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The Growth Mindset Approach: A Threshold Concept in Course Redesign

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Growth mindset (Dweck, 2006) is the simple but powerful belief that intelligence is not fixed, but dynamic, and can develop over time. When faculty and students embrace the idea that learning is elastic, it permanently transforms how we approach learning and, thus, is a “Threshold Concept,” a transformative and irrevocable way of thinking about something (Meyer, Land, & Cousin, 2006). This combined approach to course design workshops (growth mindset and threshold concepts) provides a lens through which faculty developers at small colleges can view student learning and faculty development because it illuminates bottlenecks or sticking points for faculty in the course design process and helps them shift their focus away from content delivery to active, transformative learning. The author argues that the growth mindset approach is a powerful concept in learning and academic development, describes specific workshop activities that help promote a growth mindset for faculty, and contends that such an approach represents a threshold concept for them and, thus, their students.

Just as students “get stuck” when learning new disciplines, so too we, as teachers, may get mired in information that seems foreign, unwieldy, or counterintuitive. Academic developers face this phenomenon frequently; it benefits us to find meaningful ways to quell our co-learners’ anxiety as we, together, make our “messy journeys back and forth across (the) conceptual terrain” of designing or re-designing a course (Cousin, 2011). Faculty concerns with and frustration about learning are perhaps most amplified during the design process itself, when we think about how best to demystify learning for our students in the courses we teach.

Especially at small colleges where good teaching is “taken for granted,” finding fresh, content-agnostic ways to help faculty see their discipline and, thus, their courses anew can be a useful approach to developing course design workshops (Reder, 2007). When successful, course design workshops can transform how faculty approach their course content, a reframing that has the potential to impact positively their identities as scholarly teachers (Huston, 2009). Research suggests that extended workshops yield some successful changes in teaching behavior as well as prompt participants to continue to seek educational development assistance (Chism, Holley, & Harris, 2012). However, moving through the course design process can create frustrating bottlenecks or “stuck places” for faculty learners because it brings to the forefront the tension between time for content coverage and active learning (Michael, 2007).

Our workshop team of faculty and academic developers at Furman University (a small, private, liberal arts college in Greenville, South Carolina) confronted this paradox by infusing our first-year seminar course design workshops with *growth mindset theory* and threshold concepts. *Growth mindset* is the belief that our intelligence can grow with constructive feedback and targeted practice for improvement (Dweck, 2006). Growth mindset maintains that learning is elastic, can develop, and generally requires healthy discomfort as “our reach exceeds our grasp” with new content or in novel learning situations. The idea that the mind can continue to grow is a potential *threshold concept*, or a transformative and irrevocable way of thinking about something, which produces a *qualitatively* different view of learning (Land, Cousin, Meyer, & Davies, 2005). One paradox of the academic profession is that we can get so busy teaching that we prevent ourselves from engaging in deep learning situations. However, when faculty are reacquainted with the idea that learning is painful but can be developed by experiencing minor learning discomfort themselves, new ways of understanding the course design process open up to them as they begin to design from their students’ perspective as novice learners. Threshold concepts theory suggests that as we claim these transformative experiences or habits of mind, new vistas of understanding regarding a discipline open up to us. In the discipline of course design, then, growth mindset is a threshold concept: Taking it into account in the design process can revolutionize the way we build learning pathways for our students. This reframing of learning has helped our team and faculty embrace the course design process in an elegantly simple and innovative way, with positive results.

Institutional Context

A recent curricular revision at Furman required a modification of the entire course catalog, the academic calendar, and an introduction of new courses (a pair of required first-year seminars, one of which is writing intensive.) Implemented in Fall 2008, this calendar and curriculum change reduced contact hours from 56 to 42 per semester and required that first-year composition instruction be distributed across academic departments via the first-year writing seminars (FYWs). These FYW “passion courses” remain in the curriculum and are built upon faculty members’ keen academic interests; the learning outcomes encourage faculty to create dynamic classroom environments in which students become ardent learners as well as proficient writers. The FYW program is the focus of Furman’s Quality Enhancement Program for accreditation purposes and is designed to foster measurable gains in

- dispositions toward the acquisition of knowledge,
- understanding how knowledge is critiqued,
- ability to identify one’s underlying assumptions and beliefs,
- understanding and demonstration of scholarly integrity,
- level of information fluency, and
- ability to write logically and clearly.

