or combination giving rise to the researcher's title, by specification or accession.

Thus, lawful access under any of those four methods confers upon the recipient the rights of possession and disposition of the tissue, its incidents and uses, that previously may have existed in the donor, except as the donor may expressly limit or condition those rights prior to the access.

And so, any claim by the source of human research tissue, based upon tangible continuity between research material and research results would fail where the tissue was lawfully obtained by one of the four identified means.

Nonetheless, in an effort to avoid anxiety, some suggest we employ new forms of agreement that would unquestionably and unequivocally transfer ownership of research tissue between the parties. While that may seem attractive at first glance, and perhaps even useful in the inter vivos research subject circumstance, what about the post-mortem access? Or, more importantly, the therapeutic removal in the physician-patient relationship? In the latter case, two concerns arise. First, the intrusion of independent research interest into the physician-patient relationship may detrimentally affect its fundamental premise; that is, that everything done in the physician-patient relationship must have as its principal purpose, the health and well-being of the patient. And second, any purported transfer of property interest in the context of stressful patient medical decisions could only be viewed as uncertain and vulnerable to a later claim of duress made, no doubt, after research has led to an advancement.

Moreover, when there is tangible discontinuity between research material and research results, a claim of property interest by the source

of tissue could *only* rest upon the unknown advantages inherent in the research tissue. Less obviously perhaps, but equally true, is the conclusion that tangible continuity between research tissue and research results does not enhance the source's claim. That is so, because all known and unknown incidents, advantages, and uses of material are inherent in its dominion or ownership. Thus, whether or not there is tangible continuity, the only possible "unique" ownership issue of this new biotechnology is whether the source of human tissue should have any implied reservation of right, title or interest over the tissue's inherent and previously unknown advantages and uses that become known in the course of research conducted upon it. We turn now to examine such an implied reservation of interest over the unknown and its inconsistency with law and public policy.

First, an implied reservation of interest over inherent characteristics would establish an intangible property interest in mere (unknown) ideas or advantages, contrary to the significant public policies of the patent law limiting intangible property interest to inventions. As discussed earlier, the doctrine of inherency and the preclusion of property interest in scientific principles and natural phenomenon, also prevent property interests in mere discoveries.

Second, an implied reservation of interest would conflict with the public policy favoring enhancement of the public domain. Under the patent law's enabling disclosure requirement, unique biological materials necessary for the practice of an invention must be placed on permanent deposit before a patent is issued. As already noted, inherent, unknown elements are not within the scope of a patent's intangible subject matter, for invention is limited to man's intervention by conception and does *not* include tangible matter (although it may include what is done with tangible matter). Nonetheless, those unknown and inherent elements of deposited biological materials, accompany the known elements of an invention into the public domain as a part of the enabling disclosure. Once deposited and made publicly accessible, the unknown elements become immediately available to all, subject only to the patent's restraint upon their use in the arrangement first conceived by the inventor. Once disclosed to the public domain, the doctrine of inherency assures their continued public availability, even if the unknown elements later become known through discovery. Additionally, disclosure of such unknown elements to the public domain brings with it all its peripheral uses obvious to one skilled in the art of the invention.

Thus, while the scope of a patent's property consists of only the inventor's intangible contribution, it enhances the public domain explicitly with that intangible contribution and implicitly with any

included unknown elements. If the source of research tissue could preclude the deposit of the material, then the researcher's ability to disclose the advancement to the public, and the public's ability to practice the advancement, would be precluded. Such a result would be contrary to the public policy favoring the progress of the technical arts and enhancement of the common fund of knowledge available in the public domain.

Third, an implied reservation of interest would cloud the researcher's dominion in an indeterminable manner, affecting any effort to disseminate or transfer the results of his research to others. Such uncertainty would predictably chill the exchange of research materials, limiting research options and synergistic exchanges between scientists.

The advancement of medical science depends upon the pursuit of intellectual curiosity and a dissemination of research results. If the source of research tissue has an implied reservation of interest over unknown qualities, it also has an interest in a direction of the conducted research, as well as the dissemination and use of research results. Yet, few research efforts produce useful results, and when they do, such results are an amalgam of several separate efforts upon diverse materials over a period of years. The effect, of an implied reservation of interests, upon research direction and scope is imponderable. For example, what if one research effort merges into another, or curiosity changes the course of research, would there be a duty to what was left behind and not pursued?

The public policy for the advancement of medical science rests upon the unencumbered independence of the research process. A research tissue source's implied reservation of interests in the unknown is fundamentally inconsistent with that public interest.

Professor Thomas H. Murray has analogized research involving human tissue to the commercial publication of "treasured family recipes" given without reservation to a friend as a gift." Limiting his examination to direct commercial use avoids the intervention of the research process; nonetheless, even in its absence, the giver's silence when the gift is given grants full disposition of all known or unknown qualities and uses to the recipient. As Thomas Jefferson noted, one can exclusively possess an idea by keeping it to himself:

" . . . but the moment it is divulged, it forces itself into the possession of everyone, and the receiver cannot dispossess himself of it. Its peculiar character, too, is that no one possesses the less, because every other possesses the whole of it. He who received an idea from me, receives instruction himself without lessening mine; as he who lights his taper at mine, receives light without darkening me. . . !"

Do ethical considerations call for a contrary result?

Clearly, the unconditioned disclosure of a secret permits its entry into the public domain since, as already discussed, its exclusivity is circumstantial and not legal.

Professor Murray suggests that some modification to the recipes would have lessened his dismay at their publication. But if his recipient studied the recipes and discovered the previously unknown fundamental chemical formulations of their success, could he freely publish that new knowledge, without objection? Suppose, in yet a further circumstance, Professor Murray's recipient took this new fundamental knowledge and concocted further recipes that delighted the palate of every epicurean. If a patent was pending for this "advancement" in the culinary arts, conditioned only upon its full public disclosure, may Professor Murray intercede to preclude the disclosure? Should he have the right, title or interest in the patent itself, by claiming he never consented to, or contemplated such a use? If he had such an implied reservation of interest, what would be its subject matter, and where would it end?

Because our society values the dissemination of information into the public domain and clarity of title, public policy would establish a presumption against such an implied covenant of silence; for while Professor Murray's recipient might not conduct a hypothetical study of the recipes, another who reads his book might be so moved.

The subject of Professor Murray's dismay is simply *nor* property's trespass. Rather, it is the product of disappointment from the defeat of unexpressed expectations. The proper method to fulfill those expectations would be a simple agreement to maintain the recipes in secrecy. Once informed of the limitations, the possible recipient may accept or reject the conditioned gift.

Culinary arts aside, Professor Murray's implied reservation over unanticipated uses or unknown advantages of donated human tissue takes individualism to a new extreme. It echoes the concern expressed by some that the principal commitment universally shared in this culture is a commitment to individualism "grown cancerous!" What else would cause one to "feel used" when utility or medical benefit to others is found in what was given as a gift and is now only useless waste to the giver?

Analogy is a useful tool of analysis, communication, and persuasion, but it can beguile reason if it lacks congruity. Professor Murray's analogy rests upon the recipe's *known* and secreted values while human tissue research involves its *unknown*, and therefore unanticipated, values and uses. A more congruous analogy would be where one received cuttings

from a neighbor's tree by gift or abandonment and later carved a statue from the wood. If the neighbor only anticipated use of the wood as kindling, would he have any right, title or interest in the statue, or could he preclude the artist's enjoyment of the statue?

Unknown incidents and unanticipated uses are appurtenant to tangible property ownership and inherent in the thing itself. Dominion over tangible material includes enjoyment of all its known and unknown advantages and uses. Lawful access of research tissue should provide no less a dominion absent an express reservation of interest by the source *prior* to providing access.

In sum, the source of human tissue used in research has no reasonable basis to claim a property interest in the results of research conducted upon or with the use of that tissue. That is true for both tangible and intangible research results, since an implied reservation of interest would be contrary to significant public policy and absent foundation in our notions of property. And, that would be so, whether or not the tissue's source has a property interest in the tissue prior to access, so long as the access was lawful.

