

Teaching Alone, Teaching Together

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Chapter One: Tasks, Talents, and Temperaments in Teaching the Challenge of Compatibility

The question of the effectiveness of colleges and universities has assumed a new salience in America. A fresh set of demands on institutions and their faculty for increased productivity has set in motion a variety of efforts by faculty and administrators to examine the processes by which higher education is carried out. Both administrators and faculty have been besieged by angry parents severely disappointed with the results of their children's education for which they, the parents, conscientiously saved, then spent, considerable sums of money. Their hope, as well as their expectation, was that the respected and exalted institutions of higher learning would elevate their students to greater sophistication in matters of culture and general education, as well as in practical skills of value to their lives immediately upon graduation. The unhappiness of parents has been vociferously expressed directly to the colleges and universities, whose teaching staffs have usually been at a loss as to how to respond, except defensively. In addition, as the undercurrent of parental dissatisfaction has made its way to the legislators who vote on educational policy and budgets, the states and federal government--who provide external funds in the form of direct institutional support or financial aid to students--have been demanding that institutions of higher learning take more responsibility for the outcomes of their teaching efforts (Massey & Wilger, 1992).

On some campuses, these pressures have produced a modicum of useful change, especially in the domain of curricular configurations. An increased recognition of the need for more integrated learning experiences for students has provoked some campuses into planning and instituting new formats for linking related (and sometimes unrelated) subject matters--for example, in "federated" systems of courses (Hill, 1984). As with most important innovations, however, those of today are adopted by a relative few and are sustained only as long as the innovators themselves remain committed.

The frustrations of administrators and faculty leaders, moreover, have frequently induced a recourse to practices such as downsizing, replacing tenure with contracts, increasing the use of part-time faculty, disenfranchising faculty from critical decision making, and making demands for evaluation of teaching under threat of punitive action, all of which create an anxiety-ridden ambience that is more likely to make teaching an odious chore than a source of reward and commitment.

What is missing from these efforts is the recognition that what teaching in higher education needs is a fundamental change in its organization that yields rewards for faculty that are readily perceived, are significant, meaningful, and sustained, and extend to the entire faculty, rather than to an experimental group. These rewards, which need to be both intrinsic and extrinsic, would result in a new legitimacy for full engagement in teaching by faculty, leading ultimately to parity with the rewards of research and publication.

At present, the intellectual and physical isolation of the faculty member as teacher results in a paucity of opportunities for significant reward, save through the professional and personal satisfaction of faculty from seeing students learn and grow under their tutelage. Although this is by no means insignificant, as will be discussed later, many if not most

faculty are recruited from the ranks of applicants who show promise for research, not teaching, and hence are unprepared to seek and find the kinds of satisfactions available through teaching. The absence of a structure for the work of teaching that requires faculty interaction inhibits the development of peer norms that would support excellence in teaching.

The recognition of the necessity and possibility of disaggregating the basic components of the teaching process raises new and interesting organizational questions about the nature of "specialization" in higher education. In other kinds of professional organizations (for example, hospitals and large law firms) with multifunctioned professionals, there has been a recognition of the limitations on effectiveness of asking professionals to assume roles that are so broad as to diminish their ability to focus on and carry out the separate functions (Charns, Lawrence, & Weisbord, 1977; Charns & Smith, 1993). For faculty in American higher education, on the other hand, subspecialization beyond the broad, general roles of teaching, research, and service has rarely taken place, if it has occurred at all. Most faculty play all of the roles, though with different allocations of time depending on type of institution. Indeed, role overload has come to be the standard lament of faculty throughout higher education (Sorcinelli & Gregory, 1987). There are fewer roles in institutions whose mission is primarily teaching, but even in these, faculty complain of having to wear too many hats and many that are ill fitting.

Recently, however, in higher education, a modicum of de facto specialization has begun. As one example only, some institutions are beginning to hire professional actors to present taped materials that have been prepared by scriptwriters for use in distance or on-line education (Arenson, 1998). To continue to expect faculty competently to perform an ever more sophisticated set of subroles (each of which, not incidentally, requires extensive preparation to develop) may be to risk a further deterioration in teaching effectiveness. Indeed, what this book will attempt to show is that the current clustering of faculty roles in general, and teaching roles in particular, results in neither effectiveness for the institution nor satisfaction for the faculty.

Organizational Forms

The issues of the appropriate organization for effective teaching raised by budget problems and the introduction of new technologies serve as prompts for rethinking the essential bases of specialization in organizations like colleges and universities. The departmental form of organization originated in the knowledge structure of the trivium (the group of studies considered in Greek times the lower division of the liberal arts, consisting of grammar, rhetoric, and logic) and the quadrivium (the group of studies considered the upper division of the liberal arts, consisting of arithmetic, music, geometry, and astronomy) from the Middle Ages. That curriculum and its associated organizational staffing structure were reinforced with the rise of research and its knowledge boundaries in the late nineteenth century. It has ill served liberal education for late twentieth-century undergraduates, however, who suffer from exposure to course-circumscribed fragmented knowledge, unintegrated by purposeful, planned professional faculty cross-course and cross-disciplinary efforts. As a result of this approach, students themselves are asked to make conceptual and philosophical bridges across their disparate courses and to relate that variegated spectrum of knowledge to their developing self-concepts and affective dispositions.

