**Diversifying Communities of Practice in Higher Education**

Higher education is often treated as a homogeneous entity. In the public sphere, for instance, there is common discourse about its liberal bias and politicization. Many are concerned that the academic establishment has an agenda, or that it forces anyone who enters to adopt a particular manner of thought:

> Truth does not exist, in their view; rationality is an outdated white, male practice. What is left is power, and one of its more effective uses if one wishes one's own ideas to prevail is to silence all challengers… In every part of the university, the range of permitted thought and expression is narrowing. Faculty are constrained in their research and teaching, students in their academic and personal lives. Surely it is one of the sad spectacles of our time to watch great institutions that once encouraged the search for truth seeking now instead to ensure ideological conformity. (Cheney 1995: 74, 86)

Anyone who moves around inside of academic institutions, however, may notice the many striking disjunctures: for example, between undergraduate and graduate education or between academic disciplines.

At the graduate and faculty level, higher education has been characterized in terms of how they are structured by communities of practice. For doctoral students, the cohort is an important community of practice (Leshem 2007; Wisker et al. 2007). Members of cohort groups are mutually engaged in the practice of doctoral work and provide support to one another as they progressively gain access to another community of practice: disciplinary research. "Specifically, cohorts help participants in relation to motivation, maintaining momentum, commenting on work in progress, providing

critiques of developing and final drafts of writing, and providing support towards vivas" (Wisker et al. 2007: 309).

While the cohort serves as a community of practice for "being a doctoral student," advisors (or "supervisors") play an important role in helping to move students toward central participation in the community of practice of their discipline (Dison 2004; Wisker et al. 2007). In this case, students are apprentices and advisors are experts, and "practice is jointly negotiated between student and supervisor…" (Dison 2004: 89). However, for a student to act as a legitimate peripheral participant, the advisor plays an important role in granting access to the community of practice (Dison 2004; Herzig 2004). "The *extent* to which both practice and meaning is negotiated depends on factors such as the supervision style of the supervisor and the level of confidence and assertiveness of the student. The supervisor's role is to enable access to the student through negotiation of practice and meaning, but the supervisor may also, with or without conscious intention, hinder the access of the student to becoming a fully competent member of the community" (Dison 2004: 89).

While graduate students try to situate themselves in two communities of practice - that of the cohort and that of the discipline - faculty members are engaged in a complex web of shared practice (Dison 2004; Pallas 2001; Wisker et al. 2007). Though academic work is often conceived of as a solitary journey, "all research is a dialogue with other experts" (Wsker et al. 2007: 304). To define such dialogue as a single community of practice, however, is problematic, as faculty members are often differentially engaged with a widely dispersed body of colleagues. For example, although the membership of a disciplinary organization may be concrete and documentable, for any particular scholar

involved in real work the community must be a largely imagined entity. Dison (2004) contends that such an organization is, nevertheless, a single community that "transcends location" (89). Pallas (2001), on the other hand, describes it as a "constellation" of communities of practice (8). So, too, are departments and schools within a single university. Though they may be described as "a community of practice of being a professor at a particular school" (8), the professors are not occupied with the same types of research. Thus, while a faculty member may belong to a constellation of communities conducting similar sorts of research, as well as a community of professors in a particular department or school (who are doing very different research), the actual community of practice comprised of scholars who are mutually engaged in one area of research is quite narrow.

The narrowness of communities of practice in academic research has been criticized (Herzig 2001; Lattuca 2004; Pallas 2001, for example). Observers note how easily these communities can be dominated by one mode of thinking and actively exclude epistemological and methodological diversity. As a result, people with different approaches and perspectives find it challenging to gain access, and, thus, the communities are continually being reproduced by a homogeneous group of scholars. Herzig (2001) argues that, "systems that fail to diversify are often unstable and vulnerable" (173). Homogeneity and narrowness, therefore, have implications for the academic enterprise as a whole, as well as for individuals in the centers and on the peripheries. Clearly, diversifying higher education would have wide reaching consequences. The purpose of this paper is to identify and describe three areas of higher education that could benefit from diversity - innovation, student learning, and

inclusiveness – and to discuss methods of diversification in terms of communities of practice.