Faculty from across the disciplines—from Chemistry to Music to Health Science—teach these FYW courses, which have replaced the university’s first-year “composition” requirement.

The new curriculum and calendar offered the potential for transformative learning; but with reduced contact hours and key learning outcomes at stake, faculty needed to mobilize their course design processes expeditiously.

Growth Mindset

Growth mindset motivational theory is simple, revolutionary, and efficient. Dweck’s book *Growth Mindset: A New Psychology of Success* (2006) poses a seemingly simple research question: “What are the consequences of thinking that your intelligence or personality is something you can develop, as opposed to something that is a fixed, deep-seated trait?” (p. 4).

People who adopt growth mindset thought and behavior patterns believe intelligence can be built over time with targeted improvements, whereas those who cling to a fixed mindset believe their intelligence is fixed and unchangeable (Dweck, 2006). Furthermore, Dweck argues that motivation (or attitudes toward the learning enterprise) can substantially affect how people approach difficult tasks; in the case of Furman's first-year seminar workshops, this difficult task is helping faculty participants design a course that motivates first-year students to get excited about learning and writing. When learners (both faculty in workshops and the students in their classes) believe they can improve with constructive feedback, they are more likely to seek that feedback than learners who don't believe they can improve. We are all a constellation of mindsets depending on the context or situation: With targeted practice, learners of any age can "grow" their mindset.

Dweck uses the example of basketball star Michael Jordan (who she estimates is 80% growth mindset and 20% fixed in the area of athletic competition) to help people understand the two mindsets in action. Fixed mindset basketball players relish the game and enjoy performing their skills "when it matters." According to fixed mind-setters, practice is drudgery. On the other hand, growth mindset athletes enjoy practice, and put forth as much focus and effort in practice as they do in competition. There is the thrill of the game, of course, and people with a growth mindset tendency also find competition electrifying. But the amount of effort they put forth in practice situations, and the desire to seek feedback—even when it isn't glowing praise—differentiates growth and fixed mindset dispositions. Faculty can see evidence of different mindsets when they return examinations: Growth mindset students seek qualitative feedback on *how* they can better learn the material and take responsibility for their shortcomings ("I could have used distributed study practice more rather than cramming for the test," for example), whereas fixed mindset students more often claim bias ("the teacher doesn't like me" or "the test was unfair").

This qualitative distinction in mindsets manifests in measurable cognitive differences as well. Dweck and her team of graduate students have measured the brain activity of fixed versus growth mind-setters when completing testing tasks, discovering that people with a fixed mindset toward learning were "only interested when the feedback reflected on their ability. Their brainwaves showed them paying close attention only when they were told whether their answers were right or wrong" (Dweck, 2006, p. 18). People with a fixed mindset were not interested in learning the correct answer or information that might help them improve for future tests:

“Only people with growth mindset paid close attention to information that could stretch their knowledge. Only for them was learning a priority” (Dweck, 2006, p. 18). With targeted feedback, we can help ourselves—and our students—learn to be more growth-mindset oriented.

Threshold Concepts

Riding a bicycle *sans* training wheels is one common example of a challenging learning situation many able-bodied people have mastered. A recent YouTube video (which went viral in the summer of 2011) captures the thrill of this type of transformative learning. The video’s young protagonist, fresh from his first successful solo spin on a bike, takes a presidential stance and utters a motivational speech to all the other kids out there learning to ride. (This video remains popular; the two versions of it on YouTube have accumulated almost 1.5 million views as of this writing.) As regal music swells, the young man urges, “You can do it! If you believe in yourself, you will know how to ride a bike! If you don’t you just keep practicing. . . . If you keep practicing, you will get the hang of it, and you will get better and better at it!” After some parental prodding, our young cyclist exclaims, “Thumbs up, Everybody! For rock and roll!” (Funnykidvid, 2011).