Attempts to breach the disciplinary insularity of academic departments in higher education have bred a small number of successful cross-departmental, team-taught courses. These are usually initiated, however, by individual faculty stimulated by a happenstance discovery of interests in common with other faculty. Only occasionally are these ventures institutionalized as formal curricular programs. They die as originating faculty lose interest (Hill, 1984). Team teaching within disciplines also is not

uncommon, but the rationale for the collaboration of faculty again lies in the perceived linkages across course subject matters. That is, the specialized knowledge in the courses that are joined for team teaching are founded in the similarities of the subject matters being taught or their connections to some field of practice.

It is useful at this point to step back and ground the common curricular models in colleges and universities in organizational theories that can help explain the unique "division of labor" for teaching. The organizational structure of colleges and universities can be said to be organized by product. In this case, the product is conceived as packages or "bundles" (Parsons, 1974) of knowledge. As Hellriegel, Slocum, and Woodman (1998) note: "Product design involves the establishment of self-contained units, each capable of developing, producing, and marketing its own goods or services" (p. 522). Thus, academic departments essentially establish their knowledge "products" and offer them to the market of current and prospective students at an institution.

An alternative organizational configuration is design by function, which focuses on the common required tasks of workers. Again, from Hellriegel et al., "Functional organizational design involves the creation of positions and units on the basis of specialized activities. Functional grouping of employees is the most widely used and accepted form of departmentalization. Although the functions vary widely depending on the organization ... grouping tasks and employees by function can be both efficient and economical" (p. 520).

Functions of faculty in colleges and universities are typically described in terms of the tasks of teaching, research, and service. The organizational "units" to which these functions are assigned, however, are individual, multidimensional faculty, who perform all three functions in product-type, discipline-dominated departments. Within the teaching function, moreover, there are many subfunctions--for example, planning pedagogy, gathering information for teaching, lecturing, holding discussion classes, evaluating, mentoring, and working with other institutional personnel--the topics of subsequent chapters. And even within these subfunctions, there are smaller subdivisions. As with the overall three functions faculty perform (teaching, research, and service), so also within the teaching function, traditionally, all of the functions and subfunctions are assigned to individual faculty members, each of whom is responsible for integrating the lot into the preparation and delivery of teaching services.

The idea for this book stemmed from an awareness of a fairly common lament among faculty that there simply is not enough time to perform effectively even in each of the required major functions--teaching, research, and service work--that are required of them, nor time to devote to desired work that is elective (Seldin, 1987). Many faculty experience a role overload that reduces the quality of their work and hence the effectiveness of their contribution to their institution. They suffer also from personal anguish when they see that the often considerable time required to be spent on work in which they have little interest or little talent does not either advance them toward their professional goals or result in personal satisfaction. Such phenomena point to the need for a reorganization of faculty into narrower and smaller functional subspecializations.

As noted in the Preface, however, many argue that narrowing the role set represents a cure that may be worse than the disease. They suggest that it is the very diversity of the array of faculty roles that makes the performance of each subrole more effective--the roles allegedly being intimately connected and rewarding--as well as less repetitive and hence less boring and enervating. This argument reaches to the heart of fundamental questions about work design in organizations--in particular, to the optimal balancing of the repetition of tasks performed with acquired expertise and the introduction of new

tasks that may challenge existing skill repertoires, require new knowledge, and test new skills. Both the exercise of expertise and the challenge of new tasks are critical features in the sustaining of worker motivation. What diminishes motivation, on the other hand, is the repetition of tasks that do not appear difficult and for which skills and interests do not exist.

In this book, we suggest that both the desirable and undesirable aspects of role variety can be organizationally structured in ways that do not demand excessive faculty attention to undesired and unrewarding tasks and yet provide fresh and challenging opportunities for knowledge and skill demonstration. To the argument that the omnibus role for each individual faculty member is necessary because the subroles are intimately related and mutually reinforcing (research feeds teaching and the reverse), we suggest that this interconnectedness can be accomplished more effectively through structured interpersonal (that is, team-based) rather than the traditional intrapersonal (that is, single-person) integration of tasks. Rather than one faculty member being responsible for all roles, different faculty members can take on different roles and interact to enhance all performances. This notion of interpersonal linkages is central to the idea of team teaching and to the themes developed in the chapters that follow. (Because of space limitations, we omit from the discussion critical and related issues pertaining to the organization of national systems of education. See, for example, Clark, 1997.)

Not all faculty actually want to do research, though this seems to be the near-universal bureaucratic, if not normative, expectation throughout the higher education system (with the possible exception of the two-year colleges). And relatively few faculty are successful at research, at least as measured by publications; nor in fact, do all faculty want to teach, many preferring other faculty roles, like research. Again, effectiveness varies. Such preferences and limited skills are not without precedent in the history of higher education. Recall that the tutors of early American colleges were ill suited to manage the *in loco parentis* responsibilities that accompanied their more intellectual tasks.

