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Disrupting Ourselves: The Problem of Learning in Higher Education

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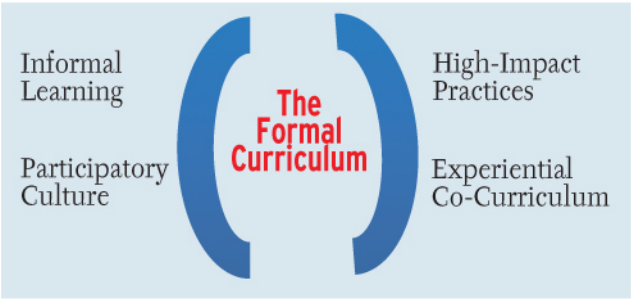
Our understanding of learning has expanded at a rate that has far outpaced our conceptions of teaching. A growing appreciation for the porous boundaries between the classroom and life experience, along with the power of social learning, authentic audiences, and integrative contexts, has created not only promising changes in learning but also disruptive moments in teaching.

By "disruptive moments," I'm not referring to students on Facebook in classrooms. I mean "disruption" in the way Clayton Christensen uses the term. Christensen coined the phrase *disruptive innovation* to refer to a process "by which a product or service takes root initially in simple applications at the bottom of a market and then relentlessly moves 'up market,' eventually displacing established competitors."[1] By using the phrase "disrupting ourselves" in this article's title, I am asserting that one key source of disruption in higher education is coming not from the outside but from our own practices, from the growing body of experiential modes of learning, moving from margin to center, and proving to be critical and powerful in the overall quality and meaning of the undergraduate experience. As a result, at colleges and universities we are running headlong into our own structures, into the way we do business.

FIGURE 1. PRESSURES ON THE FORMAL CURRICULUM



We might say that the formal curriculum is being pressured from two sides. On the one side is a growing body of data about the power of experiential learning in the co-curriculum; and on the other side is the world of informal learning and the participatory culture of the Internet. Both of those pressures are reframing what we think of as the formal curriculum. These pressures are disruptive because to this point we have funded and structured our institutions as if the formal curriculum were the center of learning, whereas we have supported the experiential co-curriculum (and a handful of anomalous courses, such as first-year seminars) largely on the margins, even as they often serve as the poster children for the institutions' sense of mission, values, and brand. All of us in higher education need to ask ourselves: Can we continue to operate on the assumption that the formal curriculum is the center of the undergraduate experience?

This tension between an expansion of learning and the limits of our structures is intrinsic to the learning paradigm. In the 1995 article "From Teaching to Learning," Robert Barr and John Tagg wrote that higher education was in a powerful transition, moving from an instructional paradigm to a learning paradigm—from offering information to designing learning experiences, from thinking about inputs to focusing on outputs, from being an aggregation of separate activities to becoming an integrated design. Barr and Tagg added that it would take decades for higher education to fully make this shift.[2]

Now, fifteen-plus years into that shift, our understanding of learning is expanding in ways that are at least partially incompatible with the structures of higher education institutions. In addition, these developments are occurring at the same time that higher education is being asked to become more accountable for what students are learning. Ironically, these pressures for accountability are making us simultaneously more thoughtful and more limited in what we *count* as learning. The question that campus leaders need to address is how to reinvent a curriculum that lives in this new space.

The Post-Course Era

One of the consequences of the shift from the instructional paradigm to the learning paradigm is that it takes us beyond the centrality of the bounded course, into what I call the "post-course era." The idea of the *course* has several functions in our institutions: courses are primary tools for managing time, staff, and resources. And they are the building blocks for telling the story of a discipline or a field as it is expressed through the curriculum and translated into majors. *Courses* in these senses are not going away and will be with us for a long time. What I am referring to here is the imagined meaning that we give to courses—more specifically, the way we talk about *courses* and *the curriculum* as the center of the undergraduate experience.