Although riding a bicycle is a motor skill, it requires a set of cognitive and physical changes that, once committed to muscle memory, cannot be undone (hence the phrase “It’s like learning to ride a bike.”) Thus, learning to ride a bike is a fitting example for explaining threshold concepts as well. According to Meyer and Land (2005), threshold concepts are “akin to a portal, opening up a new and previously inaccessible way of thinking about something” (p. 3). In the bike example, the cognitive and physical changes in processing balance allow the novice rider to stay upright once, twice, and then every time he or she commands the bicycle. Although it can be difficult to articulate the changes that have taken hold, the threshold concept in balancing on the bicycle is to, as Einstein urges, “keep moving.” Once a learner understands the threshold concept in a discipline—whether bicycle riding or thermodynamics—whole new vistas of understanding open up to him or her. Thus, threshold concepts are differentiated from core concepts in that they are not simply “building blocks,” but ideas that lead to “a qualitatively different view of subject matter” (Meyer & Land, 2005, p. 6). In addition, threshold concepts share a number of characteristics, in that they are *transformative* (prompting a “significant shift in the perception of a subject”); most likely *irreversible* (generating a change is “unlikely to be forgotten”); *integrative* (the concept

“exposes the previously hidden interrelatedness of something”); *bounded* (possibly according to discipline); and, finally, *troublesome* or counterintuitive (Meyer & Land, 2005, pp. 5-6).

For most learners, it is the troublesome nature of threshold concepts, which are often counterintuitive, that engender the bottlenecks or sticking points alluded to above. Here, Meyer and Land (2005) contend, is the land of liminality, or a place “in between” a tacit understanding and conceptual mastery, where students resort to mimicry (acting “as if” they have grasped a concept without yet fully doing so) or give up in frustration. In these highly charged, sometimes chaotic learning moments, learners confront their perceptions of themselves *as learners* and, thus, begin to have doubts about their very identity. Yet these moments of learning frustration (or “conceptual peristalsis”), when embraced, can also be moments of sublime inspiration—that moment of learning to ride a bike, for example. And helping faculty colleagues—as well as students—to formulate a healthy regard for *stochasticity* (order in chaos) can be a transformative teaching tool.

Psychologist Mihalyi Csizsentmihalyi (1997) corroborates this hypothesis: We feel most alive or engaged (we find a “flow state”) when we are both prepared for and challenged by a task or learning situation. Felten and King (2012) echo this assertion in the context of learning and academic developers, arguing: “The very attributes of academic concepts that create obstacles for learning can turn into thresholds when, through skillful teaching, arduous mental effort or an interaction of the two, the concepts are mastered” (p. 6). How do we as educational developers coach or guide faculty in generating course designs that embody the excitement that moving through conceptual thresholds entails? Bain and Bass (2012) pose a similar question when they ask, “What are the fundamental, integrative concepts at the heart of transformative pedagogy? What is it that faculty need to understand about teaching and learning in order to have a ‘transformed view’ of the pedagogical landscape?” (p. 191). One way to conceive of this transformed view is to harness the power of growth mindset in the course design process. When faculty understand that learning prowess can be developed over time, their understanding of how to identify bottlenecks for their students changes. Their conception of their disciplinary content and how they design pathways through the discipline in their courses is forever transformed.

Growth Mindset and Threshold Concepts in Course Design Workshops

Not only were our course design colleagues engineering new courses for first-year students, but they themselves were new to the discipline of teaching writing and, therefore, had a good deal of anxiety in the course design process, especially in the first years of the curricular shift. We designed the FYW workshops with best teaching practices such as modeling, active learning, and frequent opportunities for meaningful reflection in mind (Ambrose, Bridges, DiPietro, Lovett, & Norman, 2010; Brookfield, 1995). The workshop design itself has been an emergent, iterative process because we used participant feedback to revise the design each year. The current workshop design fosters an energetic exchange of ideas with faculty colleagues, employs best practices in writing pedagogy (including a peer review exercise over an assignment they've created for their course and practice commenting on and evaluating student writing), and uses active learning techniques (such as the gallery walk, small-group distillation of large concepts, and generating a graphic syllabus) to immerse faculty in the kind of challenging, dynamic environment we hope they will build in their FYWs.

Since 2007, I have worked with a team of faculty facilitators to co-lead 75 of our 240 full-time faculty members in nine 4-day course development workshops that have evolved over time. The current FYW workshops employ the growth mindset concept to help faculty communicate expectations for learning with their students as well as identify potential bottlenecks in their courses. This process has allowed participants to focus on transformative teaching by foregoing delivery of course content during class time and devoting their interactions with students to active, engaged learning.