Thus, it is not at all clear that either teaching or research in institutions of higher education is carried out with a high level of effectiveness, though to be sure, there are many examples to the contrary; and historically the long-term survival of the higher education system as a whole is some validation of its success. The recent, quite evident dissatisfaction of the general public, however, with the outputs of higher education--that is, largely with the qualities and qualifications of recent bachelor of arts recipients--speaks to the general failure of the system to figure out how best to carry out its teaching mission. It may be that as postsecondary education has continued to expand its access to greater and greater percentages of many different cohort groups (Gumport, Iannozzi, Shaman, & Zemsky, 1997), the public has been "getting wise" to the deficiencies in a large number of existing colleges and universities. The admission of many more students with lower--or at least different--levels and kinds of intellectual ability and intelligences (Gardner, 1993) has created challenges to faculty that they have not had to meet before because the majority have had almost universally bright students in their classes. Those challenges continue unmet or, in many cases, even unrecognized in much of higher education, particularly those institutions employing a traditional instruction paradigm (Barr & Tagg, 1995).

So, at least four constituencies are unhappy with the present state of teaching--the paying public, the receiving or employing public, the student recipients, and the practitioners (the faculty). Doubtless, administrators are also unhappy--in their own ways--to paraphrase Tolstoy. Yet, the status quo or even the status quo ante organizational structures and methods of teaching persist. There are pockets of experimental teaching with new methods, and the faculty professional development field is active; but for most

faculty, teaching remains premised on the technology of the log-linear model--an inspired Mark Hopkins-type teacher and the sequential learning that is carried out in periodic contacts with students.

To reiterate the premise of this book: instructional subfunctions or roles are so diverse and require such different mixes of tasks, talents, and temperaments that the smaller parts must be played by more than one person. Yet, competency in any one of these is a necessary but not sufficient condition. In all work organizations, for successful outcomes to emerge, in addition to proficient workers performing the required tasks, there must be a compatibility among the three elements--the tasks to be performed, the talents needed for the tasks, and the temperaments that are likely to result in satisfaction and motivation (see Cannon-Bowers, Tannenbaum, Salas, & Volpe, 1995). Further, there must be a recognition of the role relationships and associated social relationships among the workers. This means that differentiated functions must be successfully integrated across interdependent workers, or there will be a breakdown in the performance of the overall function (Lawrence & Lorsch, 1967).

The belief of the authors in this book is that in most colleges and universities, the matching of tasks, talents, and temperaments has not been properly addressed in the last fifty years, as the complexities of the delivery of higher education services have become more profound. The structural division of faculty labor for teaching and research and within teaching in most colleges and universities does not attend to this "matching" prerequisite, thus a large majority of faculty are less effective than they might be and are less personally satisfied.

In addition, the usual approach of recruiting allegedly "multitalented" faculty to perform the vast variety of different roles they play (as many as 325--see Bess, 1982) is now largely inappropriate. The subject of the connections among faculty roles is not new, of course, especially in the light of the extensive literature exploring the relationship between teaching and research (Faia, 1980; Finkelstein, 1984; Clark, 1987; Hammond, Meyer, & Miller, 1969; Cohen & Braver, 1996; Bess, 1997). The argument suggested here is that the manifold functions and tasks required of faculty are now so extensive that effective professional education and training for each of them are not possible in the time frame of the typical doctoral degree period of study. Moreover, and equally important, it is highly unlikely that the psychological dispositions that are needed for faculty to find enjoyment and satisfaction in all or even most of the tasks will be present in single individuals. Indeed, the opposite is more probable. The composite of different tasks in the current faculty role and the teaching subrole require not only different skills and talents but also varied personality dispositions, some of which may be "intrapersonally incompatible." This means that if a person is psychologically inclined to engage in one, it is quite possible that he or she will not wish to do the other. In sum, the complex mix of tasks, talents, and temperaments required for performing the faculty role demands a fresh look at how the entire enterprise is "packaged" and who should carry out the tasks. This enormously complicated subject is limited in this book to the role of teaching in higher education, the work of which is itself extremely complicated and multifaceted.

Before discussing the tasks of teaching, however, it is important conceptually to lay out the framework for understanding tasks in general and their place in an organizational system with intentional outcomes (Tschan & von Cranach, 1986). It will then be possible to apply this conceptual model to the analysis of teaching tasks. Typically, a task in an organization refers to a concrete segment of work that is performed by a single organizational member. It can be characterized by its relative complexity, divisibility, novelty, interdependence, and capacity for standardization (a function in part of its conceptual nature), different tasks varying in these dimensions (Tschan & von Cranach, 1986). Tasks are set in a bureaucratic structure that is partially constrained by the

technologies needed to accomplish them (and often by philosophical or value assumptions about the technologies). For example, some organizations can employ simple technologies that allow workers to follow published manuals or guidebooks, whereas other types of organizations face uncertain environments or variable raw material quality that require their workers continually to invent solutions to unique problems (Perrow, 1970). Still other organizations require processing of raw material involving sequential, reciprocal, or pooled interdependence of tasks that at least partially dictates the organizational structures (Thompson, 1967). Structures are also bound by accepted or intentional cultures and by the uniqueness of the people who are employed. As will be seen later, it is reasonable to question the bases for the conceptualization of teaching tasks and the associated constraints on organizational arrangements for the accomplishment of organizational purposes.