By using the phrase "post-course era," I'm not saying that courses cannot be the site of effective teaching and learning. I will argue later how I think that can indeed be the case. On every campus there are committed and creative faculty whose courses are memorable and have impact for many students. What I am arguing is that we have reached the end of the era of assuming that the formal curriculum—composed of *bounded, self-contained courses*—is the *primary* place where the most significant learning takes place.

The Association of American Colleges and Universities (AAC&U) previewed this shift almost ten years ago, in the influential report *Greater Expectations*, which argued: "The shape of the undergraduate curriculum was essentially fixed half a century ago." This shape included the solidification of locally controlled courses as the core of the experience: "Although listed in the catalog as part of a curriculum, individual courses are effectively 'owned' by departments, and most advanced courses by individual professors. Few faculty members teach to collectively owned goals. The student assembles an assortment of courses, each carrying a defined number of credits and assuming a standard time in class. The degree certifies completion of a fixed number of these often disconnected fragments. There is little internal coherence in curricula or programs, and even less a plan for connected learning."[3]

Just about all of the broad curricular innovations of the last few decades, from general education to co-op education, have wound around these basic conditions, but have done little to change them.

The Recentered Curriculum

So, what's disrupting courses and the formal curriculum? If they are no longer the essential center of the undergraduate experience, what is? In 2008, the National Survey of Student Engagement (NSSE) published a now-familiar list of what is referred to as "high-impact practices."[4] These are the college experiences that highly correlate to the most powerful learning outcomes. Students' participation in one or more of these practices had the greatest impact on success, on retention, on graduation, on transfer, and on other measures of learning:

- First-year seminars and experiences
- Common intellectual experiences

- Learning communities
- Writing-intensive courses
- Collaborative assignments and projects
- Undergraduate research
- Diversity / global learning (study abroad)
- Service learning, community-based learning
- Internships
- Capstone courses and projects

These are called "high-impact practices" because participation in them correlates with high retention and persistence rates. These practices also have high impact because they induce, according to George Kuh, student behaviors that lead to meaningful learning gains. The important student behaviors include the following:

- Investing time and effort
- Interacting with faculty and peers about substantive matters
- Experiencing diversity
- Responding to more frequent feedback
- Reflecting and integrating learning
- Discovering relevance of learning through real-world application[5]

Where are the high-impact practices located? Many of these practices are not part of the formal curriculum but are in the co-curriculum, or what we used to call the extra-curriculum (e.g., undergraduate research). The rest are special or exceptional curricular experiences (e.g., first-year seminars and capstones). From the perspective of the impact on learning, this intersection of the most learning-intensive experiences in the co-curriculum and in the few exceptional, often experientially focused courses in the formal curriculum forms the new center—the *recentered* core—of undergraduate learning. Indeed, in my experience of holding focus groups and informal conversations with students, if you ask them where they think their deepest learning has taken place, they will sometimes point to one or two courses that had meaningful impact for them. But they almost always point enthusiastically to the co-curricular experiences in which they invested their time and energy.

What, if anything, should we make of this? If most of the formal curriculum is not where the high-impact experiences are located, what are our possible responses? One essential response is to design more high-impact courses. That is, we need to ask what gives these practices high impact, and then we need to look at ways to integrate those kinds of strategies into course design and classroom pedagogy. On every campus, there are hard-working faculty—and their colleagues in the center for teaching and learning and the educational technology department—whose main focus is exactly that: to make courses more closely resemble high-impact practices, with similar results.

Technologies can play a key role here as new digital, learning, and analytics tools now make it possible to replicate some features of high-impact activity *inside*

classrooms, whether through the design of inquiry-based learning or through the ability to access and manipulate data, mount simulations, leverage "the crowd" for collaboration and social learning, or redesign when and how students can engage course content. Indeed, one of the most powerful aspects of today's technologies is that many of the high-impact features that used to be possible only in small classes can now be experienced not only at a larger scale but, in some cases, to better effect at larger scale.

