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SOME THOUGHTS ON INTERDISCIPLINARY STUDIES

Sidney F. Parkam and Peter W. Graham

The vogue for interdisciplinary courses has led our more crusty and conservative colleagues to complain that such programs represent a mere repackaging of traditional courses, a process that diminishes the value the student receives from traditional courses without broadening or integrating his knowledge. Too often this criticism is just. We should like to argue that a genuinely interdisciplinary approach does not repackage but restructures knowledge in such a way that students are led to consider the nature of knowledge itself and thus, we hope, to think about their own thinking. Such reflection seems to us a decidedly traditional goal of liberal education.

Before we discuss the sorts of courses we consider truly interdisciplinary, let us examine the "additive" kind of course that incites the repackaging criticism. Imagine, for instance, a course called "The Black Experience in America," taught by one supervising instructor and a number of guest lecturers from various disciplines, including literature sociology and history. The reading list for this course might include slave narratives or Fredrick Douglass’s Autobiography, Baldwin’s The Fire Next Time, Ellison’s The Invisible Man, Genovese’s Roll On, Jordan and Myrdal’s American Dilemma. Each guest professor explains the works in his discipline, leads discussion of the text, and offers whatever general insights he may have. Such a course is in reality three mini-courses, one each in literature, history, and sociology. The course leader, no doubt, will attempt to draw connections as he marshals his parade of authorities, but unless he advances a sincere investigation of the relations among the epistemologies of the various disciplines, he leaves the student with three discrete bodies of knowledge and the vague hope that they form a unified whole neither greater
than nor different from the sum of their parts. It would be difficult to defend this course against the argument that the student would benefit as much or more from three separate courses taught within traditional departments.

Simple juxtaposition of subject matter does not constitute an interdisciplinary course. Rather, interdisciplinary ventures should order such juxtapositions into intelligible structures that establish connections among the various materials and the epistemologies from which they derive. We are using "structure" in the specific sense that it relates to the theories of structuralism as developed in anthropology, psychology, linguistics, and literary studies. Jean Piaget's definition of this approach is hard to improve on: "It [the structuralist approach] adopts from the start a relational perspective, according to which it is neither the elements nor a whole that comes about in a manner one knows not how, but the relations among elements that count. In other words, the logical procedures or natural processes by which the whole is formed are primary.¹ (Structuralism, trans. and ed. Chaninah Maschler, New York, 1970, pp. 8-9.) Piaget goes on to argue that three qualities — wholeness, transformation, and self-regulation — define a structure.

A number of problems arise when we apply this approach to primary phenomena. In so short a space as this we cannot address the problems directly; rather, we wish to hypothesize that academic disciplines are fictional constructs that follow Piaget's definition of structure. Events occur in the world of men and phenomena; history and physics are only conventional and systematic ways of discussing them. Men live in societies; sociology exists in the methods of its practitioners. Novels and poems are written; literature is the creation of critics and readers. Thus each academic discipline defines the extent of its domain and, having marked out limits, assumes that they circumscribe a whole that can be fruitfully studied. Continual refinements of methodology and the discovery of new phenomena within the field transform its terrain. Each discipline regulates itself by developing standards for judging and accepting or rejecting new methodology. Note that the definition we have just offered depends entirely on the internal construction of a field of study and does not question the implicit assumption of all academic disciplines — that the methods of study are appropriate to the objects or events to be studied.

The advantage of this model is that it allows us to posit "interdisciplinary" as a comparison of structures rather than an angle of vision or a juxtaposition of a material. If we define each discipline by the structure of its methodological rules, then the process of comparison creates a third structure, of which both the teacher and the student should be aware. We can create such new interdisciplinary structures in two ways. Either we apply the methodology of one discipline to the material of another, as when a philosopher brings his training to bear on a medical issue, or when a philosopher brings his training to bear on a medical issue, or we compare methodologies, such as the classics scholar's search for etymologies and the anthropologist's quest for archetypal folkways, so that the student sees not only the similarities between methods but also understands what part of experience each excludes.

Both of these strategies, the comparison and contrast of methodologies and the use of one discipline's methods to address the matter of another field, characterize the University of Florida's "Humanities Perspectives on the Professions" program, in which the authors teach. The participants in this venture design and present humanities courses that meet the particular needs of future
doctors, lawyers, engineers, and businessmen and hope thereby to acquaint these pre-professional students with humanistic methods and values that will apply to their professional concerns and enrich their personal lives. Each course in the program has its own interdisciplinary assumptions, but all share the aim of transcending the superficiality that simple interdisciplinary juxtaposition creates.