Task complexity, divisibility, novelty, standardization potential, and interdependence are the ingredients of the field of job design in the organizational theory literature, particularly that part of it that is concerned with reengineering (Hammer & Stanton, 1994). The latter involves the replacement of the dated conceptions of the ways tasks have been performed previously and of the static, unexamined current task relationships. This is followed by attempts to connect more intimately the work that needs to be done with the needs of clients to be served.

As the basic ingredient of job design and reengineering is the "task," attempts have been made to develop exhaustive lists of categories describing task dimensions. In Exhibit 1.1, for example, are some categories from the Position Analysis Questionnaire developed at Purdue University, with some refinements offered by Richard Tiberius that suggest one way of meaningfully differentiating among tasks (see Homans, 1950; Freidson, 1973; Abbott, 1988). These distinctions can usefully be applied to the domain of teaching.

Tasks of Teaching

As the authors of this book reviewed the tasks of teaching in the light of these and other categorization schemes, it became clear that teaching policies and practices depend very much on conceptualizations of, or at least assumptions about, the goals of postsecondary education. As these vary by and within institution, discipline, and constituency (faculty, students, administrators, and external stakeholders), the conception of which tasks are considered within the realm of teaching differs markedly, partly because of the goals of each constituency (Hativa & Marincovich, 1995).

For example, across the range of Carnegie-type institutions and others outside (such as the military and the corporate sector), what constitutes teaching differs in important ways. A related set of differences occurs with respect to the structure of knowledge across disciplines (Donald, 1983). The work of the teacher is specialized depending on the structure of knowledge in the course or seminar being taught. Thus, not only is English different from physics, but the philosophical assumptions and sociological characteristics of each discipline and even departments within them vary (Adkinson, 1979). One department may see truth as "personal meaning," another as "empirically verifiable facts," and so forth. What is taught and how it is taught and what kinds of teachers are necessary to teach it are also different. As noted earlier, in higher education, these epistemological differences among the faculty in the various disciplines (see Mannheim, 1952; Bell, 1966; King, 1966) represent a somewhat arbitrary acceptance of the structure of knowledge as it has evolved as legitimate grounds for the division of labor, not only for research but also for the proper organization of teaching.

In addition to the qualitative or philosophical differences by disciplines, the constituencies that use the products of teaching also have different conceptions of their

nature. The corporate sector, for example, may expect skilled novices to be produced at colleges and universities. Hence, to meet their expectations, "training" would constitute the prime appropriate method of teaching. The external public at large, on the other hand, may expect to receive as college graduates "civilized" men and women, who can and will participate meaningfully in civic and cultural affairs. Education in values and values sensitivity may thus be required, and educational processes such as multicultural awareness workshops and peer-led philosophy discussions would be legitimate. The science community may wish to have sophisticated problem solvers, who are knowledgeable about pressing contemporary technological issues and problems, thus requiring much laboratory experience and mentoring. As a final example, students themselves may be seeking personal, vocational, and even racial "identity." Such objectives may involve still other pedagogical approaches. Thus, not only does the subject matter for teaching differ according to goals, but the methods to be employed vary as well according to the expectations of the final student product.

In point of fact, each of these examples of expectations of goals and methods of teaching may demand an entirely different set of skills of the teacher. For the purposes of explaining the themes of this book, however, the authors have made some fairly traditional assumptions about the goals of instruction in undergraduate education. Among these are that the instruction is primarily intended to introduce new ideas; expand interests; develop critical thinking skills and habits; encourage divergent thinking; engender exploration of alternative ranges and manifestations of personality; foster relativistic thinking, especially about values; and generate tentative commitment to some of these values. (Training in vocational skills, especially at community colleges, might be added.) No mean feat! This is obviously a simplification, but it permits a unifying approach for the authors of the chapters. Doubtless, others with different conceptions of teaching will see alternative configurations for designing the system.

Even this restricted definition of the goals of instruction in colleges and universities, however, evokes a wide variety of processes that must be mastered in order to achieve the ends of teaching. Note that the word processes is the focus of the design. This is not to suggest that subject matter should be abandoned as a basis for organizing teaching in higher education, though as noted above, there is some reason to believe that the current disciplinary boundaries that now define the tasks are more responsive to the epistemological and ontological assumptions of researchers in the fields than to the needs of learners. Reconceptualizations of the curriculum across disciplines, however needed, are beyond the scope of this volume.

The tasks of teaching that the chapter authors take up constitute subfunctions or roles traditionally performed by faculty as teachers in higher education. The core of essential tasks that are associated with each are described, and their relations to other subfunctions are indicated.

Talents (Skills) of Teaching

The argument put forth here is that the processes of transferring knowledge, of engendering value awareness, of developing critical thinking, or of facilitating growth and development require not only mastery by the faculty member qua expert of a body of knowledge but also high-level competencies in multiple teaching methods and technologies--each of which, in turn, involves a diverse set of skills, as the chapters that follow illustrate. The enormous variety of teaching tasks demanded of faculty gives rise to the question of whether they can do all of them equally well. It is likely that few individual faculty members have the skills to perform with equal competence all or most of the major roles in their academic assignments or even the main teaching tasks that are

required of them.