A second response to the location problem of high-impact practices is to design for greater fluidity and connection between the formal curriculum and the experiential co-curriculum. An example is the use of e-portfolios, which allow students to organize learning around the learner rather than around courses or the curriculum. Once intended for assessment or employment presentation, e-portfolios are being reinvented as integrative spaces across the undergraduate experience. They are being used in learning communities and first-year experiences, sometimes spanning from general education to internships and capstones. As Bret Eynon puts it: "Drawing on the power of multimedia and personal narrative, recursive use of ePortfolio prompts students to expand their focus from individual courses to a broader educational process."[6] The continued growth of e-portfolios across higher education reveals a restless search for ways to find coherence that transcends courses and the formal curriculum.

I am naming here those approaches particularly relevant to instructional technology. There are, of course, myriad other approaches, both established and emerging (e.g., civic engagement and community-based learning), that bridge the classroom with experiential learning. I think it is also possible to work with faculty to create course designs with a "post-course" consciousness, paying attention to such elements as prior learning and prior conceptions, experiential knowledge, program-wide learning goals, and the long view of expert practice. There are also many ways to create assignments (and reflections to go with assignments) that gesture beyond the course itself—to life experience, to other courses, or to larger communities of practice, for example. These kinds of post-course consciousness strategies not only acknowledge the role that any course can play in building certain kinds of foundational knowledge and skills but also recognize the fluid boundaries of the course within a larger context of learning experiences.

Participatory Culture

A second pressure on the formal curriculum is the participatory culture of the web and the informal learning that it cultivates. Several years ago, Henry Jenkins and his colleagues published the report "Confronting the Challenges of Participatory Culture."[7] They looked at a range of web cultures, or *participatory cultures*, including Wikipedia, gaming environments, and grassroots organizations. They compiled a list of what they considered to be the shared and salient features of these powerful web-based communities:

- Low barriers to entry
- Strong support for sharing one's contributions

- Informal mentorship, from experienced to novice
- A sense of connection to each other
- A sense of ownership in what is being created
- A strong collective sense that something is at stake

I don't know that every college course needs to function like this, but it is worth asking the question: How many college classrooms or course experiences include this set of features? In how many courses do students feel a sense of community, a sense of mentorship, a sense of collective investment, a sense that what is being created matters? It is no coincidence that these features of web-based communities have much in common with the traits that make high-impact practices so effective.

Some might question whether most courses in the formal curriculum need to be designed for this kind of learning and intellectual community. Clearly, students learn foundational and essential knowledge and skills in courses, and then they put that knowledge and those skills to use in high-quality life experiences or learning experiences outside the classroom. Maybe that's the intended role of the formal curriculum: to prepare students to have integrative experiences elsewhere. But if we actually followed the logic of that position, we would be making many different decisions about our core practices, especially as we acquire more and more data about the power and significance of those experiences. Those choices might include more significant shifts from inputs to outcomes, reinvestments moving more resources to the recentered core, redefinitions of what we mean by "faculty load," changes in how we count departmental productivity, and an expanded repertoire of ways for documenting learning achievement. And it would also follow that our course management systems would be organized differently. After all, the post-course era would need a post-course management system.

Reversing the Flow

When John Seely Brown talks about what he calls "reversing the flow,"[8] he claims that the typical school curriculum is built from content ("learning about") leading to practice ("learning to be"), where the vast majority of useful knowledge is to be found. In a typical formal curriculum, students are first packed with knowledge, and if they stick with something long enough (i.e., major in a discipline), they eventually get to the point of engaging in practice. Brown argues that people instead learn best by "practicing the content." That is, we start in practice, and practice drives us to content. Or, more likely, the optimal way to learn is reciprocally or spirally between practice and content. Brown's formulation echoes the growing body of inductive and inquiry-based learning research that has convincingly demonstrated increased learning gains, in certain well-designed conditions, when students are first "presented with a challenge and then learn what they need to know to address the challenge."[9]

So, how do we reverse the flow, or flip the curriculum, to ensure that practice is emphasized at least as early in the curriculum as content? How can students "learn to be," through both the formal and the experiential curriculum?