REFERENCES

- ¹ 42 Gel. App.3d 216, 223-225.
- ² 81 L. Ed. 2d 815, 832.
- ³ 65 L. Ed. 2d 144, 148.
- ⁴ 92 L. Ed. 558, 582.
- ⁵ 90 L. Ed. 43, 47.
- ⁶ Murray, Thomas H., "Who owns the Body: On the Ethics of Using Human Tissue for Commercial Purposes,," IRB, January/February, 1986.

BIBLIOGRAPHY

The New Developments in Biotechnology: Ownership of Human Tissue and Cells - Special Report, OTA-BA-337 (Washington, D.C., U.S. Government Printing Office, March 1987). This report of the Office of Technology Assessment for the Congress of the United States reviews the legal, ethical and economical considerations surrounding the use of human tissue in biotechnology research.

Wagner, "Human Tissue Research: Who Owns the Results?"
appearing in Vol. 3, Issue 2 of the Santa Clara Computer and
High Technology Law Journal, in Vol. 69, Issue 6 of the Journal of
the Patent and Trademark Office Society, and in Vol. 14, Issue 2
of the Journal of College and University Law.

The Research Administrator as Advocate Planner: An Inter-Institutional Perspective

C. Dennis Ignasias

Abstract. This article is concerned with the role of two agricultural research administrators at two campuses of the University of Maryland system-College Park and Eastern Shore-in strategizing and implementing a process for interinstitutional planning and coordination in one major research program of the University. As the University of Maryland System by 1979 underwent long-range planning for the future of the multi-campus System, leadership undertaken early on by the agricultural research administrators produced among the first long-range comprehensive plans in the System during the period 1977 to 1981.

INTRODUCTION AND OVERVIEW

Interinstitutional cooperation, coordination and planning to meet anticipated statewide research needs and to maximize effective utilization of diverse university resources and talents, can be viewed as a major and difficult challenge facing any higher educational administration. Killoren argues that research administrators, who have the best perspective of the total research operation, play a leading role in identification of the need for and development of a plan for research! Rantfl finds that research managers and a small cadre of technical staff create the climate and set the pace that impacts productivity throughout the organization.² Peattie suggests that planners should be advocates, that is, they should be active participants in the political-administrative process and, through persuasion, influence policy which will implement the planner's desired plan(s).³

In the late 1970's, predicted federal funding constraints on science outlays and recession in many states, crippling public institution ex-

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expenditures, pointed to a fierce competition for funds. One response to perceived scarcer resources was to direct stronger and more compelling arguments to fiscal decision-makers to maintain funding needs. Concerned agricultural research administrators, taking the initiative in planning, desired to maintain the prerogative of the university in deciding upon research directions and priorities.

Two strategies were developed. The first strategy was to produce a long-range plan to be used as documentation for requesting supplemental financial support, primarily from the State. The plan was to focus on the need for preventive maintenance of facilities, for strengthening of existing research programs, and initiation of new ones through funding of additional scientist positions. The second strategy was to stimulate an organizational climate for cooperation between Experiment Station scientists at both campuses, which in turn would make a smoother transition in implementation of an interinstitutional planning and coordination process.

THE BACKGROUND: WHY PLAN? OBJECTIVES OF THE PLANNING PROCESS

Several external and internal mandates which converged in the late 1970's, though unrelated to each other, facilitated the initiation of a planning process. In the early presentations prepared to orient the faculty to the need for the planning process, these mandates were categorized as "objectives" of the process. One objective was to comply with federal legislation passed in 1977, which mandated that a formal joint plan of work be submitted annually for review and approval by the U.S. Department of Agriculture (USDA) from each of the sixteen states with more than one institutional allocation of USDA formula funds for research. These states, geographically located in the South and along the Eastern Seaboard, contained land-grant schools chartered under the original 1862 Merrill Act and those created under the Second Morrill Act of 1890, the latter subsequently identified as Historically Black Land-Grant Institutions. Maryland was one of these states.

A second objective was top management-based. The goal of the new University of Maryland System President who took office in 1978 was to launch Maryland into becoming a national public research university during the decade of the 1980's.⁴ This commitment necessitated institutional planning for strengthening of the University System's research mission. A third objective logically followed from the second. One measure of an enhanced research mission was the securing

of a substantial increase in external funding for research. Securing sponsor interest in supporting research was self-defeating if facilities were in need of repair and renovation, equipment was obsolescent, and a scarcity of available positions and operational support prevented attracting faculty to pursue emerging directions in science and technology. The Experiment Station was also informed that without a planning document its request for major facilities overhaul would not be seriously considered in the state appropriations process.

A final objective was accountability-induced, i.e., an intent to maintain a quality control in the total research program. During the period of the late 1970's and early 1980's there was criticism voiced in Washington about a declining agricultural science productivity nation-wide from past high standards, e.g., of the pre-1950's era with its notable inventive products and processes. This criticism was infiltrating the budget process of federal programs.

THE APPROACH: WHO PLANNED? METHODOLOGY AND PROCEDURES OF THE PLANNING

Conceptually, defining the problem and setting a goal of creating a five-year comprehensive facilities/program plan were essential first but easier steps to undertake, than in bringing the organization together to develop the plan and then to implement it.

In the sequence of events of this planning process, the first step was compliance with the mandated state-wide program coordination. A study contracted by USDA (hereinafter Turnbull Report) was undertaken during the 1977-78 year to explore ways of encouraging scientist cooperation and formalizing administrative coordination between the agricultural research programs of the two institutions, at College Park and at Eastern Shore in Princess Anne.⁵ One outcome of the study was Eastern Shore's full incorporation into the Maryland Experiment Station. Following publication of the report, a series of meetings were set up to continue dialogue and exchange information between Eastern Shore scientists and department/unit heads and their College Park counterparts. This action facilitated the interaction among the planning groups established during the following year.

In May, 1979, the formal planning process was launched. The presentations at the plenary planning conference addressed the need and the goal of interinstitutional planning from the perspectives of the two research administrators, the Central Administration, and a department head representing each campus. The focus of these presen-

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tations was on developing the proposed master plan in an advocacy or *proactive* rather than reactive manner.⁶ The plenary conference was attended by department chairs from the College Park campus, department chairs, senior scientists and unit directors from the Eastern Shore Campus.

THE PLAN OF ACTION

The planning sessions lasted seven months. Three ad hoc committees were set up to prepare sections of the document. Each ad hoc committee had a chair or a vice-chair member selected from the other campus.

The Research Policy Committee reviewed the mission statement of the Experiment Station and policies appropriate to the organization and functioning of agricultural units in Maryland, within the context of projected programmatic changes. This Committee examined questions such as, whether there should be within five years an increase in research which was interdisciplinary interinstitutional, or stationed in Centers and Institutes rather than in departments. In research planning and management, what policies and procedures could be added or reinforced which might improve upon the quality of research being conducted and disseminated? Could existing campus facilities be more efficiently utilized by shared use, and field locations throughout the state be consolidated for more effective management and use of resources?

The Research Needs Committee undertook a statewide needs assessment survey to collect data on current and future problem areas and priorities in agriculture and forestry, food and nutrition, and rural life. Data were solicited from within the campuses and applicable programs of the University System, local and regional agribusiness and trade groups, other relevant state agencies and the federal sector. The questions for consideration by this Committee were based on four broad categories: needs, resources, impacts, and the future. For example, what were the major agricultural research needs of Maryland in 1979 and those anticipated by 1985? What present needs did the Experiment Station clients and the surveyed group believe were being adequately met? Which ones were not? Should there be a reallocation of resources to meet present needs? Which future needs could be met with no increase in funds or change in capital equipment and facilities? Which ones with a modest increase (e.g., 20% level) in resource reallocation? With identified research needs by 1985, what was the likely impact on improving the quality of crop or animal products, the likely benefit to users and consumers, the likely effects on producers, retailers, labor, the environment? For the long-term future (by the year 2000), what

could be forecast as promising or expanded directions for agricultural research?- Which areas would no longer require research, or less study than at present?