For instance, one course, “Theatre and the Professions,” examines a number of plays ranging from 17th-century to present-day works primarily as social documents embodying current attitudes toward the professions. This course goes beyond “additive” interdisciplinarity by presenting social and economic influences that at least partially explain shifts in dramatic form. Surveying plays from Molière’s The Miser to Brecht’s Threepenny Opera, the course winds the social maze from aristocratic criticism of a money economy through the 19th-century adoration of that economy to the fin de siècle bourgeoisie’s unease with the values they have created and finally to the essentially left-wing position of more recent playwrights. The students come to learn something about the professions as well as about drama: from studying the three accounting scenes in Gay’s The Beggar’s Opera they appreciate accounting as the assignment of value, not just the numbering of things. They discern ethical judgments in what seemed to be an objective method.

Iatrogenesis

The problem of iatrogenesis which confronts humanistic biology might be avoided or lessened if we could predict the effects of new technologies when introduced into biocultural systems. For example, the lowering of infant mortality, and the reduction of deaths from infectious diseases worldwide, have brought in their wake the population crisis which threatens the survival of the species. Humanitarian motives have also spurred great progress in the correction of birth defects, so that the afflicted can lead relatively normal lives, and bear children of their own. The iatrogenic effect is a threat to the quality of the human gene pool. Other examples include the development of cancers and birth defects as a consequence of the growth of modern industry. We must learn to innovate with minimal biological disruption.

Self and Society

Many of the tensions dealt with in our humanistic biology courses are really problems of self versus society. Should individuals have the right to produce offspring which will be malformed, even though this presents a burden to society and to the offspring themselves? Should one have the right to smoke, in spite of evidence that cancer may result with its disruptive consequences for society? Does society have the right to employ behavior control measures in the name of the common good? A cherished Western value is the freedom of the individual to choose his own course of action. On the other hand, in most species individual interests are typically subservient to those of the group; to be otherwise would be disruptive of group survival. Science can help illuminate self-society conflicts, and may show how and why they have arisen.

Halfway Technologies

Sometimes science presents us with partial solutions that, by becoming
entrenched as palliatives, actually interfere with the needed progress toward prevention or cure. Kidney dialysis and coronary by-pass surgery are examples of such halfway technologies, for they absorb such vast resources that little money and energy are left to pursue the greater goal of complete solutions.

Changing Ideas of Human Nature

Science has provided us with certain capabilities for altering our own evolutionary future. It has also given us enough insight to foresee some of the risks of using those powers, as well as the risks of not using them. Refusal to act when action is possible constitutes a decision in itself. Increasingly, biotechnologies such as genetic screening, drugs, life support systems, organ replacement, altered mechanisms of reproduction, and possibly the laboratory creation of human life, all have placed god-like power into human hands. However, we cannot find in science alone the wisdom we need to evaluate all the alternatives. This dilemma is one of the most important and one of the hardest to solve of all the problems faced in our courses.

Biological and Cultural Evolution

Although the precise course of evolution is indeterminate, evolution has been marked by a gradual increase in the complexity of living things, regarding both structure and function. One result of this trend has been the emergence of extra-somatic or cultural evolution, a process derived from the older biological evolution, but with properties unlike those of its parent. The innovations of cultural evolution have changed and accumulated much more rapidly than has been the case for the organic structures created through biological evolution. One consequence of this unevenness in evolutionary rates is that certain biologically evolved attributes of human nature seem to become dysfunctional, even disruptive, when they are placed in cultural environments. Several examples are addressed in our courses. Assuming that biologically derived behavior patterns such as aggression, pair-bonding and territoriality do exist, they may be maladaptive for modern societies. Also, those biological drives which lead to excess number of offspring served as a vital component of natural selection in our early evolutionary history, but now may be anachronistic in a modern society which has the power to save lives, no matter how detrimental to the species.

THE ROLE OF HUMANISTIC BIOLOGY IN THE UNIVERSITY

Scientific knowledge and its application have thrust upon each of us the necessity of making informed choices, thereby greatly enlarging our sphere of moral responsibility. Biology majors as well as non-majors can qualify for their degrees without ever being exposed to the social, legal, moral, and ethical issues which modern biology has created. Abell speaks of the need for

... restructuring undergraduate biology programs to meet the needs of a society which is looking increasingly to the academic community "for the kinds of knowledge that translate into practical decisions on social, political, environmental and economic matters, for the kind of technical and professional training that translates into meaningful vocations in a biosocial context and for a kind of
scientific literacy that translates into a more involved and responsible public."  

Humanistic biology courses can offer a valuable educational experience to all students and to concerned citizens in continuing education and extension programs. Though many colleges and universities have a course or two in this area, we believe this cluster of humanistic biology courses for undergraduate education is unique.


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Another English course, "The Artist as Diagnostician," attempts to demonstrate that the disciplines of literature and medicine are complementary rather than antagonistic and that a mutually enriching interchange can exist between the two fields. Considering works from the English, American, and Continental canons, the course suggests that men of letters like Montaigne, Shakespeare, Dickens and Faulkner who pronounce on the health of society, diagnose spiritual malaise, attempt to quell intellectual epidemics, and prescribe remedies for institutional plagues, use critical methods not unlike those
that men of science employ in their investigations. To complement this endeavor, the students pursue individual research projects that assess the literary careers of physicians who wrote, such men as Sir Thomas Browne, William Carlos Williams, Sir William Osler, and Anton Chekhov, and come to understand how medical training can influence an artist's purview. This course, then, tries to undermine the "two cultures" frame of mind by showing that the pen does not preclude the scalpel, nor the scalpel the pen. Literature and medicine encourage man to apply his mind in comparable ways to different tasks.