When an academic discipline limits its shared repertoire of principles, theories, methods, and concepts, its ability to generate new ideas, investigate novel circumstances, and adapt to change is stunted. Diversification, on the other hand, is a catalyst for innovation and creativity. John-Steiner and Meehan (2000) argue that creativity emerges through the appropriation of multiple voices. Their descriptions of Mozart's artistic development and Einstein's intellectual growth "challenge[] the image of the lonely creative genius that has been part of the Western mindscape for generations… [and] recognize the centrality of social interaction and mutual support in creative lives… creativity [is] a dynamic system rather than a collection of individual traits and abilities" (40). Furthermore, "to go beyond his or her earliest successes, a thinker frequently needs to absorb new and different ways of thinking. … The appropriation of new styles and modes of thought is critical to many creative endeavors in science and art" (42).

How, then, can a member of an academic disciplines appropriate other ways of thinking? Lattuca (2002) explores "interdisciplinarity" as a means of expanding disciplinary repertoires and sharing across boundaries. She proposes that academic disciplines can be viewed as cultural tools, or sets of cultural tools (715). The methods, concepts, and theories that form the basis of disciplinary perspectives provide a mediational means for organizing, understanding, and investigating the world. Interdisciplinarity, then, allows for liberation from the constraints of one set of cultural tools, as well as the advantages of using another. "A scholar in a given field appropriates

the cultural tools of another discipline in order to study a phenomenon that could not be studied as well using the tools of her home discipline" (716).

Lattuca maintains that interdisciplinary work results in productive engagements and innovative scholarship (735). At the same time, she recognizes the conflicts that it can create as it confronts the entrenched assumptions and practices of the "traditional" academic world. For one thing, the appropriation of the tools of an academic discipline by researchers outside of that discipline will not leave the tools unchanged. "Adoption transforms these disciplinary concepts, perspectives, or methods so that they may be used in the service of learning in another field or discipline. Transformation occurs as the tools are put to new uses and, often, as they are purposefully adapted for use in the new field" (716). John-Steiner and Meehan also stress the role that transformation plays in the appropriation of "technologies, psychological tools, and scientific and artistic symbols" (36). To use Bakhtin's terminology, when one appropriates a mediational tool, one must give one's own voice to it.

Because those involved in interdisciplinary work must transform disciplinary tools to address new problems, the shortcomings of conventional disciplinary methods become apparent, such that some forms of interdisciplinarity "are based on the critique of traditional disciplinary understandings" (Lattuca 2002: 717). This can lead to a considerable amount of disharmony and a resistance to interdisciplinarity. Indeed, the scholars in Lattuca's study reported a "lack of currency in promotion, tenure, and other reward systems" for interdisciplinary work (726). This is a significant barrier for the diversification of academic work.

However stigmatized interdisciplinary work may be in some cases, Heaney (1995) suggests that the occupation of such "border" positions, where the interests of two or more communities of practice intersect, can be a source of agency:

> The question here is for adult educators to first recognize that the most intensive and potentially productive adult learning is situated on the edges of communities of practice – at contested sites subjected to the competing claims of intersecting communities. In a word, most adult education is situated in the midst of struggle. Education can conceal or reveal that struggle. If the former, it represents an act of aggression against the learner, denies access to *critical understandings which could provide a basis for informed decision and action*. (4, my emphasis)

Heaney introduces the idea of a "border pedagogy" that "reveals the struggle" (4). "The aim of learning on the edge is in each instance to become more fully involved in *inventing the discourse* which defines the field. …The aim of a border pedagogy is to *enhance the agency* of learners, enabling them to produce and not merely absorb knowledge" (4, my emphases). Presumably, it is the "access to critical understandings" that facilitates inventiveness and agency. Thus, the border positions are powerful because they allow access to the understandings of other communities of practice.

It is evident how diversity can be employed for innovation in academia. Allowing scholars and students the ability to appropriate a wide range of ideas and mediational tools makes possible, and drives, their intellectual creativity. It also provides them with the agency that, when joined with creativity, forms the basis of innovation.