The charge of the Research Program Committee was to draft the master plan document and to assess the impact of programmatic changes upon present and projected faculty research and departmental directions. The Committee's input was derived from the analyses and findings of the other two Committees as well as from the departments and research units. Between the planning sessions, department and unit heads of each campus met with their faculty and staff to develop specific plans. The completed departmental/unit research project data forms and responses to questions comprised the baseline data for the five-year projection/timetable. A consulting engineering firm prepared the technical specifications for the capital facilities sections of the plan. The drafted document addressed the organization and program justification for agricultural research in Maryland, described and costed facilities and major equipment upgrading at the two campuses and the substations/research farms located throughout the State, and identified scientist positions required for the recommended programmatic changes.

Although not incorporated into the master plan document, there were final reports from the ad hoc committees. The Research Needs Committee recommended five general directions for research through 1985 and categorized needs of 1985 in a priority order. The Research Policy Committee made recommendations on subjects such as quality control in research; faculty appointments, promotion, tenure and evaluation; publications; among others.

Following revision of the draft document, the final plan went to the Central Administration for approval. In January, 1982, the Board of Regents approved the five-year statewide master plan for agricultural research. A copy of the final document went to the U.S. Department of Agriculture and to the Maryland Legislature.

OUTCOME: WHAT WE ASSUMED AND LEARNED

The timing of the external and internal pushes for change was fortuitous in mobilizing action and early support for undertaking an interinstitutional planning and coordination process. There was, as previously noted, neither precedent nor experience with this type of process within the Experiment Station. Listed below are two examples of types of problems and questions raised which were unforeseen or not anticipated prior to or during the planning process.

1. Program coordination versus scientist cooperation
Because funding was involved, a mechanism was established to comply with the federally mandated program planning and coordination for agricultural research between College Park and Eastern Shore. The interviews conducted under the Turnbull Study, however, revealed a noticeable level of apprehension and skepticism among a number of scientists and department heads at the two campuses on the feasibility of cooperation in research. What appeared to be impenetrable obstacles were the substantial differences in campus size, in physical distance and location within the state, and in available strengths and resources. During the time period there were also broader institutional concerns as to whether the University of Maryland System would remain intact in the number of campuses or suffer loss of the smaller campuses to merger. Despite the arrival of a new System President in 1978 with new insights on strengthening and planning for the future of the multi-campus system, there were unknowns associated with these initiatives and directions. One conclusion of the Turnbull Report was that the perceived state of apprehension between scientists on the two campuses resulted from an information and communications gap. A follow-up corrective action was taken in the previously mentioned exchanges set up in 1978 between scientists and department heads of the two campuses in an effort to ease perceived anxieties and to encourage cooperation in the upcoming planning sessions.
2. *Research ideas and needs versus a structured plan*
Two assumptions of our planning process were a) that the University should take the initiative in decision-making for research directions and priorities, and b) that faculty would be responsive and adaptive in meeting the needs by 1985. Departments and units generated baseline data for the plan on present and proposed research. The Research Needs Committee solicited a sizable volume of suggestions and advice largely from outside the Experiment Station. The Committee attempted to categorize and prioritize this input on needs, based on overall current and projected Station strengths. There was, however, more information and data than could be easily digested and assimilated. A lively debate among faculty and department chairs centered on topics such as: a) Who identified research problems and determined choice of research ideas or needs? How much was faculty derived, how much from needs expressed through Extension, by users and commodity and consumer groups, by availability of sponsored funding? b) What

was an appropriate ratio between basic and applied research? and
c) What were the criteria for prioritizing research areas within
the master plan?

A third assumption of the planning process was that implementation of the plan would be guided by the principle of flexibility so as to allow for necessary adjustments to be made over the course of its five year life. Specific concerns expressed by faculty and department chairs relating to flexibility were as follows. By prioritizing research activities, would the plan also “ earmark” all funds for a five year period? Should there be a mechanism to respond to short-turnaround, yet high priority State or national “emergency” problems and needs, and would there be available monies to do so? For research activities currently or proposed to be funded by competitive monies, how reliable was such funding as an indicator of financial support in the plan when both federal program and foundation/corporation research directions and priorities were also subject to periodic changes? How should the plan address innovative and futuristic research which might not be anticipated over a five year projection and within a prioritization of needs?

In retrospect, within a reasonable time frame allotted for the planning process and in the desirability of reaching a consensus among the various Station constituents, the easier tasks to tackle were the problems of the facilities upgrading and the strengthening of technical expertise in the Station. These two components comprised most of the master plan document. The first strategy for undertaking the planning process was achieved.

The outcome of the second strategy for the interinstitutional planning and coordination process, to create a suitable organizational climate for the establishment of the process, was measurable over time. In spite of logistical problems already noted about the two campuses, scientist cooperation on research occurred because individual faculty, department leaders and Station managers encouraged, endorsed and supported it. But organizational climate is a fragile composition and productive scientist cooperation is not a legislated item.

To summarize some “lessons learned” as to what worked best through this interinstitutional planning process, the following observations, which are also consistent with findings in the literature on research management are noted: 1) faculty, regardless of discipline or departmental affiliation, desire strong participation in research problem choice; 2) the proper institutional climate is essential for

research interaction and productivity, i.e., a management for rather than of research; and 3) a formal plan be people-focused, that it allows for flexibility, in-course change, and creativity in research problem-solving.⁸

CONCLUSIONS: WHAT WAS ACCOMPLISHED

On the surface one might be disheartened of actual accomplishments of the planning process by a concluding note in the final report of the Research Needs Committee, which stated: "It is clearly difficult to separate needs existing in 1979 from those for 1985. Few of the existing needs will disappear, some will intensify, while others will become less critical."

In fact, what was accomplished by 1985 was a stronger organizational cohesiveness and research mission within the Experiment Station. College Park and Eastern Shore were designated as academic research centers, nine other substations and research farms located throughout the State became classified as field or regional research centers. Eastern Shore's inclusion in the Experiment Station was beneficial in bolstering program justification for several State appropriated positions and operational support which were added to its agricultural research program, and in relocation of one nearby substation program and facilities to its campus farm. An innovative program, the Center for Advanced Agricultural Concepts, was established at one of the regional research centers. The State Legislature passed supplemental funds towards deferred maintenance and renovation of facilities within the Experiment Station. The State also provided program support for the Experiment Station by funding of research on animal disease and crop pest management.

Although federal and state funding for agricultural research continued to be separately appropriated to the two campuses, administrative coordination in policy and procedures had been established and scientist communication, planning and/or interaction on research project activity and committees had become accepted. The focus on research mission enhancement sparked an interest in increasing scholarly publication both for giving substantial weight in the faculty reward system and for building the University's reputation in academic, government and industrial circles.

Since the mid-1980's, a second phase of multi-year planning has been underway in the Experiment Station. The focus has been placed on the development of master plans for the regional research centers (consisting of geographically adjacent substations and/or farms). Three were completed in 1986. The planning has been evolving for the

remaining two regional centers. Statewide commissions and task forces have completed reports and studies on strategizing and planning for the future of agriculture and natural resources and on the role of the University in assisting this industry as a major resource in the state's economy.

The Maryland experience described herein is one model of change that could be applicable to other universities and multi-campus systems.⁹ The planning and coordination processes involved are also applicable to a variety of research programs and centers regardless of funding sources. The end result could be similar to Maryland's experience, namely, to enhance the research mission of the University and to retain the "management for research" in the hands of the scientists and appropriate administrators.

