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Present faculty development practice encourages new faculty to integrate teaching, research, and other aspects of academic work early in their careers. By drawing on both the cognitive and the developmental psychology literature, we propose integration as an advanced stage of adult development that comes about as a result of extensive experience and expertise. We argue that faculty should be advised to focus on either research or teaching at different times during their early years and that integration of professorial roles should only be expected at a later stage. We discuss the implications of such an approach for faculty development.

The present culture of higher education, characterized by high demands for accountability in both research and teaching, leads administrators to encourage faculty to integrate research and teaching in the early stages of their career. Such integration occurs, according to the common understanding, if faculty are involved in all aspects of academic work and contribute to teaching, research, and service work. New faculty are expected to develop a program of research early while also sharing a heavy involvement in undergraduate teaching. A concern that present expectations of new faculty, particularly at research universities, might be excessive is articulated in a recent article by Bean (1998) who shared the following experience:

> An assistant professor coming up for tenure confided in me that her publications and teaching record were fine, but she didn't

> have a "big grant" and might not get tenure. It may not be enough to be a scholar and teacher, one also needs to be an "entrepreneur" (p. 509).

New faculty are not only expected to teach and publish but to also bring in external grant money.

Expectations change as faculty gain seniority and experience. Reaching the highest professorial rank, for many faculty, entails the privilege of teaching more graduate courses and focusing their career on either teaching or research. As faculty become more experienced, specialized, and expert in faculty work, the level of integration of all professorial roles ironically seems to decrease. This is an interesting phenomenon in light of the research from cognitive and developmental psychology that suggests a movement not from integration to specialization but from a stage of fragmentation to one of greater specialization *and* integration. In this conceptual article we propose a new model of thinking about faculty work with the goal of examining some of the assumptions about faculty development that we have come to take for granted. It is our intent to demonstrate that faculty careers might be more meaningfully conceptualized as a process of moving from fragmentation to integration, as professors, over time, develop work-related expertise, rather than, as is the case now, one of moving from integration of all professorial roles to greater specialization. Our four specific objectives are:

- To identify what we mean by the term integration
- To discuss how faculty development is presently conceptualized and practiced
- To present an alternative conceptualization derived from cognitive and developmental psychology
- To demonstrate the implications the model has for faculty development at the individual, departmental, and organizational level

Integration

For many years higher education scholars have struggled with the notion of integration of teaching and research as initiated in the German research university of the 19th century. Some have dismissed such integration as a *myth* (Weimer, 1997) given the realities under which late 20th-century American universities operate. Studies investigating the relation-

ship between these two important strands of faculty work find little or no correlation between the two when the analyses are based on performance outcome measures such as numbers of refereed publications and student ratings of instruction (Braxton, 1996; Feldman, 1987; Hattie & Marsh, 1996). However, such studies have been criticized for ignoring the complex nature of research and teaching and the critical points where the two might intertwine.

Recently, scholars point to what they perceive as a natural synthesis or integration of teaching and research, which can be observed when university teaching is inquiry- or discovery-based (Clark, 1997; Colbeck, 1998; Rowland, 1996). Colbeck (1998) writes in this context that integration can be observed when "faculty occasionally engage in activities that accomplish teaching and research goals at the same time" (p. 648). While this symbiosis of research and teaching is found primarily in graduate seminars, the same authors also suggest that undergraduate teaching would be greatly enhanced by such a symbiosis.

But how do faculty themselves perceive the question of integration? On the basis of a study of 12 professors holding administrative positions as heads of their departments at a British university, Rowland (1996) summarizes his findings as follows: "All those interviewed expressed a view that active involvement in the research process directly improved the quality of teaching" (p. 13). Interestingly, though, all 12 informants of this study had extensive experience as members of the professoriate and had reached the highest professorial rank. In a study comparing administrators' and faculty's attitudes towards teaching and research, Li-Ping and Chamberlain (1997) report that administrators feel that research and teaching are mutually supportive, whereas faculty feel that research interferes with teaching and that they should be required to do either teaching or research but not both. While the two groups were compatible in terms of length of service, it should be noted that the study was based on a sample of 232 faculty at different career stages, with 142 faculty being at the ranks of assistant and associate professor. As the survey results were not broken down by length of service or professorial rank, it is difficult to tell whether more experienced faculty might have shared a view that mirrors more closely that of administration.