Teachers, therefore, must become specialized "experts." Hence, the relationship of skills and talents to the concept of expertise is important to clarify. In our view, teaching expertise is not a generalized capability. It is quite specific and is acquired through the course of long study and experience. The exercise of expertise is manifested as a combination of behaviors elicited from personally organized cognitive memory banks; from informal, disorganized bits of knowledge; and from intuition informed by experience. The focus of faculty in seeking to enhance their expertise is circumscribed. As Johnson (1988) notes, experts (in contrast to amateurs) "appear to use their knowledge to examine only information that they consider diagnostic, limiting their search to a smaller subset of the available information" (p. 217). Walton (1997) has much to say on this subject, and it is worth citing a long section of his work. He notes that: [S]omeone is an expert not only because she knows a lot of facts, but because she can carry out certain actions in a skilled, smooth, and practiced manner, applying their knowledge in a clever way to specific tasks and problems. Emphasizing this practical nature of expertise, Dreyfus and Dreyfus stress that expert actions are carried out smoothly and automatically, and that an expert action is not characteristically carried out by detached or conscious decisionmaking or problem solving. Dreyfus and Dreyfus distinguish five stages in the skill acquisition process of an expert:

- (1) novice,
- (2) advanced beginner,
- (3) competence,
- (4) proficiency, and
- (5) expertise.

In the evolution through these stages to expertise, Dreyfus and Dreyfus see a refinement of intuitive skills that become so ingrained in the expert that she is hardly aware of them. An expert's skill has become so much a part of her that she need be no more aware of it than she is of her own body' (1986, p. 31). According to their account, expertise is a kind of holistic, situational understanding that cannot be expressed as a calculative or conscious sequence of reasoning that proceeds by applying rules to facts. Although decisions are made in a more analytical way at the four lower stages of skill acquisition, the fifth stage of expertise is more intuitive [p. 111].

This is a somewhat surprising notion of an expert since an expert is usually conceived as a "source of information." However, as Walton notes, expertise involves more than cognitive skills--or, in the case of teaching, more than subject matter knowledge. It embodies the skills and talents of "knowing how"--the practical reasoning and tacit or intuitive knowledge that the craft of teaching requires. Further, as Johnson notes, in many ways, expertise is paradoxical. He notes, "As individuals master more and more knowledge in order to do a task efficiently as well as accurately, they also lose awareness of what they know" (1983, p. 79). The question of expertise has relevance for the reorganization of teaching as it is put forth in this book since it asks whether the knowledge of subject matter and the knowledge of how to engage in the tasks of teaching can be incorporated in single individuals. If it is true that experts as qua possessors of knowledge lose the ability to discern how the complexities and nuances of the subject matter can be conveyed to novices, then it may be more sensible to assign the tasks of knowing (and finding out) to specialists with talents and skills in that area and the tasks of utilizing that knowledge to other specialists with other talents and skills. As Walton (1997) also notes: "On account of the inaccessibility problem and the paradox of expertise, the interface between the expert source and the layperson user needs to be a complex layer of judgments, explanations, questions, and so forth. When dealing with encounters of the kinds of high-level human experts encountered in typical cases where

the argumentum ad verecundiam might be a fallacy, there is a gap between possessing knowledge and transmitting it to a nonexpert" (p. 114).

An additional argument for separating the teaching subroles involves the sensitivity of teachers to their students. Bereiter & Scardamalia (1993), for example, citing Robert Welker's work, note that "teachers must be caring, sensitive people and ... teaching is a complex human enterprise that cannot be reduced to technique. Teachers ought not to seal themselves off as an elite community of experts, but ought to be involved with and responsive to the communities in which they serve" (p. 8).

The point is not that teachers do not have to be experts but that different kinds of expertise are required for competent teaching, and not all faculty possess them all. Certainly, not all faculty can be characterized as "sensitive" experts in teaching in the sense cited above, but most assuredly, some faculty can be so described. Their special talents and expertise, then, might better be attached to a team effort in which it will complement other kinds of expertise needed for teaching and held by other team members.

Temperaments of Teachers

Temperaments refer to the variety of psychological characteristics that individuals possess that are primarily derived from genetic dispositions and that are sustained throughout the life cycle. As Roe (1984) suggests, in attempting to conceptualize individual characteristics, it is important to identify "basic" features that cannot further be reduced to other, more fundamental constructs and that are not subject to change owing to temporal vicissitudes. He suggests that it is possible to create an exhaustive vocabulary for individual characteristics that includes three dimensions--dispositional characteristics or personality traits; habitual characteristics or knowledge, aptitudes, skills, attitudes, expectations, and habits, which are acquired through learning and then form a stable resource set guiding action; and motivational characteristics or relatively enduring mental states, which direct behavior that is evoked repeatedly when exposed to the same or similar stimuli over a period of time. Of these, personality has appeared through research to be the most powerful predictor of behavior, though Roe identifies other individual characteristics that are important differentiators--intellectual abilities, character traits, interests and values, motor abilities, sensory abilities, knowledge and skills, and biographical characteristics. Certainly, the works of Howard Gardner (1983, 1993) and Daniel Goleman (1995) have introduced the notion that there are wide ranges of personal characteristics that differentiate people. In higher education, Blackburn and Lawrence (1995) found that preferences for teaching versus research varied by personality type.