To catalyze faculty energy and interest in the workshop, we begin each one with Fink's (2003) popular "faculty dreaming exercise," in which participants envision students who are intrinsically motivated (arriving to class the first day having read the entire book list for the course, for example) and designing the course goals based on this best case scenario. In other words, the faculty imagine students who *already have* growth mindset. To increase the moderate amount of discomfort of such a blue sky exercise, faculty are instructed to close their eyes and envision fully the classroom, the students, and their cognitive and emotional reaction as they answer the question: "Your students will learn *anything*. What do you want them to know or be able to do at the conclusion of your course?"

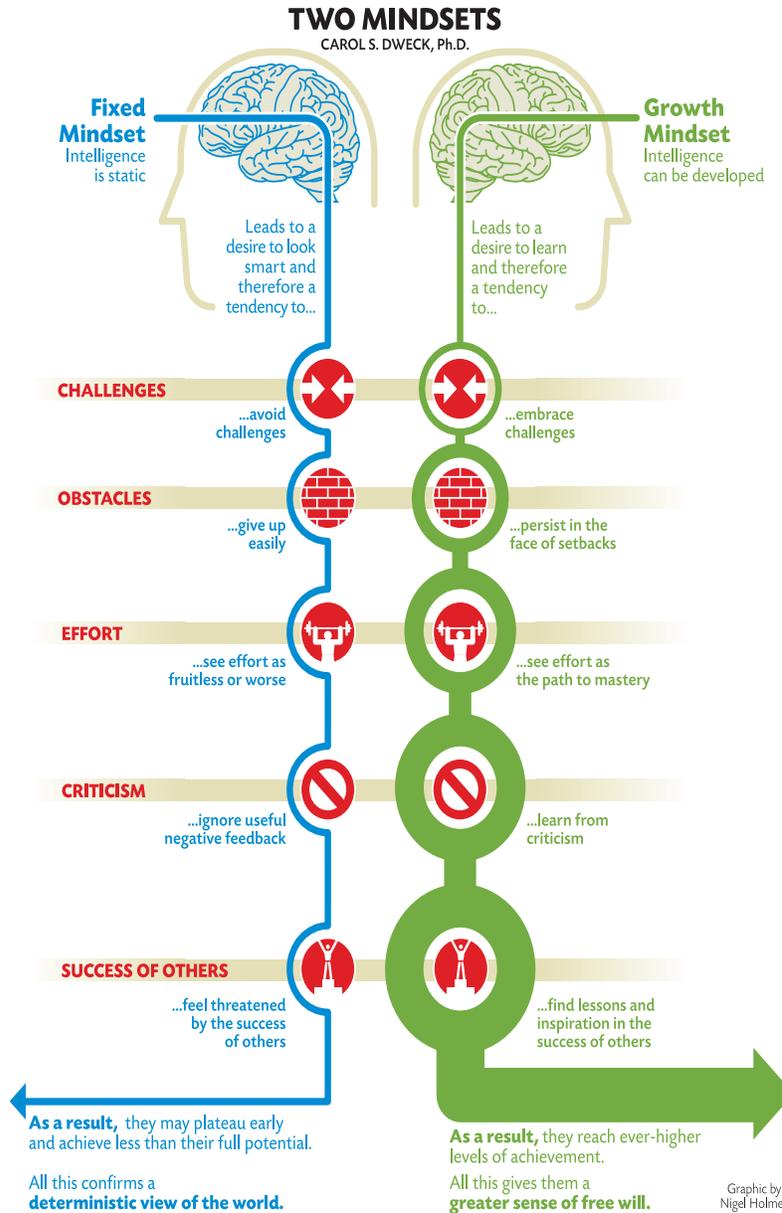
Invariably, our debrief discussion begins with the articulation of Fink's