If it were indeed true that experienced faculty perceive a greater sense of integration than their less experienced colleagues, could this be the result of senior faculty having a greater opportunity to incorporate their research into their teaching? Often experienced senior faculty are in charge of small doctoral-level seminars in which there is plenty of

opportunity to discuss and disseminate the results of their own work. Such seminars also offer the needed motivation and intellectual stimulation to further one's research. Junior faculty on the other hand are often expected to teach undergraduate courses unrelated to their doctoral studies, allowing little opportunity to incorporate their own research ideas. At the same time, new faculty are also encouraged to develop a program of research and to participate in community work. What appears to be integration on the surface may, considered at a deeper level, only be a mosaic or fragmentation of professorial work loosely held together by the pressures of institutional and individual accountability.

We do not argue with those of our colleagues who defend the traditional notion of "integration" of research and teaching and point to the pedagogical value such an orientation would have at the undergraduate level. To the contrary, we support an approach to teaching that is characterized by a pedagogy of helping students identify and solve problems and arrive at an understanding of how knowledge in the discipline is created. We do suggest though that it is the more experienced faculty, rather than the new faculty, who have the expertise to face the challenges that this type of integration requires. Expecting new faculty to carry out this important task might be grounded on a misconception of what such an integration entails.

Trends in Faculty Development

Since the mid-1970s, there has been a clear trend in higher education to expect new faculty not only to be productive in research but also to pay greater attention to teaching (Centra, 1993). Weimer (1990) writes in this context that "faculty development started out meaning the enhancement of teaching skill but soon became a more inclusive term connoting a broad range of professional activities, from support of scholarship to counseling on personal problems that impinge on professional effectiveness" (p. xv). By the mid-1970s, it was proposed that faculty development be more than the improvement of instruction alone and be a means of facilitating faculty renewal and vitality through changes on the personal or faculty level, on the departmental or instructional level, and on the organizational level (Berquist & Phillips, 1975; Gaff, 1975). Despite their intuitive appeal, the implementation of these comprehensive programs remained limited.

Since the early 1990s, as funding for higher education has been increasingly curtailed and demands for accountability have steadily

increased, there is a renewed interest in comprehensive faculty development programs that assist faculty in developing the competencies needed not only for teaching but also for research and service (Bland & Schmitz, 1990; Boice, 1992; Hubbard, Atkins, & Brinko, 1998; Schuster & Wheeler, 1990; Sorcinelli & Austin, 1992). In this context, Gaff (1994) describes those programs that support the growth of faculty members in all aspects of their work as the most sophisticated. Boice (1992) suggests that programs to help new faculty resolve the tensions and stresses of competing work demands can result in more effective teaching and research. Johnston (1997) advocates holistic programs that introduce new faculty to teaching, research, and the interrelationships of both. Such programs assist faculty to understand their roles as *faculty*, not just their roles as teachers or researchers. The assumption underlying these models is that faculty's needs are best met by programs that assist them in performing all their professorial roles at once. In many ways such models should be applauded as they are a direct response to new faculty who are often expected to teach courses nobody else wishes to teach (usually at the undergraduate level), to make themselves available as supervisors to students working on topics outside their area of expertise, to serve on committees, and above all to develop a program of research. However, while integration of academic work is the desired outcome of these expectations, it is in fact a sense of fragmentation of work that is maintained.

An interesting alternative to such a comprehensive program is envisioned by Candy (1996) as well as Brew and Boud (1996). Candy draws on two ideas from Boyer (1990): his four-faceted model of a scholarship of discovery, application, teaching, and integration, and his notion of seasons or cycles of faculty concentrating on, or specializing in, different aspects of scholarship for certain periods of time. Candy (1996) proposes that an effective faculty development program would take into account these seasons and hence "[need] to be comprehensive and not fixated on one aspect of academic work, nor offered just once and then set aside" (p. 12). Brew and Boud (1996) echo such a view when they argue that faculty development programs need to be holistic and, as such, "acknowledge diverse roles and work patterns"; "recognize that roles and responsibilities will shift throughout careers"; "prepare staff at each stage of their career as they take on new roles and responsibilities" (p. 20); and "incorporate a staged approach which corresponds to different needs at different times" (p. 21). Candy's (1996) and Brew and Boud's (1996) models differ from the others discussed earlier in that they challenge the assumption that faculty need to learn to integrate all their professorial

roles at once. The following model draws on their framework and adds to it the notion of fostering integration in later career stages.