ACKNOWLEDGEMENT

The author acknowledges review of an earlier paper and this article by his colleague in the agricultural research planning process, Dr. W. Lamar Harris, former Director of the Maryland Agricultural Experiment Station. During the period 1977-1981 the author was Research Director of the Agricultural Research Program at the Eastern Shore campus, and administratively was counterpart to Director Harris who held responsibility for the Agricultural Research Program at the College Park campus and the Experiment Station farms and research centers located throughout the State. The perspectives expressed herein are those of the author and may not necessarily represent those of the University of Maryland.

REFERENCES

¹ Robert A. Killoren, Jr., "Planning for Research" in *Journal of the Society of Research Administrators*, Vol. XI, No. 1 (Summer, 1979), pp. 13-20, especially pp. 18-19.

² Robert M. Ranftl, *R & D Productivity: Study Report*, 2nd ed; El Segundo, CA: Hughes Aircraft Company, 1978, pp. 1-2.

³ Lisa R. Peattie, "Reflections on Advocacy Planning," *Journal of the American Institute of Planners*, XXXIV, No. 2 (March, 1968), pp. 80-88.

⁴ Malcolm Moos *et al.*, *The Post-Land Grant University: The University of Maryland Report* (The University of Maryland, 1981), especially the Foreword, pp. 262-64, 268-69.

⁵ James Turnbull, C. Dennis Ignasias, and McKinley Mayes, *Improving Agricultural Research Cooperation and Coordination between University of Maryland College Park and University of Maryland Eastern Shore: Report*

of a Study. College Park: July, 1978, 43 pp. plus appendices (USDA Cooperative Agreement No. 12-15-77-19).

⁶ Marvin W. Peterson, "Analyzing Alternative Approaches to Planning," and Joseph P. Cosand, "Developing an Institutional Master Plan," in *Improving Academic Management* ed. by Paul Jedamus and Marvin W. Peterson (San Francisco: Jossey-Bass Publishers, 1980), pp. 113-176.

⁷ AIDES, *Agricultural Research in Maryland: A Statewide Master Plan*. Alexandria, VA: Sept., 1980, Feb., 1981, 140 pp. (the completed facilities/program document of the Experiment Station).

⁸ Lawrence Busch and William B. Lacy, *Science, Agriculture, and the Politics of Research*, (Boulder, CO: Westview Press, 1983), Chapter 2; Raymond J. Woodrow, *Management for Research in U.S. Universities* (Washington, D.C.: NACUBO, 1978); and D.C. Spriestersbach, *Research Administration in Academic Institutions* (Washington, D.C.: ACE, 1975).

⁹ Moos, op. cit., p. v., and J.W. Gilley, K.A. Fulmer and S. J. Reithlingshoefer, *Searching for Academic Excellence: Twenty Colleges and Universities on the Move and Their Leaders* (New York: Macmillan, 1986). The University of Maryland is one of the twenty institutions covered in the latter survey,

A Model for Integrating Research, Administration and Graduate School Operations at a Regional Comprehensive University

Anthony Andrew Hickey and Kendall W. King

Abstract. A model is described for integrating all of the normal functions of a graduate school and an office of research administration at a regional comprehensive university within a state university system. It is designed to facilitate mutual reinforcement of the two operations and to assure that both offices function without interruption in the absence of either of the two administrators. Within the framework of the administrative relations coupling the two offices, innovations in services to the faculty and the administration are discussed. In particular the staging for introducing change is reviewed. Preliminary indications of the effectiveness of the arrangement as well as of the newly-introduced services are summarized.

INTRODUCTION

In 1985 Western Carolina University established a new administrative relationship between the Graduate School and the Office of Research Administration to achieve improved coordination of their responsibilities. Previously a Director of Research Administration with a supporting secretary reported to the Dean of Research and Graduate Studies. The position of Director was elevated to Associate Dean of Research and Graduate Studies, and the supporting personnel were realigned into a single group. The change in title was intended to do two things: create a relationship between Graduate School and Research Administration affairs through which they could be mutually reinforcing and closely coordinated, and make clear the administration's expectation of intensified scholarly activity among the faculty.

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The arrangement differs from the organizational models described by Rodman¹, Walsh², and Whitworth³ in both lines of responsibility and in the functions of the research administrator. Their models were primarily intended for research universities of considerable complexity. The model described here is specifically structured to the circumstances of the nation's numerous public universities which provide education through the Masters level as components of a statewide university system. Here we wish to share our experience in accomplishing the realignment and provide initial indications of its effectiveness.

As in any organization the model itself is only of interest in the degree to which it facilitates a unit's accomplishing its mission. In this particular instance, as in many schools like WCU, the overall mission is stimulation of intensified scholarly activity among a faculty historically preoccupied with teaching. It is one facet of the evolution from a teachers' college to a true university. In that context, the staging of new initiatives is as critical to progress as the nature of the innovations themselves.

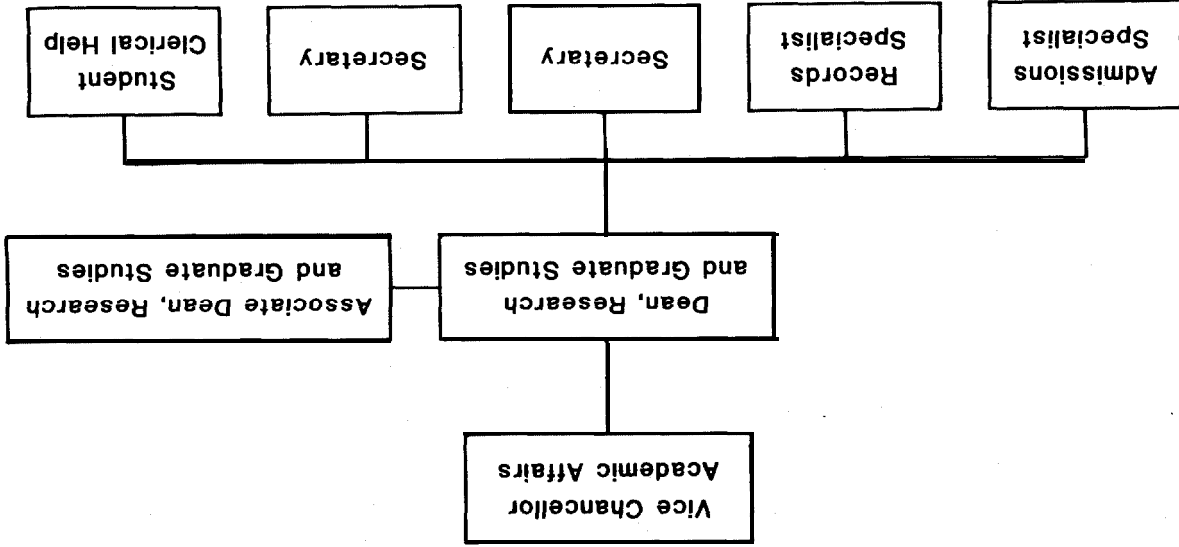
RESEARCH ADMINISTRATION RESPONSIBILITIES

Western Carolina University is one of six regional comprehensive universities in the sixteen-campus University of North Carolina system. Total enrollment in 1986-1987 included 4783 undergraduate and 1138 graduate students. There were 77 graduate programs and a full-time graduate faculty of 178. Graduate degrees were offered by the Schools of Arts and Sciences, Business, Education and Psychology, Nursing and Health Sciences, and Technology and Applied Science. In addition to its instructional programs, the University has extensive service programs regionally, nationally, and internationally and a less extensive research enterprise. In Fiscal Year 1985, there were 119 applications for extramural funding and approval of grants and contracts totaling \$4,803,755, of which \$138,305 supported research and other primarily scholarly activities.

The model for coordinating graduate school and research administration activities is shown in Figure 1. The Dean and the Associate Dean of Research and Graduate Studies collaborate in all matters relating to both the development of the Graduate School and expanding the services of research administration. That arrangement assures that the two operations are mutually reinforcing and that both move ahead smoothly when either of the administrators is unavailable. On a day-to-day basis most Graduate School affairs are handled by the Dean and most research administration matters are handled by

ORGANIZATION CHART FOR OFFICE OF RESEARCH AND GRADUATE STUDIES

Figure 1.



the Associate Dean. The support personnel serve in a matrix setting, again assuring that all activities continue uninterrupted by absences; when there are periodic overloads in one area of work, people familiar with its operation are available to step in.