(2003) Foundational Knowledge goals (facts related to the course content). Communication skills-based goals quickly follow. After a brief pause, it is typical for a faculty member to assert something along these lines: "If my students will learn anything, I don't want to waste time teaching them quadratic equations (or British history, or postcolonial theory, or whatever the course content may be). I want them to be engaged citizens, I want them to know how to keep learning after the course is over, I want them to *care*." These goals map precisely on Fink's Taxonomy of Significant Learning in the form of the "higher order" learning goals of "Caring" (students learn to care about the subject), "Human Dimension" (students learn to see the human connections to the issue(s) of the course), and "Learning How to Learn" (students develop the skills and awareness to become self-directed, lifelong learners). Because this exercise is happening in an imaginative space, faculty are free to generate course goals that focus less on content and more on significant learning. This has an immediate and lasting impact on how participants envision the remainder of their course. Workshop participants take a significant risk in daring to set aside their cynicism—if only for a moment—to imagine students who will learn *anything*.

Commencing the workshop with a vision of intrinsically motivated students leads faculty to question the possibilities and limits of faculty responsibility for student motivation. We address this concern immediately following the faculty dreaming exercise. Participants watch the "Boy Learning to Ride a Bike" YouTube video and then, following a mini-lecture on the tenets of growth mindset, "map" his discourse onto growth mindset using Holmes's mindset graphic (see Figure 1).

Figure 1 illustrates growth mindset as a threshold concept in learning. When learners make the shift and begin to embrace the discomfort of deep learning, they take a "qualitatively different view" of their own education (Meyer & Land, 2005, p. 6). Thus, adopting a growth mindset approach is *transformative* (prompting a significant shift in how students approach learning). Growth mindset learners consider "challenges" (represented in Figure 1 as the "brick wall" image) not as anxiety-inducing problems to be "avoided," as do fixed mindset learners, but as opportunities to improve upon their current skill set or cultivate new knowledge. This approach is *irreversible* inasmuch as the thrill of using it to push through a bottleneck sticks with a learner. The more a learner "persists in the face of" learning "setbacks," the more likely he or she is to cross that threshold; in turn, the learner is more likely to take up intellectual challenges in the future. This approach is *integrative* in that it helps students see how "embracing" learning "challenges" can help them work through difficulties in other areas of their lives, empowering them to "reach ever-higher

Figure 1
Nigel Holmes's Mindset Graphic
(used with permission from Nigel Holmes)



levels of achievement," which results in "increased free will." But none of these benefits manifests without the *troublesome* moment or moments (because adopting growth mindset is a process) of revising a previously fixed mindset identity with growth mindset.

The differences between mindsets in response to criticism and approach to effort are instructive for faculty striving to guide first-year students as they learn to write (and for educational developers guiding faculty to do so in a course design workshop). For example, teaching students to participate in peer review or draft workshops can be difficult because, without adequate preparation or practice, many students provide flimsy, insubstantial feedback. When faculty consider student responses to writing workshops in the context of fixed versus growth mindsets—that some students "ignore negative useful feedback" while others "learn from criticism"—they have a new frame for understanding how mindset influences actions as well as a vocabulary to use with their students to combat self-imposed motivational "sticking points." This vocabulary resonates with faculty workshop participants, who brainstorm ways to coach their students to more growth mindset approaches to sharing, commenting on, and revising writing.

How do we help both our students—and faculty colleagues—grow their mindsets? Dweck suggests that praising learner *effort* rather than the final product is the key to success. Creating a "growth mindset culture in the classroom" and "praising students for the process they have engaged in—the effort they applied, the strategies they used, the choices they made, the persistence they displayed, and so on—yields more long-term benefits than telling them they are 'smart' when they succeed" (Dweck, 2006, p. 18). The focus on process, not product, helps learners appreciate the steps required to master new knowledge or skill sets and, with that, a lifelong love of learning.

Praising the effort required to develop an effective writing process can yield positive results, especially when working with first-year students learning to write. As Wisker and Savin-Baden (2009) have argued, encountering "stuck places" in writing can produce significant anxiety (perhaps even more than threshold concepts in other disciplines): "Being stuck in your writing is . . . an experience of questioning of self, of ontological insecurity, in other words, feeling troubled" (p. 241). "Writer's block" takes on a whole new meaning in the context of threshold concepts and growth mindset!