Student learning is another area that can benefit from diversity. Exposure to multiple perspectives enhances one's awareness of one's own conceptual framework, as well as those of others. Making epistemological assumptions and tacit knowledge

explicit, and, particularly in disciplines with multiple approaches, presenting different perspectives, can aid a student's intellectual and methodological development. Pallas (2001), for example, outlines how this principle can be used in the field of education. He notes that, although there is epistemological diversity in educational research, the degree of specialization that occurs in doctoral programs can limit students' exposure to other epistemological structures. Introductory research and methods courses, which often hedge epistemological issues, are immediately followed by beginning level classes in the specialization; then there are more advanced classes and small research projects, and, finally, the dissertation. Throughout this process, students spend increasingly less time with anyone outside of their area of specialization. Says Pallas:

> A critical part of my argument is that this model implies that doctoral students in research universities engage with and are accountable to a relatively small number of faculty and other students. … If there is a connection between community and epistemology, then a local community of research practice is not likely to reflect *within itself* a deep understanding of multiple epistemological perspectives. The more a newcomer is drawn toward the center of such a community, the less likely he/she is to develop a more variegated understanding of the epistemologies of educational research. (9)

Pallas contemplates some ways of helping students to increase their awareness and understanding of different epistemological frameworks. He reasons that, while training students to become consumers of different types of educational research will enhance their competence in approaching epistemological diversity, training them to become producers of different kinds of research will do so to an even greater degree. Moreover, epistemology needs to be discussed outside of research method courses so that

students remain conscious of the epistemological and methodological assumptions of other specializations. Students should even be allowed to explore other epistemologies without losing access to their communities of practice.

All of these changes would require faculty to be more self-reflexive about their own epistemological frameworks. Additionally, they would have to work together to determine how many, and which, epistemologies they should present. These choices would, no doubt, be difficult to make. Perhaps the biggest consequence for faculty is the possibility that uncovering methodological and epistemological disagreements could lead to more open tension and conflict.

Pallas also suggests that immersion in multiple epistemological perspectives could hinder student identity formation. If, after all, one's identity is tied to one's position in a community of practice, changing as one moves from legitimate peripheral participation to the center, would it not be harmful to weaken students' attachments to their communities of practice? I would argue that, as exposing students to multiple perspectives increases their awareness of the epistemological and conceptual frameworks employed by their own communities of practice and, as a result, the tacit knowledge with which their communities operate, their ability to identify with and locate their roles within those communities would be strengthened.

Leshem (2007) describes a measure that was taken in response to the concern that graduate students were having trouble identifying the conceptual framework of their research and "display[ing] misunderstandings of the research functions for conceptual frameworks" (289). Students were placed into small interdisciplinary groups that provided feedback about each member's research and worked together to define

conceptual frameworks. The program was very successful and students acknowledged the value of looking at research that was completely different from their own in helping them to understand conceptual frameworks and their importance for research, and to identify their personal conceptual framework. Leshem concludes that bringing together small groups of students doing entirely distinct work "facilitated candidates' grasp of conceptual frameworks" and "transformed their knowledge of conceptual frameworks" (296).

Lattuca et al. (2004) extend this idea of interdisciplinary collaboration in their study of the effects of interdisciplinarity on student learning. They describe four types of interdisciplinarity in the classroom: informed disciplinarity is instruction that occurs within one discipline, but draws upon work from other domains in a way that "does not substantially alter the dominant view of learning" (25); synthetic interdisciplinarity combines elements from different disciplines, "but the contributing disciplines remain clearly identifiable, revealing relatively bounded content areas and perhaps distinctive methods of inquiry" (25); transdisciplinary involves the use of methods, theories, and other "tools" that develop in the process of interdisciplinary work and no longer belong to the realm of any one discipline, even if they can be applied in any of the source disciplines; and, finally, conceptual interdisciplinarity has no disciplinary basis and often "accommodates poststructural, postmodern, and feminist forms of inquiry, which explicitly critique the disciplines and may contend that *all* questions require interdisciplinary answers" (26).

Lattuca et al. look at one example of a synthetic interdisciplinary course at the University of Chicago, which combines the perspectives of ethics, economics, biology

and political science to study environmental issues; and one example of a conceptual interdisciplinary course at Miami University on "Toys and Modern American Society" that focuses on themes such as childhood, popular culture, and gendered play. Although the course draws on sociology, psychology, art criticism, and history, "the instructor did not emphasize the use of disciplinary perspectives but rather stressed the development of critical perspectives on culture, gender, and power, which tend to signal conceptual interdisciplinarity" (29).

As interdisciplinary courses tend to be centered around real-world questions and issues rather than abstract theories and methodology, Lattuca et al. conclude that "interdisciplinarity may succeed because it provides individuals with more opportunities to connect new knowledge to existing knowledge" (30). Like Pallas (2001) and Leshem (2007), they find that it develops students' abilities to think critically and evaluate multiple perspectives, and augments the complexity of their epistemological understanding. In addition, they argue, "situated learning theories suggest that complex, real-world problems, such as those associated with interdisciplinarity, may enhance learning because they engage students in authentic tasks similar to those they will be expected to perform as workers or as citizens" (32).