FUNCTIONS OF THE ASSOCIATE DEAN

The Associate Dean assists the Dean in the planning and operations of the Graduate School on an ad hoc basis and meets “officio” with the Graduate Council and other units of the University with which the Graduate School has on-going interactions. He functions as acting Dean in the Dean’s absence. The Associate Dean also plans the work of the Office of Research Administration in cooperation with the Dean and takes primary responsibility for the day-to-day operation of its services to the faculty and administration. He keeps the Dean apprised of current activities on a daily basis and frequently calls on the Dean to advise faculty members and members of the administration on research administration matters. This relationship assures both continuity and added breadth to the work in research administration and also provides for anticipation of the effects of changes in one area on the other. In addition the arrangement facilitates focusing the work of both groups on the same priorities.

The Associate Dean is responsible for assisting the faculty and staff in:

1. Thinking through their long-range scholarly agendas - their overall professional objectives five to ten years into the future;
2. Developing their plans for specific projects to enable them to move in the direction of their individual agendas;
3. Taking greater initiative in establishing a personal scholarly facet to their service at the university than has been traditional;
4. Locating potential extramural sources of funding for their projects;
5. Providing guidance on how to make initial contact with potential funding;
6. Developing well-conceived, competitive proposals for external funding;
7. Obtaining the necessary on-campus approvals from the appropriate administrative offices of the university;
8. Negotiating budgets when revisions are necessary;
9. Enhancing expertise in the arts of grantsmanship as tools for developing a sustained independent scholarly program; and
10. Establishing an account in the Office of Business Affairs when grants and contracts are approved.

In addition, the Associate Dean collaborates with the Dean in planning and administering several internal University-funded competitive grants programs supporting faculty research and scholarly activity. The Associate Dean is primarily responsible for maintenance of records of University-wide attempts to generate external funding. Post-award management of grants and contracts is the responsibility of the Vice Chancellor for Business Affairs.

The Associate Dean also prepares the internal and University of North Carolina system monthly and annual reports of application, grant, and contract activity for transmittal by the Dean. Other responsibilities include promotion of understanding of the University among potential funding sources and representing the University on the UNC Research Council and professional societies for academic research administrators.

MODIFIED AND NEW INITIATIVES IN RESEARCH ADMINISTRATION

The new structuring made it possible to expand a number of activities which were already in place and to introduce a variety of services to the faculty and administration which had previously not been practical. Among these were the following:

1. Meetings of the Dean and/or Associate Dean with departments to discuss problems in doing research at the University and the services available to the faculty to support their efforts.
2. Meetings with individual faculty members to discuss plans for scholarly work and possible funding sources.
3. The development of a data base of individual faculty scholarly interests, in addition to a quarterly newsletter on funding. As daily announcements arrive, they are photocopied and sent directly to pertinent faculty members on the day they are received. (Over 60 percent of the faculty provided key-word listings of their interests.)
4. Participation in a two-day faculty retreat off-campus between semesters to discuss the administration's view of the new role of independent scholarly work in faculty careers at the University. Frank exchange of faculty thinking took place.
5. Conducting two-session workshops on grantsmanship for interested members of the faculty. At the first session the Dean and the Associate Dean discuss the importance of extramural funding to building and sustaining a scholarly program as well as techniques of successful proposal writing. Then the group meets

with a successful faculty grant-seeker in the absence of administrators to air among peers the realities of grantsmanship on the campus. At the end of the session participants receive the application forms and guidelines of a federal agency appropriate to their interests with the assignment to prepare a draft application. These are returned to the graduate office after two weeks and critiqued by both the Dean and the Associate Dean. The second session is devoted to group discussion of the strengths and weaknesses of the draft proposals. Following four such workshops which attracted 52 participants during the first semester, single workshops continue to be held for 15 to 20 people three times a year.

6. Preparation, publication, and distribution to all faculty members of an eight page brochure discussing the importance of successful proposal writing to the progress of both the University and individual faculty members and outlining key points on preparation of competitive proposals.
7. Preparation of a Manual of Grant and Contract Management covering all university procedures for post-award management of successful proposals, the appropriate forms for each procedure, and complete instructions for their use. These are sent to all departmental offices and all faculty members when they receive their first awards.
8. Funding, from the budgets of the Graduate School and the Office of Research Administration, for faculty members' travel to meet with potential funding sources in order to discuss their proposals.
9. Setting up a system for administration of peer reviewed programs of University-funded Faculty Research Grants and Graduate Research Assistantships (programs which the Chancellor has expanded annually).
10. Adoption of a general policy that all meetings with departments and individual faculty members would be held in their offices rather than in the Graduate School offices.
11. Participation by the Dean and the Associate Dean in all campus groups dedicated to scholarly activity.
12. Acceptance by both the Dean and the Associate Dean of undergraduate teaching assignments to foster faculty appreciation of their broad academic commitment beyond simply graduate education and research activities.
13. Revision of all documents and correspondence from both offices to eliminate the impression among the faculty that scholarship in any discipline was viewed as any less critical to the University

than “research,” as narrowly defined in terms of the experimental sciences.

Office operations in research administration were also evaluated and changed in several significant areas. The objectives were to simplify procedures for dealing with both the faculty and the administration so that they were universally understood and effective, to make it possible to analyze the University’s attempts to generate external funding as a basis for determining where deficiencies lay and where new emphases might be needed, to manage the record keeping and reporting procedures more efficiently, and to free up time to devote to expanding the services of the research administration office.

In line with the recommendations of Manock⁴, a computer program was written for tracking proposals through the pre-award process consisting of 43 items relating to each application. The resulting data base is used to generate five routine monthly reports to offices within the University as well as the monthly report to the administrative offices of the University of North Carolina system. Total printout time for these six monthly reports is approximately 15 minutes. The data base is also able to generate a variety of ad hoc reports as they are requested by the administration, and it is used in preparing the Dean’s annual report to the University and to the University of North Carolina System. A separate spreadsheet program was written to generate the monthly statistical summary of proposal activity and grant and contract receipts to the University administration. Computerizing these record-keeping operations coupled with introduction of word processing allowed considerable expansion of the office’s services.

An annual detailed analysis of all applications, grants, and contracts at the end of each fiscal year was established. For each project it examines the purposes, school, department, principal investigator, funding source, duration, and the line item budget including direct and indirect costs as well as cost sharing, matching, and in kind commitments. Individual projects and summary data grouped in a variety of ways are then studied to identify trends, problems, under-utilized opportunities, and areas of strength as part of planning the future emphases of the Office of Research and Graduate Studies and making recommendations to the administration. It is a time-consuming task, but a very productive one, because it provides a base of hard numbers to reason from rather than anecdotal observations.

Publications on public and private sector sources of funding were expanded, and space was made available for the faculty to review these materials privately. In addition the faculty has been encouraged, at no charge, to use the University of Illinois’ IRIS data base.

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Procedures for securing the necessary internal approval of University administrative offices were formalized; appropriate forms were developed (including one to indicate clearly the amount and source of all cost sharing and matching commitments); and the time for obtaining complete on-campus clearance of proposals was reduced to approximately one week.

In the past, research administration policies and procedures were developed with only informal faculty participation. A Research Council was therefore established consisting of 17 faculty members nominated by the deans of the academic schools and serving three year terms. The role of the Research Council is to advise the Dean of Research and Graduate Studies on all policies and procedures bearing on the University's research activities. It is the counterpart to the Graduate Council, another faculty body advising the Dean on policy and procedural matters of importance to the Graduate School. Subcommittees of the Research Council serve as the peer review committees for the University-funded Faculty Research Grants and the Graduate Research Assistantships. Both councils serve as two-way vehicles for communication between the faculty and the office of Research and Graduate Studies.