An Alternative Model

It stands to reason that as faculty gain seniority and move through the academic ranks they also become more expert in academic work. But do all faculty automatically become experts at professorial work? Cognitive science research on the development and nature of expertise shows that expertise is acquired through active engagement with experience or, as Bereiter and Scardamalia (1993) suggest, through "progressive problem-solving" (p. 120). According to this view, people who engage in progressive problem-solving continually reinvest the mental resources that have been set free by the process of pattern learning and automatization in problems that are typical for their practice or work domain. In other words, progressive problem-solvers are not satisfied with following certain routines and algorithms when dealing with tasks but do so only to the extent that existing algorithms allow them to concentrate their energy on exploring the problem in greater depth. As a result, they approach problems at increasingly higher levels of complexity, which, in turn, leads them to develop more sophisticated skills and knowledge. Put differently, as the job gets easier with experience, time, and repetition, one gets a better sense of the broader picture, is more likely to take risks, and takes more and more variables into account when defining and solving the problem. This leads to a more integrated body of knowledge. Interestingly, while the role of experience in developing professional knowledge has repeatedly been highlighted for the teaching profession (Calderhead, 1988; Russell & Munby, 1991; Schön, 1995; Tiberius, Smith, & Waisman, 1998), it has not been similarly highlighted for the academic one.

What might be some of the tasks or problems that typically engage faculty? Braskamp and Ory (1994) provide a fairly comprehensive list of the tasks that constitute faculty work. The authors list 75 different activities or tasks that faculty do, 39 of which pertain to faculty's teaching and research roles. To provide just a few examples, we have selected ten tasks from their list, five each for teaching and research.

Teaching

- Advising students on their senior research projects, theses, and dissertations
- Developing, reviewing, and redesigning courses

- Instructing students in courses, laboratories, clinics, and studio classes
- Developing teaching materials, manuals, and software
- Managing a course (grading, maintaining student records, and planning learning experiences)

Research

- Writing proposals to funding agencies
- Writing books, monographs, and textbooks
- Writing papers in refereed journals and conference proceedings
- Editing journals or other learned publications
- Managing and serving as consultants of exhibitions, performances, and displays (Braskamp & Ory, 1994, p. 43).

Clearly, as this short list of examples of academic tasks shows, the work faculty do is multi-faceted and challenging. From a cognitive psychological perspective (Bereiter & Scardamalia, 1993; Tennant & Pogson, 1995), each of these tasks or activities can be considered a potential problem to be solved. Repeated engagement, or simply *experience*, with these tasks results in more advanced ways of conceptualizing and solving the problem or, in other words, in more sophisticated cognitive structures and patterns of thinking about academic work. These patterns of thinking are characterized by greater levels of complexity as well as integration (Bereiter & Scardamalia, 1993; Glaser & Chi, 1988; Ericsson & Smith, 1991). Cognitive psychologists consider integration a function of experience and an important feature of expertise.

Considering the complex nature of academic work, is it meaningful to expect faculty to demonstrate high levels of performance in all of the tasks associated with professorial work? In line with the literature discussed earlier, this makes sense only to the extent that faculty have the opportunity to gradually increase their specialized knowledge and expertise first in one domain (either teaching or research), then in the other, and, as a result of having acquired expertise in each, to develop the ability to integrate the two. Whether or not faculty will learn to integrate their roles is likely connected to the level of motivation or effort they commit to this process. In a recent article Garrison (1997) discusses the links between motivation and self-direction in learning, arguing that motivation is greatest when people perceive a sense of gratification and

satisfaction as a result of assuming control and responsibility over their learning. It would seem that one critical factor in the development of expertise in academic work is the self-direction by which faculty approach their development. When faculty resist the temptation to continuously draw on already existing routines and algorithms and instead engage in progressive problem-solving when dealing with work-related tasks they demonstrate a high degree of self-direction (Kreber, in press).

The notion of integration has also been of interest to developmental psychologists. Research in developmental psychology focusing on adult thought patterns has consistently shown a movement from a more fragmented to a more synthesized or integrated conceptualization of issues and worldviews (Basseches, 1984; King & Kitchener, 1994; Kramer, 1983, 1989; Labouvie-Vief, 1982; Loevinger, 1976; Perry, 1970). The same notion of integration or wholeness seen as an advanced stage of development can also be observed in the work of Jung (1971) and Kolb (1984). The key to this development is once again seen in the nature of the adult learner's experience. According to Kramer (1983), most models of development and adult thinking suggest that individuals at the highest stage of development integrate or synthesize contradictions into an "overriding, more inclusive whole made up of two or more formally consistent systems" (cited in King & Kitchener, 1993, p. 39). When faculty integrate teaching and research (and other aspects of professorial work), they synthesize the contradictions between the two into a holistic, all-encompassing, and integrated domain of experience: academic work.