These examples of programs and courses that bring together a variety of perspectives highlight the importance of diversity in ideas and problem solving methods for students' intellectual growth. By making epistemological and conceptual frameworks explicit, students develop a meta-awareness of their own theoretical and methodological assumptions. Furthermore, their ability to critically examine those assumptions is enhanced by learning to evaluate different approaches. Therefore, by developing their

capacity to effectively understand and use disciplinary tools, exposing students to a diversity of perspectives facilitates their learning.

Diversity can also be increased among the types of students who are given access to academic communities of practice. As these communities tend to be populated by like-minded scholars, the ability of students from different backgrounds to break their way into them is compromised. Those who already share much of the tacit knowledge and behavioral norms of a community are favored throughout the educational process and are more likely to gain access.

Mathematics, for example, is still in many ways a white, male dominated discipline that lays claim to a very particular way of establishing and communicating truth. Herzig (2004) states that in mathematics, women and minorities take longer to progress with their degrees, and reach graduate and professional levels far less frequently than men. He suggests that, "it is possible that a field of study's epistemology and culture affect students' choices and success. For example, a community of practice imposes certain cultural standards and implicit expectations of students… It is therefore possible that the people who succeed in mathematics are those who are able or willing to adapt themselves to these cultural practices" (173). He also notes that, "it is not clear whether students who leave mathematics do so because they are rejecting the intellectual content of mathematics, or whether they are rejecting other parts of the sociocultural practices associated with becoming a mathematician" (173).

Herzig emphasizes the importance of central participation for student progress, by "involvement and integration" in communities of mathematical practice (176). Integration has an intellectual and social dimension. Intellectual integration involves

"sharing values" (176) while social integration entails relationships with faculty and fellow students. Central participation also requires awareness of tacit knowledge, such as "multiple formal and informal discourses of the field and when to use each of these discourses" (177). This develops through interaction with those who are more experienced in the field.

Mathematics doctoral programs, however, are structured in ways that make it very difficult for students to grasp the tacit knowledge of the discipline. Primarily, this is because they often do not function like communities of practice. First, students are regularly isolated, both from each other and from any larger research community. The first two or three years are spent in lectures, which are based on direct transmission models of instruction, and working alone on problems. Herzig argues that, "although the work of mathematicians involves doing research, often collaboratively, graduate students' early experiences have little to do with research and are often individual" (180). Additionally, students have minimal interaction with faculty members before their qualifying exams. Consequently, many students do not have anyone to guide their participation. The solitary work combined with the lack of mentorship makes it difficult for students to be mutually engaged with other mathematicians and students, to feel part of a joint enterprise, and to appropriate shared repertoire. "The nature of the activities in which these students participate gives them only limited opportunities to develop the knowledge, practices, and identities of research mathematicians" (179).

One implication is that, although students may choose to drop out because they reject the values and assumptions shared by the discipline, it is just as likely that some may have a harder time than others uncovering the tacit knowledge of the field. Thus,

Herzig notes, “Disciplines in which it is difficult to develop tacit knowledge favor particular types of students” (177). In particular, he finds that students who persist in mathematics are “more likely to have had family members who were involved in mathematics, to have participated in research experiences as undergraduates, or to have been committed to mathematics from a very young age. Consequently, doctoral students who persisted were more likely to have entered graduate school already in possession of important forms of cultural capital that facilitated their integration into mathematics” (177). Also, mathematical discourse is very “confrontational” (194) and decontextualized, characteristics that are associated with white, male discourses more generally. One would expect the use of this discourse to privilege a select group of students who are already comfortable with its features.

In addition to the latent discrimination that results from the structural barriers, which limit students’ grasp of the tacit knowledge of the discipline, mathematics faculty will actively try to filter out the less “talented” students. Herzig claims that mathematicians tend to ascribe differential achievement to natural ability, and this serves to further disenfranchise women and minorities. Women, in particular, are often perceived as less confident, and are not likely to receive as much guidance as men. These intentional obstacles, together with the inherent ones, hinder the access of diverse groups of students to communities of mathematical practice.