With more specific reference to the teaching function, when William McKeachie (1997) asks the question, "How do teachers differ from one another?" (p. 396) his purpose is to revisit the question of whether certain personality characteristics are related to effectiveness in teaching (as rated by students). McKeachie believes that the now well-researched personality dimensions in the Big Five (Hogan, 1991) constitute a reasonably exhaustive set. These are extroversion-introversion, agreeableness, conscientiousness, emotional stability-neuroticism, and culture (openness to experience). (This five-factor model is intended to be illustrative only. Some recent research suggests, for example, that it does not appear to measure interest and activity patterns that are covered in other personality measures. See Schinka, Dye, & Curtiss, 1997.)

Hypothetically, these same five dimensions can be related to the preferences of faculty for the widely varied multiple tasks of instruction and the skills needed to accomplish them. Moreover, given equal levels of competence, individuals whose temperaments are

matched to their assigned tasks will perform more effectively (on the assumption that higher motivation and commitment are generated). For example, it is entirely possible that "introverts" prefer certain kinds of teaching tasks that do not require overt expressiveness and that they are more effective when they are called on to act out these less emotionally revealing roles. "Extroverts," on the other hand, prefer another set of tasks and would not be happy, say, closeted in a library doing research for teaching all day.

What is important for the theme of this book is to note the probability that for each of the different subroles identified above and described in later chapters, different kinds of personality are more suitable. Presumably, a "profile" of scores on each of the Big Five would characterize each of the major teaching roles in higher education, and the profiles would be significantly different from one another. Thus (to present one hypothetical characterization), a teacher qua researcher might be found to be introverted, disagreeable, conscientious, emotionally stable, and closed to experience; whereas a teacher qua lecturer in the performance part of that role might have a personality that is extroverted, agreeable, not too conscientious, slightly neurotic, and open to experience. (Readers who find these caricatures to be stereotypes are invited to reverse the attributions, which were created only to illustrate a point and are not based on any empirical research whatsoever nor intended to reflect any judgment on the tasks or the faculty who perform them.)

There is a considerable record of research in the area of matching personality and vocational choice, especially in the work associated with the production of the Dictionary of Occupational Titles (U.S. Department of Labor, 1986) and with career counseling in general, especially Holland's (1992) work. As contemporary organizational psychologists now report, the efficient utilization of human resources in organizations is advanced when there is a "fit" between individuals and their jobs.

Job analysis in general involves a scientific study of jobs and the preparation of descriptions of the extant tasks and mental states. Here, for teaching, we have disaggregated the usual "job" of teaching into component parts and are suggesting, sometimes speculatively, what knowledge, skills, and attitudes are required. Further, this book, in contrast to past literature on teaching, introduces the idea of "person-environment fit" (Ostroff, 1993; Pervin, 1989; Tranberg, Slane, & Ekeberg, 1993; Livingston, Nelson, & Barr, 1997). Commonly in the past, task analysis meant the examination of jobs from the perspective of the employer only--seeking to describe jobs in terms that would maximize the output of an incumbent jobholder. In the case of this book, we add a motivational component: we argue that it is not only necessary to identify job characteristics that will maximize output, but it is also important to place only those workers whose personal characteristics match the requisite job requirements, because such a match will ensure a continuity of satisfactions and motivation (Dawis & Lofquist, 1984). For example, whereas from the perspective of the organization, a job may not require the job characteristic "autonomy," from a motivational point of view, autonomy, especially for most professionals, will contribute to sustained satisfaction.

To illustrate, in a meta-analysis of the congruence between interests and occupational satisfaction for adults who were no longer students, Tranberg et al. (1993) found an average correlation of .317 (see also Edwards, 1991; Kilmann & McKelvey, 1975; Mitroff, 1983; Chatman, 1989; Ostroff, 1993). Translated to organizations like colleges and universities, this finding suggests that faculty who are "fitted" psychologically to the tasks will find greater satisfaction in their work and presumably will be motivated to work hard (though, see Blackburn and Lawrence, 1995, p. 98).

Faculty not only must have the dispositions that match the knowledge-based disciplines

in which they have been trained and which they now teach but also must be matched psychologically to the processes in which they engage to connect the material of their disciplines to the constituents they are serving. The fit, in other words, is both to the character and structure of the knowledge in their field and to the procedures they follow to extract that knowledge, transform it, and communicate it. Note that the "processes" themselves are embedded in specialized bodies of knowledge that must be mastered by the role players. Thus, the teacher as actor must have profound knowledge of the "methods" of acting ("knowing that" in addition to "knowing how"). The proper fit of temperament to both subject matter discipline and methods involved in the task will enhance motivation, commitment, and ultimately, personal and organizational effectiveness.

Sociotechnical Organizational Design

Research has demonstrated that the most effective organizations have found ways to integrate the three realms discussed above--tasks, talents, and temperaments.