STAGING

The first few months after the Dean and Associate Dean arrived, were devoted to review of research administration practices currently in place, assessment of their effectiveness, identification of changes that would represent improvements, and becoming knowledgeable about faculty attitudes and aspirations as well as the strengths and limitations of externally funded programs already in place. Major time commitments were made to establish understanding among the faculty, department heads, and academic deans that the new role of the office would be to provide a full spectrum of support services for scholarly activity of all kinds.

A number of ground-laying actions were taken. A series of meetings were set up with departments to air the new pro-active role of Research Administration. All forms and communications from the office were revised to replace the jargon of natural science research with the broader concept of creative scholarship in all disciplines and even-handed receptiveness to be of help with projects expanding the University's triple mission of instruction, service, and creative scholarship. To the extent possible the Dean and Associate Dean attended all campus affairs as an expression of interest and respect including musical and theatrical

performances, art exhibit openings, guest lectureships, public cultural events, seminars, and professional meetings. For several months the two participated together in order to make it clear that they were a team working in concert. After about six months, their hand-and-glove relationship having been recognized, they broadened the range of events covered by often attending singly. In consultation with the academic deans much heavier faculty input into guiding the policies and procedures of the office was put in place and faculty advisory groups were freed from preoccupation with acting on the mechanics of the office in order to have them focus on the broader questions of policy. Both deans participated in the affairs of the academic departments with which they were affiliated and accepted responsibility to teach one undergraduate course annually. That commitment was felt to be crucial in establishing the deans' genuine interest in instructional programs because university-wide there was a degree of tension between faculty members who were primarily classroom teachers and those who were also active scholars. The point was continually emphasized that career-long active scholarship, particularly when it involved student participation, added an invaluable dimension to the education of students-that faculty scholarship can augment the effectiveness of teaching if it is gone about appropriately. In addition the Dean continued his own personal research and the Associate Dean began establishing the bridges among the faculty to do the same.

Concurrently with these activities, internal operations were upgraded by putting in place word processing, data base programs to handle tracking of proposals through the pre-award process as well as report generation, and spreadsheet programs to manage financial matters. In addition the office personnel were shepherded into working smoothly in a matrix system replacing their previous roles of specialized responsibilities.

As the preceding measures began to achieve university-wide understanding and acceptance of the more active role the office would be playing, new initiatives were launched. By the end of the first year several first priority changes were in place. Computerization of office operations was well along, though not fully in place. A data base of the scholarly interests of over 60% of the faculty was in daily use apprising them promptly of funding opportunities in their areas of specialization. A well-received brochure was in use in working with new and established faculty members promoting the notion of the dual role of a teacher-scholar and the place of grantsmanship in achieving it. The practice of having the Dean interview all prospective faculty members to discuss their scholarly interests was put in place. Work had

begun on preparation of a manual for faculty members having grants or contracts covering in detail all aspects of managing their projects, the procedures to be followed, and all of the current forms along with instructions for their use. Travel expenses began to be covered for faculty members needing to confer with potential funding agencies and to attend conferences and seminars providing direct access to representatives of funding agencies. Indirect cost recovery was negotiated with agencies not previously including them in awards and the level of indirect cost recovery was negotiated upward with several other agencies. New funds made available by the Chancellor allowed the office to establish modest but significant programs of peer-reviewed Faculty Research Grants, Graduate Research Assistantships, and Chancellor's Graduate Fellowships. Increased time was devoted to developing more competitive proposals and projects of larger scope. The office increased its holdings of references on funding sources and grantsmanship, made private space available to the faculty to use them, and encouraged more frequent faculty use of the University of Illinois IRIS data base. Finally a, now annual, detailed analysis of all grants and contracts was undertaken examining budget distributions, activity by departments and schools, project objectives, and funding sources. These data are used to identify strengths and weaknesses in the University's overall extramurally funded activities and permit study of where future emphasis needs to be put.

In the second year a faculty Research Council was established to advise the Dean on policy issues relating to scholarly programs of the campus. The Research Council, a parallel body to the existing Graduate Council, relieved the latter of responsibility for research-related matters and contributes new pressure for growing research activity in all fields. The Chancellor augmented the allotment for Faculty Research Grants, Graduate Research Assistantships and the Chancellor's Graduate Fellowships. Agreement was reached with the academic deans and the Vice Chancellor for Academic Affairs to set aside for the first six months of each year a major portion of the state's allocation for equipment so that it would be available for matching purposes. Six workshops on grantsmanship were conducted attracting 82 faculty members, four in the spring semester, one at faculty request in the summer, and another in the fall. A marked increase has occurred in the frequency of projects involving collaboration among two or more university units with little history of cooperation. The manual for grant and contract management was completed. Distribution to the faculty of a bimonthly newsletter, "Western Research Notes", was begun. It consists of 8 to 10 pages of reminders of key aspects of proposal development, capsules of program

announcements by federal and private sector agencies, proposal deadlines during the coming three months, and lists of proposals submitted and awards received. In retrospect the newsletter probably should have had a higher priority, placing it on the first year's agenda, because it has generated an unexpectedly large number of faculty generated proposals. Finally a spreadsheet program was written called the WCU Budget Builder. It provides a comprehensive budget sheet covering all conceivable line items with the appropriate subtotals and totals built in and a reference section explaining how salaries, stipends, fringe benefits, maintenance estimates, indirect costs, etc. are handled. It has been invaluable in assisting faculty members develop thorough, accurate budgets, a grantsmanship skill that otherwise troubles new faculty members and is even an asset to people of considerable experience.

Three final points should be made regarding the staging of new initiatives in research administration. The first is that the work was not done in isolation. It was one facet of an attempt on the part of the entire administration to create a spirit of collegiality throughout the campus aimed at building on a long tradition of teaching toward a balanced program of teaching, research, and public service drawing heavily on faculty initiatives. In accomplishing that institutional evolution, the attitudes and aspirations of faculty will shift one at a time; hence the heavy emphasis on working with individual faculty members. Finally, there has been a deliberate focus on the academic value of ideas and the competitiveness of proposals to achieve scholarly objectives, in contrast to the "bottom line mentality" of dollars generated. That decision was a conscious recognition of the fact that if the most able, most energetic faculty members are fully supported in their efforts to launch truly important ventures, the ability of the university to fulfill its missions will be furthered without its programs being diverted by the mere quest for extra-mural funds because they are available.

INDICATIONS OF PROGRESS

Some of these initiatives are purely procedural in nature - steps taken to smooth the management of the pre-award process. Others are designed to meld the work of the Graduate School and the Office of Research Administration into a cohesive unit. Several of them represent attempts to create a truly collegial climate for the interaction between the two offices and the faculty by establishing formal and informal bridges over which the exchange of information, viewpoints, advice,

and guidance can move freely. Collectively they are intended to strengthen the University's graduate programs and to intensify and diversify the scholarly activity of the campus as a whole by dealing with human problems in human ways (Mantel⁸). To a limited extent their effectiveness can be examined numerically, though the predictable lag time between the changes and full estimation of their impact dictates that measurements presently cited be held as very preliminary.

Common sense, however, says that in the "management" of a portion of a university the contemporary pressures for accountability, in higher education are in danger of overlooking the intrinsically subjective nature of the mission of a university-creation of an environment within which teaching, creative scholarship, and service to a community that has grown to embrace the entire world can flourish. Many of the adjustments that are reported here and the manner in which they have been introduced lie in that inherently qualitative area. They represent things which appeared to be necessary to the health of the University and not amenable to "evaluation" in that word's current narrow sense.