In the present culture of higher education, new faculty are expected to demonstrate high levels of performance in all areas of professorial work. As a result, faculty development programs are geared towards what on the surface appears to be an integration of academic work at the early stages of a faculty member's career. However, in light of the research discussed above, it seems likely that such practice ignores the natural process of adult development, learning, and the nature of work-related expertise. A more meaningful approach might be to allow inexperienced faculty to specialize in one area, teaching or research, in the early years and to foster greater integration of professorial responsibilities once they have had opportunity to develop expertise. Once faculty have acquired expertise, cognitive as well as developmental psychology research suggest that they would develop a greater propensity for integration. Therefore, it would seem a more plausible expectation for these faculty to also teach undergraduate courses, be involved in teaching as well as research, serve on university committees, and supervise students. The nature of faculty

careers thus conceived has important implications for the practice of faculty development on three levels.

Implications for Faculty Development

Historically, faculty development dealt primarily with the technical improvement of classroom teaching skills and was therefore often referred to as instructional development. In early projects such as the University of Massachusetts's Clinic to Improve Teaching, teaching was not only separated from the rest of academic work, but it was treated in a laboratory-like fashion. Faculty repeated specific teaching skills under close observation or under the scrutiny of a video camera. Fragmentation was indeed the goal. Following a behavioral model, teaching was broken down into small bits, rehearsed, and reinforced. By and large, movements toward faculty development in the more general sense of considering the faculty member as a whole person were viewed with skepticism though they provoked debate and controversy in the field.

To some extent, we still live under the shadow of that past. Most faculty developers focus primarily on teaching skills. Recent discussions of development in terms of academic work as a whole are the exception rather than the norm, especially in practice. Yet, we simultaneously expect faculty to be able to integrate miraculously all aspects of academic work—teaching, research, and service—and the quicker the better.

If we view integration of academic work as a goal of faculty development, and if we recognize that integration is a developmental process that comes along with the acquisition of experience and expertise, then we need to think of our practice as faculty developers in a different way. In our work with individual faculty members, we need to foster development and integration *over time* rather than provide skills training. At the departmental level, we need to help chairs and program directors find ways to allow some new faculty to specialize in teaching while others focus on research. And we need to work toward changing the role of senior faculty so that their integrated expertise is fully utilized. In our role within the institution, we need to promote an understanding of the process of faculty *development* over time, leading to a full integration of the fragments of academic work.

In our consultations with individual faculty, we would:

- Learn about the entire scope of the faculty member's work, her research as well as her teaching

- Pay attention to the stage of the person's career
- Work with new faculty so as to develop their expertise in either teaching or research, according to their choice
- Foster integration of research and teaching by encouraging faculty to search for and nurture areas of overlap between them
- Help faculty develop courses or become involved in programs related to their research interests
- Use developmental activities to support integrative approaches to academic work, including critical incidents, simulations, discussion groups, and debates
- Work to promote self-directed faculty development
- Encourage later-career stage faculty to work with new faculty and act as models of integrated academic work

At the departmental level, we need to support the structure of a new approach to faculty development. More specifically, we can:

- Help chairs design ways to allow some faculty to focus on teaching and others on research without incurring any further costs or jeopardizing the quality of teaching
- Assist with program review and revision with a view to encouraging integration of academic work (for example, ensuring that courses in a program reflect faculty research interests)
- Help program directors find ways for new faculty to teach specialized and upper-level courses related to their research expertise
- Where appropriate, help departments recruit graduate students who are interested in studying in the areas in which faculty are currently doing research, thereby encouraging a good match between faculty's and students' research interests, which in turn helps to increase the integration of supervision, graduate courses, and research
- Help departments find ways to fully utilize the integrative experience and expertise of their senior faculty, especially in undergraduate teaching

In our role within the institution, we need to work to develop an atmosphere that values the integration of teaching and research while recognizing that this integration takes place over time. We should:

- Ensure that promotion and tenure committees understand the developmental process of integration and the acquisition of expertise over time
- Initiate a reward system for new faculty who are specializing in either teaching or research
- Review merit pay or point systems with a view to encouraging first the development of expertise in teaching or research then the integration of the two
- Prepare jargon-free summaries of the literature on expertise and adult development to assist administrators as well as faculty to understand the process of professional development
- Encourage discourse among faculty and between faculty and administrators on the integration of academic work

Summary

Cutbacks in government funding for postsecondary education and an increasingly diverse student population render the roles of faculty more and more complex. As a result of these developments, recent years have witnessed a call for more holistic or comprehensive faculty development programs that do not focus on faculty's teaching role but encompass all aspects of professorial work. The assumption underlying these models is that new faculty need to integrate their academic roles. While integration is indeed a worthwhile goal, it is also an advanced stage of development that should be expected not in the early but in the later stages of faculty careers. Present faculty development practice, despite its laudable intentions to foster integration, may instead lead to a fragmentation of work. Faculty might be better advised to seek concentration in one area of scholarship so that they develop greater specialization before they are expected to integrate. The proposed model addresses some of the most intriguing challenges of faculty in the year 2000.

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