Sociotechnical design suggests that when it is necessary for workers in organizations to be engaged in tasks that are interdependent--that is, when there is a logical and practical connection among them--workers must also be connected psychically. Sociotechnical systems design focuses on both the technological and the social conditions of tasks, so that they account for both the technical and social relationships among workers (Klimoski & Jones, 1995). It also involves the creation of self-managed teams of workers who have confidence in one another and whose work is complementary. More will be said on the subject of teams in Chapter Nine.

Compare, for example, the idea of groups of faculty members working together in teams with the finding of Trist and Bamforth (1951; see also Herbst, 1974; Cherns, 1987; Trist & Murray, 1993), early researchers on sociotechnical systems, regarding the wisdom of self-managed teams in underground coal mining.

In the underground situation external dangers must be faced in darkness. Darkness also awakens internal dangers. The need to share with others anxieties aroused by this double threat may be taken as self-evident. In view of the restricted range of effective communication, these others have to be immediately present. Their number there is limited [p. 7].

Under these conditions, as Miles (1980) notes, the difficulty of seeing in the dark and the autonomy of the work groups in the underground tunnels prevented continuous close supervision. Citing Trist and Bamforth, he notes,

The small group, capable of responsible autonomy, and able to vary its work pace in correspondence with changing conditions, would appear to be the type of social structure ideally adapted to the underground situation. It is instructive that the traditional work systems, evolved from the experience of successive generations, should have been founded on a group with these attributes" [Trist & Bamforth, 1951, p. 7].

Instead, then, of autonomous individual faculty, isolated in their classrooms, who rarely discuss their instructional challenges or problems, rarely confess their teaching failures and perceived inadequacies, and seldom even laud their successes, the potential "social dimension" of the work of teaching suggests an alternative, more collaborative mode. Such an organizational arrangement would permit complementary talents and temperaments to be joined in a social setting that encourages high sustained motivation and results in both individual and group satisfaction. It would also facilitate the smooth communications required for interdependent tasks.

The policy implication of these theses, if true, suggests that the teaching role as comprising many subroles must be "repackaged" in personally and organizationally desired ways and that the new task clusters must be performed by more narrowly specialized (and hence more competent and motivated) faculty in "teams." Thus, a reconstituted teaching role in higher education would call for more role specialization and the assignment of faculty with dispositions appropriate to these more technological processes, rather than (or in addition to) the more traditional subject matter departments. Further, a new form of "team teaching" that integrates the technological and pedagogical specializations would be required. This team teaching is quite different from usual notions of team teaching that aggregate faculty from different subject matter disciplines (though such mergings of subject matter interests would still be quite appropriate). Rather, it brings together specialists from the same subject matter area who possess different job skills and who perform significantly different tasks (see Orsburn, Moran, Musselwhite, & Zenger, 1990).

Differences Among the Subroles

As noted in the Preface, there are seven central subroles that constitute teaching--pedagogy, research, lecturing, leading discussions, mentoring, curricular-cocurricular integration, and assessment. It should be plain from this mode of disaggregation of the usual composite teaching role that each of the subroles is quite different, requiring among faculty dramatically different skills, interests, and personalities. A summary of these differences is presented in Exhibit 1.2. It is suggested here that very few, if any, faculty members are so broadly talented or psychologically disposed as to engage in all of the roles. This conclusion directs us to a reconceptualization of this portion of the teaching role (also, incidentally, of other portions). What is needed is a formal organizational reclassification of the different kinds of college teaching subroles, with faculty recruited as specialists for those positions. Concomitantly, universities would have to change their graduate education modes radically in order properly to train new faculty in the subroles. Needless to say, they should already be providing such instruction, but as is quite clear to most observers, the typical faculty career track prepares would-be faculty only for the first of the disaggregated roles--researcher for publication.

Implementation

In these days of severe budget stringency, some may wonder how these subroles can be filled without the addition of new faculty with the required specialized skills. In point of fact, more faculty may not be needed. What is proposed is not additional teaching tasks, but the assignment to interested specialists already on staff of tasks currently being carried out by other faculty as generalists (and the reassignment of unwanted tasks of the recipients of the new roles to others who view them as desirable). Thus, "researcher types" might expand their knowledge vistas, while others, freed from research responsibilities, might concentrate on pedagogy, lecturing, conducting discussions, mentoring, working with out-of-class constituencies, or evaluation.

The adoption of this plan could make colleges and universities more efficient through the usual savings derived from specialization of labor in any field--that is, having more highly skilled, motivated, and trained people performing tasks that they find intrinsically satisfying. With this redistribution of labor, faculty who like to do research will simply do more of it; those preferring to do different types of teaching will do more of that (Bess, 1982). An additional expense may be occasioned by the minor bureaucratic cost of coordination of team members performing the subroles. Recall that such coordination has historically been hidden in the intrapersonal linking of the teaching and research roles--that is, by each faculty member, rather than across different faculty members. Theorists of organizational decision making suggest that individual decision making is more efficient when tasks are simple and skills of workers are homogeneously

distributed. When tasks are complex (requiring a variety of skills and knowledge) and when those attributes are distributed across many workers, then group decision making becomes more efficient. (See the classic literature on this subject beginning with Kelly & Thibaut, 1969.)