The office is having individual conferences with faculty members at a rate of 18 per week. Approximately three meetings are being held monthly with departments and other academic units. Sixty-three percent of the faculty have entered their research interests in the data base, resulting in their receiving an average of 80 notifications of pertinent funding opportunities per week. Fifteen members of the faculty have been sent for discussions of their project interests with potential sources of support. Overhead recovery has been improved by greater care in structuring budgets and by successfully raising the issue with two agencies from which none had previously been recovered simply because the request was not made. Major improvement in the number of applications submitted or in the success of applications has not yet materialized, but the stage seems set for positive changes to surface in these traditional measures of the operation of an office of research administration.

Post-session evaluations of the grantsmanship workshops identified three aspects of the workshops as helpful: the private sessions with an experienced faculty member, the preparation of a draft proposal (several of which were subsequently developed into formal proposals), and the final sessions critiquing each participant's draft proposal.

The Research Council has set as its two major agenda items for the year ahead examination of local barriers to scholarly activity and recommendations for removing them and study of University policies and practices which, if initiated, would encourage more research.

Unnecessary misunderstandings about cost sharing, faculty release time, and matching commitments have been averted by the improved procedures used in securing internal approval of applications before they leave the campus.

Use of the faculty interest data base to get information on funding opportunities into the hands of appropriate faculty members quickly has been an appreciated move. It is, though, an operation which requires more careful attention to the key-word listings and searches than we originally anticipated, if photocopying costs and clerical time are to be held to reasonable limits. However, it cannot substitute fully for a periodic newsletter. Both mechanisms for communication with the faculty appear to be needed.

One of the most important results of changing the organizational structure of Research and Graduate Studies at Western Carolina University has been the increased understanding of the relationship between graduate and undergraduate education and research/scholarship among the faculty. Consultations with faculty have subtly changed over the past year as faculty see the benefits of student involvement in their projects and the importance of their scholarly efforts to the education of their students.

BIBLIOGRAPHY

¹ John A. Rodman: "Organizational Models and Staffing Responsibilities for Sponsored Projects Office!" SRA Journal (Spring, 1983).

² Donald E. Walsh: "The Grants Office: Organizational Alternatives with the University Structure!" SRA Journal (Winter, 1985).

³ Anthony J. Whitworth: "An Integrative Approach to University Contract Management!" SRA Journal (Summer, 1976).

⁴ John J. Manock: "Microcomputers: Assisting Research Administration Offices with Pre-award Activities." SRA Journal (Winter, **1984**).

⁵ Linda H. Mantel: "Problems of Research at Master's Level Institutions!" Council of Graduate Schools Communicator (Spring, 1987).

ACKNOWLEDGEMENTS

Our support staff, Beverly Lane, Jeanne Nienhuis, Kathleen Owen, and Doris Phillips, were of invaluable help in assessing existing operations, analyzing possible improvements, and adapting with goodwill to the numerous changes which have been made. Michael Fish of George

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Mason University, Lucy C. Henry of the University of North Carolina at Charlotte, and Gregory Reck of Appalachian State University were particularly helpful in sharing with us their data bases and reporting programs for tracking proposals through the pre-award process.

Service Initiatives in Transition: The Responsive Public University

James T. Kenny

Abstract. The traditional definition of public service for and from the public university is being challenged by the fast-paced demands of an external environment in flux. The new educational and technical requirements of American corporations, now in the midst of competitive readaptation, and the informational and technical needs of all levels of government are forcing higher education to reassess its array of informational and instructional services. Higher education must now critically examine its role in society and forge the internal consensus required to meet a new and demanding generation of challenges. The public service component of university mission must become cognizant of its special place in a world that is being touched and transformed by the new technology.

Providing direction for university public service presents major challenges for modern academic planners and administrators. America's need for new knowledge to enhance its market competitiveness places strains on an already taxed educational system. At a time when the nation's colleges and universities must contend with funding problems and aging facilities, the public and private need for problem-solving services seems greatest. A \$170 billion trade deficit dims the national outlook, reflecting serious setbacks in manufacturing and export capacity. In this environment, national educational policy seems to lack coherence and direction. The government appears to be sluggish in its support of the higher education enterprise and unable to provide convincing leadership in the promotion of much-needed technology transfer.

Compounding the productivity dilemma is the knowledge that America lacks a work force that is sufficiently trained to meet the expanding technological requirements of a modern society. The human resource problem touches universities at many points and is central to the strained dialogue on higher education's responsibility and its

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future. While the barriers to improved economic performance are not insurmountable, they are real and, in the aggregate, set the stage on which today's campus leader must act.

The very definition of public service is undergoing change as modern universities view a new generation of challenges in government and business in an information-driven world. While this new environment can bestow benefits, the volatility of a service mix in transition can catch a university off-guard and result in the sponsorship of activity that may tax an institution's resources and prove incompatible with its overall goals and self-definition. Public service, especially that animated by sponsored agreements, must be carefully monitored. At the same time, a campus must engage in continuous internal dialogue to articulate and clarify its own goals.

The traditional government-academic relationship is being altered. Older cooperative programs are now faced with curtailed funding. At the same time, state agencies and a number of local governance units are coming to require greater amounts of technical service, data systems management, research, training programs, assistance with the legal compliance, and organizational assessment as they strive to meet their operational and long-term requirements in an expanding service environment. Many state agency officials now recognize that, due to their historic lack of interest in organizational development, they are unable to meet required service needs or make significant contributions due to limited and probably decreasing human and financial resources. Some universities have begun to respond to this dilemma through the provision of helpful, cost-effective service initiatives and a new range of contracted programs.

As American corporations prepare for the future, plans are underway to downsize, streamline and restructure. Foreign competition, high production costs and some systemic inefficiencies have prompted sweeping reforms. The overall goal for business is cost-reduction and the improvement of long-term profitability and growth. Marginal operations are being phased out, staff is being reduced and industries are concentrating on proven areas of vitality. United Airlines, AT&T, IBM, EXXON, Union Carbide and even the major television networks are commonly perceived to be engaged in a "slimming-down" process. While the effects are most noticeable in manufacturing, all competitive sectors are affected. One hears almost daily of plant closings and reduction of management positions, even as new worker layoffs are being announced.

In this "survival of the leanest" environment, corporate America has become more cognizant of its competitive position and now

recognizes the need to adopt new technologies, to improve management training, and to look to social science research applications in problem-solving. Universities have an important partnership role to play in the design of this sleek new corporate architecture and in this transformation.

Some academic leaders believe that the well-being of society and higher education depends upon a vital and expanding private sector.’ As institutions rush headlong into the development of research parks, business incubators, innovation centers and services unimagined just a few short years ago, they cement a triad of university, business and government that is unparalleled in history and which offers an exciting but unpredictable dialectic of institutional change. It may be true that neither universities, nor government, nor business will be the same again. Time will tell. In the meantime, the university in flux must make an effort to understand the systemic forces that act upon it and take steps not to arrest change, but to insure that it remains a constructive partner in the process.

A public university is most likely to connect with the other state and regional agencies through its public service effort. Some of these programs evolve from careful planning or historic mission with an adequate base of funding in legislatively-appropriated line items. However, many newer programs, some quite ambitious, are driven by sponsored agreements, i.e., grants and contracts. While such activity from campus to campus tends to be of high quality, this work, in general, is more hastily organized and this can present problems. The roster of “doable” projects is large, and the inclination to expand sponsored work is tempting.

Such project activity should be considered when the scope of work envisioned is consistent with institutional goals and the desired outcomes are attainable within campus time and resource bases. In the main it is argued that the acceleration of such sponsored activity should be guided by a coherent strategy that incorporates the long-term interests of the university as it looks at the external service world. An institution should avoid rushing into the field with an ill-conceived proposal purporting to cure a corporation’s or agency’s woes. In all cases, one must first consider need and capacity. Responding to what one thinks is the service need is quite an imperfect science. The easiest mistake to make is assuming, a priori, the interests of the client. Incomplete knowledge of a service population and its requirements may lead to the well-intentioned development of unneeded cures. Such efforts abound and, in the measure of bureaucracy, tend to grow in self-serving and increasingly irrelevant directions. The perpetuation of such activity

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may estrange a university from its public, even as it continues to cling to its own mythology as agent of innovation and all that is good. The problem is not unique to sponsored activity, but is more likely to happen when leadership focuses on award or contract dollars rather than sound needs assessment and mission compatibility.