In the model of novice learning under the old "instructional paradigm" (before the learning paradigm), experts performed their thinking for students and then asked the novice learners to do "mini versions" of their work. The experts then graded the students accordingly and hoped that something would happen, that some students might "get it." The less-suited students would then disappear into another major, and the most-suited would continue. But three or four decades of research has taught us that a lot of meaningful activity—struggling, processing, sense-making—is going on in the intermediate space between novice and expert. In the learning paradigm, we are focusing not on the expert's products but, rather, on the expert's *practice*. That new "endpoint" changes what we should be attending to in the intermediate processes. It changes the role of instructional and emerging technologies, for example, which allow us to see, capture, harvest, and design for the intermediate learning processes.

Finally, this focus on practice changes what it means to teach, for both the faculty and an institution. How can an institution provide an instructional environment that makes this kind of learning possible and most effective, including (but not limited to) enabling the critical expert roles that faculty play?

A Position of Authority

The entangled nature of practice and content is often expressed in the words of faculty who talk thoughtfully about their students' learning, revealing how much higher-order knowledge is rooted in social and experiential learning. I recently ran a workshop called "The Bottlenecks and Thresholds Initiative," in which we help faculty analyze their teaching by slowing down and thinking about what it is that a student needs to do well in order to be successful with complex tasks.[10] We were looking at a student's general-education history paper, and I asked the faculty to say what the student needed to be doing well. After I pressed the group members, who wanted to focus on what the student seemed *not* to be doing well, one faculty member succinctly critiqued the paper's weak introduction by stating that the student needed "to speak from a position of authority."

Which department is responsible for teaching students how to speak from a position of authority? Where do we find evidence of someone *learning* to speak from a position of authority? Which assessment rubric do we use for that? Critical thinking? Oral and written communication? Integrative learning? Lifelong learning? Of course, when faculty speak of "authority," they mean not just volume, but the confidence that comes from critical thought and depth. Learning to "speak from a position of authority" is an idea rooted in expert practice. It is no more a "soft skill" than are the other dimensions of learning that we are coming to value explicitly and systematically as outcomes of higher education—dimensions such as making discerning judgments based on practical reasoning, acting reflectively, taking risks, engaging in civil if difficult discourse, and proceeding with confidence in the face of uncertainty.

Designing backward from those kinds of outcomes, we are compelled to imagine ways to ask students, early and often, to engage in the practice of thinking in a given domain, often in the context of messy problems. This is perhaps one way to rethink the role of technologies and social media tools—often the cause of that other type of

teaching disruption—and reimagine the ways that discussion boards, wikis, blogs, Twitter, and collaborative writing tools and spaces might facilitate activities that help students learn to speak from a position of authority.

Derek Bruff, the Assistant Director at the Center for Teaching at Vanderbilt University, writes a blog, *Agile Learning,* about educational technology, visual thinking, student motivation, faculty development, social pedagogies, and many other interesting pedagogical tactics. For one post, "Backchannel in Education: Nine Uses," he talked about Cliff Atkinson's book *The Backchannel* and adapted it to higher education. He listed nine ways that a faculty member could use Twitter in the classroom: notetaking, sharing resources, commenting, amplifying, asking questions, helping one another, offering suggestions, building community, and opening the classroom.[11]

These are simple activities, but what do they look like if they're part of the continuous flow of teaching someone how to move from novice to expert, tuned to disciplinary thinking or professional discourse? When we put Bruff's excellent list into the intermediate space, what can we discover about how these means of engaging are serving as a bridge from novice process to expert practice? What is the relationship between the intermediate activity and the stages of intellectual development or the constituent skills and dispositions of a discipline? What if the activities enabled by social media tools are key to helping students learn how to speak with authority?