The problems of organizing and teaching courses in which the epistemologies and methods of one discipline are compared to another are twofold. First, one must find material accessible to both disciplines. Second, one must elucidate each methodology so that the student can participate in the comparison. One such course in our program is an introduction to legal studies, in which a professor of English, a professor of law, and undergraduates intending to go to law school examine legal philosophy, empirical case studies, and literary works. The texts from each discipline receive the sort of scrutiny that would conventionally apply in the other field. Thus an appropriate choice for the course is not *The Merchant of Venice*, which contains a trial scene, but *Waiting for Godot*, which dramatically raises the question "What is relevant evidence?" and invites application of legal reasoning. In like manner, an early session of the course involves the students subjecting a Florida Supreme Court decision that denied a black student admission to law school to the sort of close reading we associate with formalist literary criticism. Examining the rhetorical structures, choice of words, and style of the case, the class discerns the legal philosophy of the justices. This having been done, a discussion of pertinent social and historical information adds a supplementary perspective on the case. By the end of the session the efficacy of both literary and legal methods has been demonstrated. Either alone could not create what both together have produced. One of the fortuitous spin-offs of this course is that the English professor involved now offers a class in which students inspect legal cases which evoke serious social and moral problems. For their final project in the course the students read and discuss *Oedipus Rex* using the terms that they have employed throughout the course.

A lecture presented in the "Engineering and Humanities" course illustrates another such means of comparison — considering the processes of creation in two disparate areas. In this talk, a professor of engineering design who writes poetry offers a functional comparison of artistic creation and engineering design. The lecture, itself a model of rigorous technical method, demonstrates that the artist and the engineer go through similar means of thinking in attaining their respective ends. Fashioning a sonnet and designing a bridge, then, seem to be homologous, similar in structure but different in purpose. The audience's response to this insight proved interesting: the students, all prospective engineers, felt their professional image threatened and strongly resisted the idea that they could possibly think like artists.

The generation of this resistance seems to be one of the worst effects of compartmentalized education. Just as working Americans tend to define themselves by their jobs, so students define themselves by their majors. This early identification with a field and, increasingly, with career means that the student denies himself the excitement of discovering new ways of thinking. Surely the future doctor or engineer can better perceive his place in society by the study of
history and art, and the historian or artist who knows something of science and technology can more clearly understand the society in which he lives.

Thus the sort of interdisciplinary experience described above broadens the student, examining the contexts from which various kinds of thought arise. Such broadening is of itself useful in that it helps the student to deal with uncertainty and to sort out issues. This understanding of the different modes of thought demanded by different disciplines seems crucial to the other demand present on the humanities — that they teach moral virtue. If the last half of the 19th century transferred its values from religion to art, the last half of the 20th century has placed its trust in the study of art and society rather than in art and society themselves. More and more the teacher of the humanities finds that is expected to defend moral values in a materialist age.

Some of us embrace this priestly function too fervently (pontification is a vice endemic to the teaching profession), while others take refuge in fastidious relativism. In any case, teachers deal in materials that express moral values as human beings hold beliefs and principles. How then can we steer between the sterile sort of technical teaching that refuses ever to commit a value judgment and the solipsistic sort of preaching that demeans the classroom as it implies more moral authority than most of us have? We would suggest that the methods we have outlined in this essay point to a middle way. By stressing that academic disciplines are merely useful constructs, we can show how the intellectual edifices are built on assumptions about the world. By examining connections among disciplines we can show that a relative world is not a world without values, but one in which basic values may be variously expressed in different situations. The comparisons of epistemologies ought to show that value judgment can take place outside an intellectual frame and that to understand any event we must place it into a context. In short, we aim not to inculcate a set of prescriptive rules but rather to suggest methods for trying on and testing values. Education is, as Martin Buber observes and Herbert Read reminds us, "the selection of a feasible world through a personality and for a personality" (Education Through Art, London, 1948, p. 292). As teachers we hope that interdisciplinary courses of the sorts described above will help future members of the professions, those students perhaps in most peril of donning the disciplinary blinders that narrow the world, to retain and even to cherish the wide view. Aware of the connections among disciplines, sensitive to the different ways that epistemologies confront a common problem, teachers can help students to understand how their own self-defined and self-regulated disciplines fit into the larger structure of knowledge that we call civilization. Thus educated, students can make more enlightened commitments to their fields, they will appreciate the alternatives. The professional niches that might otherwise have been refuges will become, for them, consciously chosen dwellings.