The problems of assessing extramural need must be accorded the same rigorous attention that is given to the review of internal academic programs. Here, two time-tested methods seem to offer the best hope. The first of these is the selective response to the most persistently articulated needs of a specific clientele, e.g., the corporation that enlists the aid of the university in establishing a company or plant organizational development program. In a hypothetical case such as this, the task would be one of listening to and clarifying company goals in the light of program options and responding when possible with the requested service. The costs, in this example, might be absorbed by the university, or provided under the terms of a contract, or even cost-shared by the university and the client group. In some instances, the university will seek extramural support from a third party agency to support projects of this ilk. However, in all cases an extended period of planning and series of discussions must precede the development of a long-term program. Both the client and the sponsor must enter into a service agreement under terms that are mutually acceptable and where the respective responsibilities of each party are clearly defined. To do less invites misunderstanding and discord. Such problems as staffing, funding levels, project duration, space allocation and other elements of performance will require the clearest communication.

A second method that the university might turn to is the formal needs assessment survey. This would begin with an attempt to answer some relevant questions, e.g., what services the local business community expect or need that are compatible with the mission of the university? Survey instruments designed to plumb specific responses should be developed for almost any potential service area. If conducted correctly with a validated and refined instrument developed by a credible social science unit, the needs assessment process can provide solid information and point the way to new and useful services. The results of addressing these “real needs” in a determined and consistent fashion can lead to accomplishment and community support for an institution’s project in a very short time.

At the same time, needs, once identified, must be matched against internal resources as the institution makes another type of assessment, i.e., its own capacity to meet the objective need as cited. Institutions without an organizational development center or business center may

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be unable to satisfy the requirements of long-range work in assessment, regardless of how well-articulated these needs may be by the outside community. However, that an institution cannot respond to a given need is less crucial a service issue than the problem that arises when an institution tries to meet a need that cannot be met or which it is unable to meet due to scarce or inappropriate resources. This is a common problem, and there are abundant examples of instances where a lack of project resources led to the hasty development of inadequate programs that thwarted the aspirations and expectations of clients. Conventional wisdom confirms that external groups are quite unforgiving when this is found to be the case.

Clearly, there must be broad internal agreement on what a given university should undertake as "service" activities. Until such consensus is forged, campus policy will lack focus and direction. It is recommended that discussions begin on the common normative ground that we are all in the education business and that instruction, research, and service are not mutually exclusive undertakings. All those involved in the process should be able to agree that American universities, in spite of their internal preoccupations, occupy a unique position in today's information-focused world.

Our institutions of higher learning share and, hopefully, will continue to share, a special responsibility in the discovery and generation of new knowledge. Traditionally this has been offered to society in the form of research findings, field investigations, technical assistance, publications, and training. These things universities must continue to do. At the same time the enabling conditions for the animation of such technological or informational transfer must be guaranteed. If the objective of a specialized service unit is productivity through exchange of information, continued financial support must be ensured. Additionally, administrators should create a milieu where innovation and productivity can be identified and rewarded on a consistent basis.

Improvements must now be made to increase the flow of data and technical assistance from the laboratory to the marketplace, from the scientist to the worker, and from the campus to the public policy arena. At every turn one sees a growing, nearly insatiable need for information and assistance that is timely and deliverable upon demand.

Some institutions of higher education are cognizant of their special responsibilities in informational exchange. Research parks, business incubators, and innovation centers dot the countryside and nestle, albeit at times uncomfortably, within the groves of academe. Some predict the emergence of a progressive and unparalleled triad of university, business, and government. One might hope that centers of learning

could be catalysts in an exciting social dialectic. History offers no certainties and little guidance on this point. However, we are admonished by Arnold Toynbee that “the nemesis of creativity is the idolization of ethereal technique!” Perhaps then, academic administrators should critically examine the conventional values and strategies of public service. At the very least it is to be hoped that campuses, while retaining their basic identities, might become more responsive. Academicians must find the consensus and will to deal constructively with corporate leaders and government officials. They may have to become somewhat more aggressive in the representation of their best public offerings, more effective in information diffusion, and more alert to new opportunities for making effective contributions in technical services and training.

If a modicum of agreement is possible on these points, the question of the composition of the service mix becomes more manageable. Academic planners should seek to concentrate their efforts on those sectors of society that can best benefit from the infusion of new information and technology transfer. What specific external institutions should or should not be targeted is a question that must be answered by each university on the basis of its unique strengths and its projections for effecting positive change. Developing the service-provision capacity for units of government, assisting in economic expansion, providing information that will improve the lives of citizens in today’s communities suggest avenues where the university can make its greatest contribution, i.e., the application of knowledge to problems.

The orchestration of a campus service mix should not be a job exclusively reserved for a vice president for public service. While grant and contract oversight can be provided by sponsored project administrators, a public university’s mission must be guided by a comprehensive and coherent strategy derived from legislative mandate, trustee guidance and, most importantly, internal consensus. This is understandable in view of the fact that those who make the day-to-day operational judgements exercise a great influence on policy outcomes. Even so, leadership in promoting accord must come from the top and the prime animateur should be the president.

Informal but goal-centered discussions should be encouraged. Faculty views must be solicited and weighed. Discussions must also begin among leaders, including deans, unit directors and department chairs. Such talks should be geared toward exploration of the emerging role of higher education in public service. Information and new publications should be made widely available as a prelude to such outcome-oriented talks. General agreement should result regarding the validity of strengthened institutional partnerships with external clientele groups.

If this is not possible, little else will be. This problem must not be minimized. In many instances institutions are asking faculty and administrators to embrace a new view of education. Questions must be asked about the university's responsibility in the dissemination of information in modern society. Are academicians, as purveyors of knowledge, at risk of being by-passed as the new "information society" becomes a reality? What of the eternal verities and the meaning of liberal education? Should centers of learning march in lock-step with governmental entities or become partners in the business-building business? Such questions as these must be anticipated, their articulation encouraged and an accommodation of viewpoints sought. General convergence may not be possible. It rarely is in a collegial setting. However, any process that impinges on institutional mission and future direction deserves full and frank discussion at all levels.

If a framework is developed for the discussion and designation of service priorities, cognizant campus officials should then be asked to bring their influence to bear on the program development process. Department heads, unit directors, and sponsored activity administrators should be willing to discuss ideas with faculty and professional staff during the pre-award stages of program development. Projects that envision new initiatives should be measured against the totality of an institution's commitments, its resources, and the role it has defined for itself in information transfer and training. Where a proposal for external and internal funding is found to be lacking in mission compatibility, its author should be encouraged to restructure or reconsider the proposed enterprise. When there is a high level of institutional and project congruence, special efforts should be made to secure funding and insure implementation.

Public service will come to occupy an increasingly important part of many campus mission profiles in the years ahead. An institution's willingness to meet change head-on with a clear grasp of its role and purpose in society may profoundly affect the institution's future substance as well as form. Much will be required of those institutions who would work for the public good in an innovative, constructive, and convincing manner.

REFERENCE

¹ The Higher Education-Economic Development Connection: Emerging Roles for Public Colleges and Universities in a Changing *Economy*. (Washington, D.C.: The American Association of State Colleges and Universities, 1986).

BIBLIOGRAPHY

The Role of *Science and Technology in Economic Competitiveness*. A report prepared by the National Governor's Association, The Conference Board, and the National Science Foundation. (1987).

"Universities Move Toward New Responsibilities in a More Complex Environment," *Research Management Review*, Volume I, Number 2, Full 1987, 61-67.

Wilson, J. Models for Collaboration: Developing Work-Education Ties (Washington, D.C.: American Society for Training and Development, 1980).

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