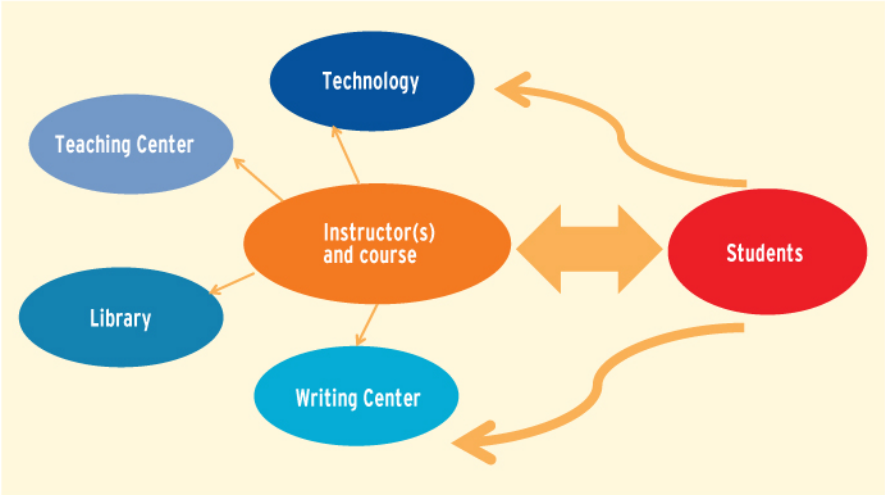
Expanding Our Conception of Teaching

If our concept of learning has outstripped our notion of teaching, how can we expand our notion of teaching—particularly from the perspective of instructional support and innovation?

Team-Based Design

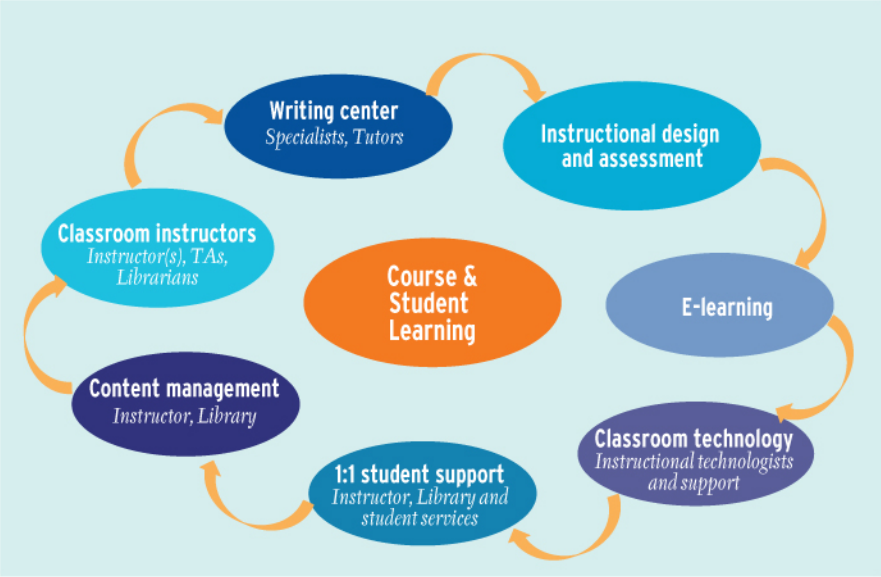
One approach to expanding our conception of teaching is through what we might call "team-based design." One version of this approach was successfully implemented by Patricia Iannuzzi, the dean of libraries at the University of Nevada–Las Vegas (previously at the University of California, Berkeley). She had long observed that the traditional "hub and spoke" model of course innovation was fundamentally broken. In the traditional model of course design, a well-meaning instructor seeking to make a change in a course talks separately with the teaching center staff, with the technology staff, with the librarians, and with the writing center folks. Then, when the course is implemented, the instructor alone deals with the students in the course—except that the students are often going back for help with assignments to the technology staff, to the librarians, and to the writing center folks (although usually different people who know nothing of the instructor's original intent). So they are completing the cycle, but in a completely disconnected way. Iannuzzi's team-based design thinks about all of these players from the beginning. One of the first changes in this model is that the instructor is no longer at the center. Instead, the course and student learning are at the center, surrounded by all of these other players at the table.[12]

FIGURE 2. TRADITIONAL SUPPORT MODEL—PLANNING AND IMPLEMENTATION



Credit: Patricia Iannuzzi, Dean of Libraries, University of Nevada–Las Vegas

FIGURE 3. TEAM-BASED DESIGN



Credit: Patricia Iannuzzi, Dean of Libraries, University of Nevada–Las Vegas

The team-based model asks not only how all of these instructional experts might collaborate with faculty on a new design but also how some of them (e.g., embedded librarians) might play a role in the delivery of the course so that not all of the burden of the expanded instructional model falls on the instructor.