The anxiety and identity threat produced by learner confusion can be diminished by creating a growth mindset environment in the classroom or workshop (Dweck, 2010). Thus, threshold concepts and growth mindset

are mutually reinforcing, or perhaps intertwined. Threshold concepts "... entail a shift in learner subjectivity" or "identity" (Land, Cousin, Meyer, & Davies, 2005, pp. 53, 55). "Such a transformation," write Land et al. (2005), "entails a letting go of earlier, comfortable positions and encountering less familiar and sometimes disconcerting new territory" (p. 54). Both first-year students (learning to write) as well as faculty (designing writing-intensive first-year seminars) experience this anxiety. As we discuss growth mindset as one way to encourage students to approach conceptual thresholds in the course design workshops, faculty participants begin gingerly to revisit troublesome knowledge that initially prevents but then eventually enables their own course design breakthroughs. I don't mean to argue that faculty identity shifts during the course of a 4-day workshop; but learning about mindset provides a vocabulary for participants to use as they revisit their core beliefs as educators in the context of designing a transformative writing-intensive course. Informal workshop participant reflections suggest the long-term value of this approach, because faculty recall the language of growth mindset as they revise their courses in the future. Structuring the workshop experience to amplify learning through a blended growth mindset/threshold concepts approach helps participants build a new relativity to the course material (in so far as they are able to "let it go" to a degree to spend time on application in class). This has a long-term effect on the delivery of *all* of their future courses. The growth mindset approach translates intellectual difficulty from a sign of failure to a marker of success.

Once we've established growth mindset as one way to think about student (and our own!) motivation, we've primed faculty workshop participants for a more counter-intuitive threshold concept required in teaching interdisciplinary FYW: Teaching a seminar on a topic "nearby," but not precisely "in," a home discipline can yield greater satisfaction, motivation, and learning for both professor and students. In *Teaching What You Don't Know* (2009), Huston has argued, "Fantastic teaching *can* happen on the cusp of your comfort zone," a concept similar to the motivational theories of Dweck, Csikszentmihalyi, and significant learning theory generally (p. 4). "Content novices," according to Huston, have more realistic expectations about what new students in a discipline might learn, and they are therefore better suited to motivate fellow novices. Content novices (faculty new to teaching writing, for example) are "better than experts at predicting how many steps another person will need to complete a task on her first attempt. They can better envision the steps that beginner will take, what kinds of mistakes she'll make, and which steps she might have to repeat" (p. 47). In other words, when faculty teach outside

their discipline, they are modeling the growth mindset for their students.

In the most successful first-year seminars, faculty who are “content novices” are better able to design assignments and envision how they fit together—not because they are experts, but because they are *not* experts. Furthermore, content novices are less likely to lecture in class (and thus, have ample time for active learning exercises and writing practice in class) because they don’t have scores of accumulated facts primed and ready for in-class delivery. Students can learn better when that learning is predicated on application of ideas rather than regurgitation of facts acquired during passive listening; learning improves as a consequence of reducing content and amplifying application (Fink, 2003). Furthermore, building new ideas and ways of knowing helps both students and faculty feel more energized by the learning process (Huston, 2009).

The growth mindset/threshold concepts approach has helped Furman faculty cultivate some degree of comfort for teaching writing-intensive FYWs. When the new curriculum was launched in fall 2008, 53% of faculty taught FYW seminars in their home discipline/research “sweet spot”; by fall 2012, that percentage had fallen to 23%. Put another way, 77% of FYW faculty in fall 2012 taught courses in which they were, to some degree, content-novices. Furthermore, the number of faculty from outside the English department teaching FYW courses is increasing. When the new curriculum launched in the fall of 2008, 30% of FYW faculty were English professors. In fall 2012, the FYW faculty will be comprised of only 21% English professors. Of those 79% of non-English department faculty teaching FYWs in Fall 2012, 90% had participated in our FYW Course Design workshop infused with growth mindset principles.

