

Re-imagining 21st Century Higher Education: Designing for Creative Fluency

Elizabeth Long Lingo, PhD

In preparation for the *Chronicle of Higher Education*

Comments are welcome: elizabeth.lingo@gmail.com

A wellspring of initiatives and programs focused on creativity and innovation are bubbling up across the country—Chancellor-driven initiatives, such as “Innovate UNC;” multi-million dollar investments in innovation labs and centers; ambitious collaborations between arts, media, and engineering programs; and newly required “creative thinking” courses.

Yet despite the tremendous enthusiasm and buzz around these concepts, what is meant by creativity and innovation in higher education—in theory and practice—warrants further interrogation.

As Founding Director of the Curb Creative Campus Initiative at Vanderbilt and a scholar of creativity, leadership, and innovation, I spent the past five years designing and implementing first-of-their kind programs at Vanderbilt, including the four-year Curb Scholarship program in Creative Enterprise and Public Leadership, a proposed minor focused on creativity and innovation for the public good, and campus-wide programs designed to build the creative capacities of faculty, staff, and students.

Reflecting on the last five years, I suggest two radical departures from our existing conceptions and approaches to creativity in higher education are needed.

First, we need to expand our definition of creativity beyond idea generation, to the more expansive set of capacities required to advance and implement novel ideas and solutions.

Whether one is a social entrepreneur devising a novel solution to fight diabetes in rural communities, a political scientist seeking to instigate a grassroots social movement, or a documentary filmmaker offering a voice to underserved communities, advancing novel ideas and solutions involves a *collective creative process*—one that is inherently relational and negotiated.

Our students and faculty need the capacity not only to invent and imagine, but also to harness the expertise, resources, and commitment of others. They need the ability to navigate across disciplines, organizations, and networks as they attempt to implement their ideas, and the capacity to negotiate differences in interests, goals and power—especially when they lack authority over those involved.

Today’s employers increasingly seek graduates who can embrace ambiguity, and who are resilient in the face of inevitable obstacles. Fields ranging from health-care to high-tech need individuals who possess technical knowledge *and* the empathic listening and storytelling skills to deliver better client care and user-centered products. Communities, local and global, require leaders who can develop novel solutions to systemic problems *and* negotiate their implementation. This is the work and economy that is facing today’s faculty and students, as well as most deans and departmental chairs.

Second, while creativity techniques can be taught, we need to move away from simply offering *exposure* to creative techniques and tools, towards fostering *creative fluency*.

As part of the Vanderbilt initiative, I launched an exciting new opportunity for faculty, staff, and students—the Creative Practice Boot Camp. Now in its third year, the Boot Camp offers hands-on workshops that enable participants to experience the joy, messiness, and trade-offs involved in the creative process. Rather than just listening and talking to experts, participants immerse themselves in a range of capacities needed to bring novel ideas and solutions from idea stage to implementation—improvisation, data visualization, brainstorming, design thinking, empathic listening, storytelling, giving and receiving critical feedback. The Boot Camp sells out in hours—with over 300 people attending over 600 slots every year.

Yet despite the great success of the Boot Camp, I was struck by a fundamental challenge. How could we offer more than a “creativity phrase book,” the equivalent of those foreign language phrase books that we cling to when we travel? Just as those fluent in a language can converse spontaneously and in response to the immediate social and cultural context, those with creative fluency can nimbly engage a portfolio of creative capacities—under stress and amidst the ambiguity inherent to creative projects and innovation. How, then, could we move beyond simply exposing participants to creative techniques and tools to offering them experiences that develop their *creative fluency*?

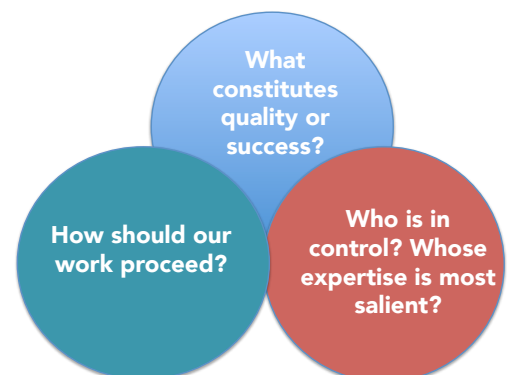
Fluency requires more than a single class or capstone project. Creative fluency requires immersion in a constellation of experiences over time that nurtures a way of seeing, thinking, and doing—a mindset, a way of responding in the moment—that is simultaneously intuitive yet mindful.