In a related example, Dan Bernstein, the director of the Center for Teaching Excellence at the University of Kansas, adapted Iannuzzi's model for a funded project to test the efficacy of team-designed courses, organized around a cognitive apprenticeship

model, in improving undergraduate students' skills, with the larger goal of maximizing the effectiveness of each course for the wide range of students attending a state university. For example, library instruction and writing center colleagues worked with a psychology professor on designing staged research and writing assignments to scaffold a complex assignment involving intellectual synthesis and writing in a nonacademic genre. In this large-enrollment class, high achievement on the final product went from 1 percent to nearly 50 percent of the class through iterative team design over four offerings of the course. The study concluded: "Our assessments of student learning as well as participating faculty members' reflections suggest that the team-design approach can be an effective and efficient way of supporting the development of undergraduate students' critical thinking and writing skills, even in very large courses."[13]

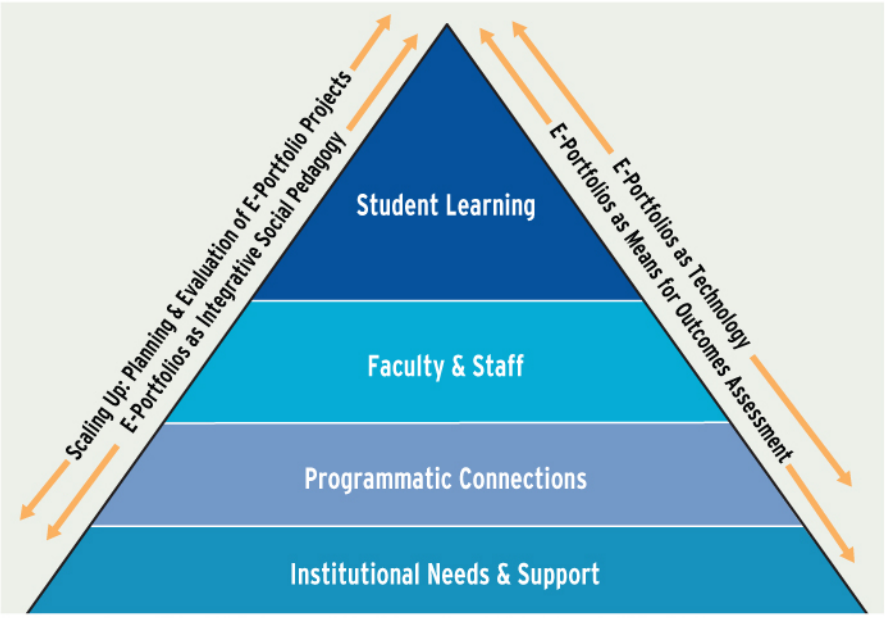
A key aspect of the team-based design is the move beyond individualistic approaches to course innovation. In higher education, we have long invested in the notion that the way to innovate is by converting faculty. This move represents a shift in strategy: instead of trying to change faculty so that they might change their courses, this model focuses on changing course structures so that faculty will be empowered and supported in an expanded approach to teaching as a result of teaching these courses.

E-Portfolios and Systems Thinking

This holistic approach to rethinking strategic courses has a more macro counterpart in e-portfolios. As described above, e-portfolios can be powerful environments that facilitate or intensify the effect of high-impact practices. As tools of integration, they also help students make connections and think about how to present themselves, their work, and their learning to an audience.