Dison (2004) describes another case of exclusion in a South African university. Black students expressed frustration at their inability to participate legitimately in certain communities of practice. They claimed that while they were encouraged to do fieldwork, it was difficult for them to get permission to take any part in the writing process. The

field was seen as their "natural habitat," in which their knowledge of local language and culture would render them useful for the data collection process. However, communicating findings and presenting ideas was considered the province of white men. This barrier to full participation left them on the peripheries, even though it is only "through their engagement in the practice of the community, that they develop the skills and competencies in becoming researchers in that field of practice" (93). It also complicated their identity formation within research communities of practice, which, in conjunction with commitment, is necessary for central participation.

Brew (2003) proposes that access to communities of practice in higher education be initiated earlier – at the undergraduate level - so that entering graduate students can already participate to some degree. She notes that in institutions where a traditional teacher-centered model is prevalent in undergraduate classrooms, there exists a classic tension between teaching and research. These occupations belong to separate activity systems and compete for a professor's time. Instead, Brew recommends that communities of practice resembling those of disciplinary research be created for undergraduates to invite them into apprenticeship roles. She envisions peer teaching, recognition for work from student peers, student journals, and "collaborative networks with opportunities to engage in student conferences and debates (perhaps electronically)" (14).

As undergraduates generally are not tied to one discipline, constructing these communities of practice would also prepare them "to cope with uncertainty and super-complexity in a pluralistic world" as well as to be "ready and able to change (world) views in the light of new information. We know that this is what research is essentially

about" (14). Most importantly, it would welcome a diverse body of undergraduates and permit them to experience academic communities of practice. Brew laments, "All too often, students are alienated from the community at a very early stage of their studies because they are treated as second class citizens" (15-16).

O'Donnell and Tobbell (2007) look at the experiences of nontraditional adult students in higher education. They contend, "Who you are, where you come from, and where you want to go are all important features in the negotiation of meanings that enable identity shifts favoring participation. The increasing diversity of the student body suggests there is an increasing impetus for educational institutions to appreciate this" (325). The adult students, indeed, brought diverse backgrounds with them into these communities of practice. All were initially located on the periphery, but their reactions to this marginal position varied considerably. Those on a course toward central participation were optimistic, while those who felt blocked from the center were discouraged. "When peripherality is a position from which an individual can move forwards toward fuller participation, it is an empowered position. When peripherality is a position from which an individual is prevented from fuller participation, it is disempowering" (326).

The experiences of these women, minorities, undergraduates, and adults exemplify the potentials and constraints of peripheral and non-legitimate positions in academic communities of practice. When the structure and practices of graduate programs limit the access to research communities, many diverse groups of people will be left out as those who already share the discursive norms and tacit knowledge are privileged. Even if one does not feel morally impelled to prevent exclusionary practices,

there is still good reason to promote diversity in the ranks of higher education. Opening up to a variety of people with different backgrounds will augment the multiplicity of perspectives in the system and therefore serve as another conduit for learning, creativity and innovation.

Clearly, diversity is essential for the continuing potency of scholarly work. Two models for increasing diversity have been described. One involves moving people towards the borders of their communities of practice and encouraging them to appropriate a variety of disciplinary tools. The other consists of bringing a diverse group of people into the centers of communities of practice to allow them full participation. How do these two models fit together? Is there more agency on the borders, as Heaney (1995) suggests, or are central positions more empowering, as Herzig (2004), Dison (2004), and O'Donell and Tobbell (2007) propose?

If border participation enables one to "invent[] the discourse which defines the field" (Heaney 1995: 4) and to expand one's fund of cultural tools in order to investigate novel problems, then those on the borders do have greater power than their colleagues locked in the centers. On the other hand, without *access* to the centers, the borders become disempowering peripheries. It is necessary, then, to have access to *both* the borders and one or more center. Participation in communities of practice need not be concrete and static; shifting positions allows one to make use of a variety of different roles and resources. The borders make available a multiplicity of cultural tools, while the centers confer the authority to legitimately use them.

Allowing access to borders *and* centers, then, is key. Accordingly, both models for increasing diversity in higher education are important and will serve to strengthen the

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academic establishment at different levels. Allowing access to the center will increase the diversity, and hence, creativity, of a community, while allowing access to borders will enhance the creativity of individuals. Thus, there is already enough diversity within institutions of higher education, as well as among new and prospective students, to fuel enduring innovation and productivity. To avoid narrowness and stagnation, these sources of diversity must be exploited.

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