This cultural shift at Furman, where the majority of faculty members have the courage to teach as “novices,” has been reflected in faculty comments on and participation in the workshops. For instance, in the first iteration of the FYW/S workshop, participants were asked to reflect on the most valuable thing they had learned; their comments were usually bounded by disciplinary concerns and suggested a phantom, if persistent, anxiety over balancing writing instruction with attention to course content. One participant confessed: “. . . writing is still difficult, and . . . most people have different views about what is difficult and what is not. I learned that there are specific cultures of writing that are usually defined by one’s academic study.” In suggesting that good writing is bound by discipline, this writer tacitly opts out of claiming authority, potentially undermining his or her ability to teach students well. Similar concerns about teaching writing and trimming content to amplify writing instruction were verbalized often during the first two iterations of the workshops. As one

participant put it, “a lot of planning of the course is necessary to properly include writing. I still have concerns about sequencing assignments from simple to complex; focusing assignments to teach specific skills.”

In the June and July 2012 workshops, however, faculty arrived primed to prune their content, partially because they had some experience teaching in the new curriculum and had struggled firsthand trying to shoehorn the previous volume of 56 class hours into 42 class hours. Participants opened our first-day debrief of the faculty dreaming exercise with comments such as “It’s not about the content” and “I want to find a balance between information and writing instruction.” The release of content—a necessary precursor to incorporating more rigorous active learning activities—was also mirrored in final reflections such as this: “I think my ‘aha’ was that ‘less is more,’ regarding the course reading loads I assign.” Additionally, the concept map of faculty course designs (see Figure 2) also reflects this emphasis on process..

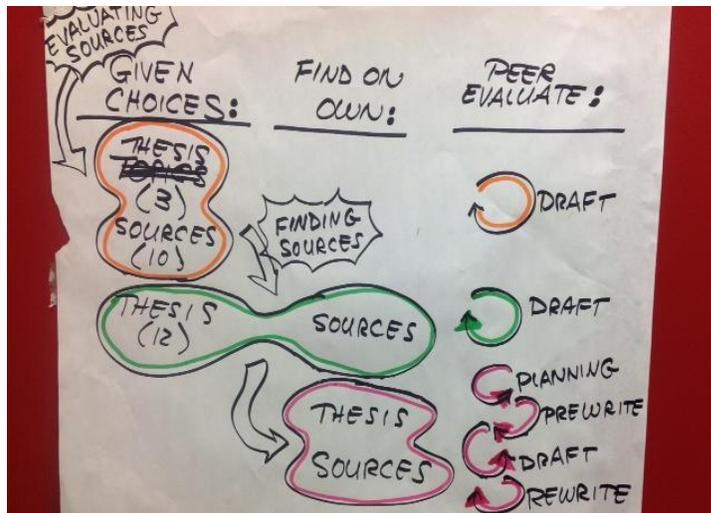
The course that is the subject of Figure 2, taught by a biologist, is “Scientific Claims in the News.” Note the focus on scaffolding student responsibility for increasingly difficult assignments and the graphic representation of the dynamic flow of the course. We didn’t ask faculty in earlier workshops to create these concept maps/graphic syllabi, and the faculty in the most recent seminar expressed great trepidation about completing them (“Do I complete a unit? The whole course?”). When encouraged to dive in, however, they produced accurate graphic representations of their courses and, when we compared them together, each participant provided valuable feedback to their peers about their course designs.

Conclusions

The growth mindset approach to workshops helps faculty visualize their first-year seminar courses differently, enabling a number of related teaching revelations to unfold. This approach, along with cultural changes over time, has made our introduction of potentially incendiary First-Year Writing seminars a moderate success. Rather than investing in changing faculty’s approach to teaching their courses in general, Furman invested in FYW courses that transform the faculty who teach them (Bain & Bass, 2012). Perhaps the most generative of these shifts is that faculty seem invigorated, rather than exhausted, at their seminar’s conclusion.

The growth mindset approach to course redesign workshops has been productive in its limited release (employed by one academic developer with a small population of faculty at a small, private, liberal arts college). A logical next step would be applying the method in

Figure 2
Course Concept Map



other faculty populations (at those larger universities or professional schools, for example, where mastery of content currently is paramount to student success) and measuring faculty learning in the workshops as well as satisfaction with courses in which they prompt students to adopt growth mindset. Our immediate next step will be to introduce mindset as a threshold concept in the workshops, thereby incorporating the theory's discourse into the interactions and providing a larger frame that faculty can use better to design the courses they teach—at the workshop's conclusion. By leading faculty through this process—using growth mindset as a threshold concept to empower them to think about threshold concepts in their courses—we hope to trigger epiphanies about learning that will transform their understanding of course design.