The new costs of interpersonal coordination of team members, however, may be quite small, as self-managed teams of professional role specialists learn to link their differing responsibilities (Orsburn et al., 1990; Wellins, Byham, & Wilson, 1991; Manz & Angle, 1986). Such a restructuring, then, does not deny the position of Boyer (1990), who asserts that the four categories of scholarship--discovery, integration, application, and teaching--"are tied inseparably to each other" (p. 25), nor of Clark (1987), who says that academic work requires a seamless blend of activities. The case for this new restructuring alleges instead that interpersonal rather than intrapersonal linkages across these functions must be structured into the occupation of teaching. Indeed, it is likely that the interactions among faculty surrounding teaching tasks--an infrequent occurrence in today's academic environment--might generate new norms of commitment and excellence to teaching.

Not Scientific Management

Some might object to this proposal on the grounds that its emphasis on specialization makes it vulnerable to criticisms similar to those rendered against Taylor's scientific management philosophies in the early part of the twentieth century. As Taylor (1978) noted:

It becomes the duty of those on the management's side to deliberately study the character, the nature, and the performance of each workman with a view to finding out his limitations on the one hand, but even more important, his possibilities for development on the other hand; and then, as deliberately and as systematically to train and help and teach this workman, giving him, wherever it is possible, those opportunities for advancement which enable him to do the highest and most interesting and most profitable class of work for which his natural abilities fit him, and which are open to him in the particular company in which he is employed [p. 18].

Faculty are not, clearly, replaceable parts of a machine. They are autonomous professionals, now moving into a technological age that requires interdependent relations with other professionals (Adler, 1997). To avoid both "deprofessionalization" and "deskilling" (and their associated dehumanization and demoralizing consequences), faculty would need to have opportunities with reasonable frequency to rotate through the various teaching subroles, as developing interests and needs dictate (their "permanent" temperaments to the contrary, notwithstanding). Indeed, all faculty in their successive role incumbencies will benefit from the comprehensive education they will gain in the diverse phases of teaching that they will experience. They will thus be better able to understand and deal with others performing specializations different from their own. This redefinition of the faculty role may enlarge the discussion of graduate education to include a fresh look at preparation for teaching. It is beyond the scope of this chapter to speculate on the nature of professional specialization and external associations that might support these activities, though in truth, both now exist in inchoate form. Most workers in Japanese organizations are shifted through many roles in order partly to give them a broader set of skills and partly to enhance cooperativeness in interdepartmental decision making. So also in higher education, faculty must want to collaborate and be able to do so with skill.²

Summary

It is important to end the myth of the necessary integrity and effectiveness of a single

multifunctioned professional faculty member (Charns et al., 1977). Few persons can competently perform all of the parts of this highly complex role, nor even of the instruction segment illustrated here. Few persons are likely to be interested in and to derive satisfaction from performance of each of the diverse aspects of the role, which demand quite different skills and provide very different kinds of rewards. It is necessary, therefore, to recognize the need for more role specialization that will use skills more efficiently and will provide more satisfactions to those performing the tasks. The omnibus role of teaching in higher education might well be formally disaggregated and candidates found to fill the different parts. Teaching by means of teams of experts in the tasks, rather than (or in addition to) the subject matters, must be considered as the organizational paradigm of the future.

Such organizational designs are not new in the corporate world and have been found to be both organizationally efficient and personally rewarding.³ Moreover, the development of organizational structures in colleges that "require" the formal interaction of faculty role players will have the additional benefit of enhancing the sense of community on college campuses. The current practice of leaving self-serving faculty to their own parochial interests has long been lamented for its resulting isolation and insularity. Although the essence of professionalism demands individual autonomy, to improve teaching effectiveness amid the complexity of new technologies, that autonomy must be set in the context of group efforts.⁴

Planning for these emerging events will be difficult because significant changes in roles and role players are involved. In most cases, a full complement of faculty personnel willing and able to fill new roles may not presently be available on campuses, especially smaller ones. A first step in the planning process, then, requires an assessment of the requisite organizational positions and following that of the faculty preferences for those positions (see Kilmann, 1977; Kilmann & McKelvey, 1975). Clearly, the open and complete involvement of faculty in the planning stages is an absolute necessity. Implementation of the plan will take a long period of time, since recruitment of new faculty will be needed to fill missing slots. Furthermore, as with any change, there will be resistance, as faculty career tracks typically are well established, both internally and externally. The system does not presently reward the kinds of specialization prescribed above. In many ways, however, the gradual implementation of the program can be expected to result in the generation of external rewards--within and across campuses that support it. (There is already some movement in this direction. See, for example, the "excellence-in-mentoring" awards for faculty at Harvard [John Harvard's Journal, 1999].) The reason is that the plan is based on the assumption that the organization's new role system will make more readily available the satisfaction of intrinsic faculty needs. The manifestation of these satisfactions among faculty will cause them to move toward the implementation of an external reward system that supports the continuing satisfaction of those intrinsic needs. Such is the case for the current reward system that supports intrinsic faculty satisfactions from research successes.

College and university organizations are creaking with old age. They have not responded to the new waves of technology, nor even to the basic requirements for effective teaching. The time is upon us for a fresh look at the organizational requirements for high-quality teaching in the twenty-first century. If we do not take this fresh look, the critics alluded to in the Preface will become even more vociferous--and rightly so.

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