The Connect to Learning (C2L) project (http://connections-community.org/c2l), a network of twenty-three colleges and universities for which I serve as a senior researcher, is studying e-portfolios and trying to formulate a research-based "national developmental model" for e-portfolios. One of our hypotheses is that for an e-portfolio initiative to thrive on a campus, it needs to address four levels: institutional needs and support (at the base level); programmatic connections (departmental and cross-campus, such as the first-year experience); faculty and staff; and, of course, student learning and student success. In addition, e-portfolios on these four levels should be examined from four angles or sides: as a technology; as a means for outcome assessment; as an integrative social pedagogy; and through evaluation and strategic planning.

FIGURE 4. E-PORTFOLIOS: OVERVIEW LAYER



Credit: Connect to Learning Project, Making Connections National Resource Center, LaGuardia Community College, CUNY

All four vectors are operative at all four levels, resulting in myriad combinations of what is required to run a successful e-portfolio project. E-portfolios, or Personal Learning Environments (PLEs), or whatever they are named—as something that enables students to weave these connections back and forth across the formal and experiential curricula—will be an essential element of our response to this disruptive moment. For any large-scale version of e-portfolios to be successful, they will require at the program and institutional level what Iannuzzi's model requires at the course level: a goals-driven, systems-thinking approach that requires multiple players to execute successfully. All levels speak to the need to think beyond individual faculty and beyond individual courses and thus can succeed only through cooperation across boundaries.

Connecting Ourselves

As we move forward on our campuses, several strategies can help our notion of teaching keep pace with our expanding understanding of learning.

First, we need to acknowledge that the center of significant learning has shifted to a new, recentered core and that, from the perspective of deep learning and impact, most of the formal curriculum now must move from margin to center.

Second, we need to move beyond our old assumptions that it is primarily the students' responsibility to integrate all the disparate parts of an undergraduate education. We must fully grasp that students will learn to integrate deeply and meaningfully only insofar as we design a curriculum that cultivates that; and designing such a curriculum requires that we similarly plan, strategize and execute integratively across the boundaries within our institutions.

Third, we need to think more about how to move beyond the individualistic faculty change model. We need to get involved in team-design and implementation

models on our campuses, and we need to consider that doing so could fundamentally change the ways that the burdens of innovation are often placed solely on the shoulders of faculty (whose lives are largely already overdetermined) as well as how certain academic support staff (e.g., IT organizations, student affairs, librarians) think of their professional identities and their engagement with the "curriculum."

Finally, we need to take the problem of learning in the post-course era very seriously. The learning we are coming to value most is not always where we are putting our greatest interest and effort in assessment, including the emerging discussions about "learning analytics." To be sure, we should work very hard and carefully to align, document, and capture our current assessments of student learning; at the same time, we should be attentive and ambitious in figuring out how we want to cultivate and evaluate learning in this expansive environment.

The New Nexus

Steven Johnson, the author of the book *Where Good Ideas Come From,* closes his TED Talk of the same title with the tagline: "Chance favors the connected mind."[14] By "connected," Johnson means two things, both of which bear on the problem of learning in higher education today. First, he means connected in the sense of being integrative, of making connections between things that seem dissimilar. And second, he means connected in the sense of being socially networked.

If we are beginning to see that the greatest impact on learning is in these boundary-crossing, integrative, and socially networked experiences, then we need to re-create dimensions of these experiences in the learning designs that bridge the classroom with life outside of it. The connection between integrative thinking, or experiential learning, and the social network, or participatory culture, is no longer peripheral to our enterprise but is the nexus that should guide and reshape our curricula in the current disruptive moment in higher education learning.

Notes

I want to thank the following colleagues for valuable feedback on drafts of this article: Heidi Elmendorf, Daniel Bernstein, Bret Eynon, and my colleagues in the Center for New Designs in Learning and Scholarship, especially Matthias Oppermann and Janet Russell.

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11. Derek Bruff, "Backchannel in Education: Nine Uses," *Agile Learning,* January 21, 2010, <http://derekbruff.org/?p=472>.

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