Although this approach to course design workshops was launched at a small college, I believe adopting this model has benefits for scholarly teachers across the Carnegie classifications. When we invite faculty to embark upon the “messy journey” of course design, we encourage them to enact a growth mindset, a useful way to envision student learning and academic development. Furthermore, when applied to course design ef-

forts specifically, growth mindset enables a number of related threshold concepts to manifest: It sparks in faculty a willingness to forego some content, freeing up class time to build in more meaningful active learning. Over time, faculty define themselves less as content experts and more as master learners, understanding their identities as scholarly teachers in an entirely new, sustainably inspiring way. Most importantly, encountering growth mindset in the writing seminar workshop energizes faculty to reconceive their teaching, which has positive ramifications for transformative student learning.

References

- Ambrose, S., Bridges, M., DiPietro, M., Lovett, M., & Norman, M. (2010). *How learning works: Research-based principles for smart teaching*. San Francisco, CA: Jossey-Bass.
- Bain, K., & Bass, R. (2012). Threshold concepts of teaching and learning. In D. W. Harvard (Ed.), *Transforming undergraduate education: Theory that compels and practices that succeed* (pp. 189-207). New York, NY: Rowman & Littlefield.
- Brookfield, S. (1995). *Becoming a critically reflective teacher*. San Francisco, CA: Jossey Bass.
- Chism, N., Holley, M., & Harris, C. (2012). Researching the impact of educational development: Basis for informed practice. *To Improve the Academy*, 31, 129-145.
- Cousin, G. (2011). Threshold concepts: Undergraduate teaching, postgraduate training and professional development. Retrieved from <http://www.ee.ucl.ac.uk/~mflanaga/thresholds.html>
- Cziszentmihalyi, M. (1997). *Finding flow: The psychology of engagement with everyday life*. New York, NY: Harper Collins.
- Dweck, C. S. (2006). *Mindset: The new psychology of success*. New York, NY: Random House.
- Dweck, C. S. (2010). Even geniuses work hard. *Educational Leadership*, 68(1) 16-20. Retrieved from <http://ehis.ebscohost.com/ehost/pdfviewer/pdfviewer?sid=d3d8858a-ca47-4b00-b784-b4632ec0eaad%40sessionmgr111&vid=2&hid=27>
- Felten, P., & King, C. (Eds.). (2012). Threshold concepts in educational development: An introduction. *Journal of Faculty Development*, 26(3), 5-7.
- Fink, L. D. (2003). *Creating significant learning experiences: An integrated approach to designing college courses*. San Francisco, CA: Jossey-Bass.
- Funnykidvid. (2001, June 11). Kid gives speech after learning to ride a bike. [Video file]. Retrieved from <http://www.youtube.com/watch?v=9PzoxTgfRO0>

- Holmes, N. (2006). Growth mindset diagram. Retrieved from http://www.isacs.org/misc_files/Mindset%20diagram.pdf
- Huston, T. (2009). *Teaching what you don't know*. Cambridge, MA: Harvard University Press.
- Land, R., Cousin, G., Meyer, J. H. F., & Davies, P. (2005). Threshold concepts and troublesome knowledge: Implications for course design and evaluation. In C. Rust (Ed.), *Improving student learning—diversity and inclusivity: Proceedings of the 12th Improving Student Learning Conference*. Retrieved from http://161.73.1.13/services/ocslid/isl/isl2004/abstracts/conceptual_papers/ISL04-pp53-64-Land-et-al.pdf
- Meyer, J. H. F., (2012). "Variation in student learning" as a threshold concept. *Journal of Faculty Development*, 26(3), 8-13.
- Meyer, J. H. F., & Land, R. (Eds.). (2005). *Overcoming barriers to student understanding*. New York, NY: Routledge.
- Michael, J. (2007). Faculty perceptions about barriers to active learning. *College Teaching*, 55(2), 42-47.
- Reder, M. (2007). Does your college really support teaching and learning. *Peer Review*, 9(4), 9-13.
- Wisker, G., & Savin-Baden, M. (2009). Priceless conceptual thresholds: Beyond the "stuck place" in writing. *London Review of Education*, 7(3), 235-247.

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