In higher education, we are comfortable with offering course credit and extra-curricular opportunities for students to practice a language, rehearse their musical instruments, and exercise their athletic muscles. We need to move from merely providing exposure, to systematically offering a constellation of curricular and extra-curricular opportunities designed to foster students’ creative fluency.

From Idea Stage to Implementation: Four Creative Capacities

What are the creative capacities needed in the 21st century? Based on over a decade spent researching and working with leaders as they advance their creative projects and innovative solutions, I have found that a key challenge is **managing ambiguity**. More specifically, leaders must manage differing perceptions of what constitutes success or quality (what is the goal?), whose expertise is most salient (who is in control?), and how the work should proceed (what process should we use?). When not handled deftly, these differences can impact the quality of solutions generated and whether innovators

Ambiguity arising in the creative process



can garner and maintain the support needed to advance their projects.

Ambiguity arises when multiple, subjective interpretations exist at the same time, which is often the case when harnessing the multi-disciplinary expertise and resources needed to advance creative projects and innovation. However, unlike uncertainty, ambiguity cannot be resolved by obtaining more information. Instead, leaders must nimbly engage four creative capacities to respond to ambiguity arising in the collective creative process.

Capacity #1: Can you invent and imagine?

The first domain pertains to the **capacity to invent and imagine**. Creativity researchers often measure and define creativity in terms of the number of ideas you have, the breadth or the number of different “categories” of ideas, and the novelty of those ideas. It involves using analogies, taking things to different scale, asking different questions, borrowing ideas from one field and translating to another, and individual and group brainstorming. Such techniques and tools are the focus of cutting-edge courses, such as Ryan Hargrove’s creative thinking course in the common curriculum at the University of Kentucky or University of Michigan’s Creative Process course that is co-taught by a multi-disciplinary team of faculty.

Yet inventing and imagining in a collective context is often problematic. Groups often fare poorly compared to individuals due to competing perceptions over quality and claims to expertise that inhibit individuals’ willingness to share works in progress and the “wild, crazy ideas” invaluable for producing novel solutions.

As a result, our students and faculty need experience in individual and collective idea generation—both as participants *and* as leaders. They need experience in empathic interviewing, rapid prototyping, establishing the ground rules for respectful multi-disciplinary interaction, and creating an environment that encourages risk-taking, mistake sharing, and building on bold ideas.¹ The Stanford d.school and the burgeoning network of student-led Design for America studios are exemplary models for engaging in collective idea generation.

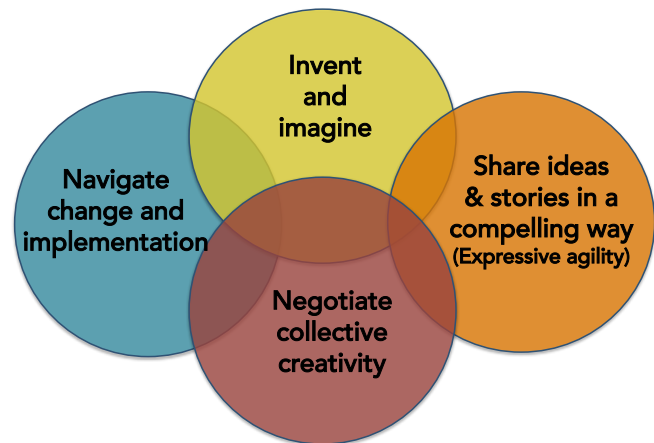
Capacity #2: Can you share your idea and story in a compelling way, using a range of media?

It is not enough to simply have a great idea. Moving an idea or solution out of the lab, garage, or studio requires garnering resources, expertise, and support in an often-competitive environment. This requires fluency in engaging others in our stories and ideas—what I call expressive agility. Being able to invoke passion and excitement for one’s ideas and inventions is the key to securing the involvement and contributions of others. Yet expressive agility requires not only the capacity to share ideas, but also to *listen*—to potential collaborators, funders, and a range of “users.” Drawing their stories out to elicit their needs, interests, and potentially different interpretations of quality is the key to successfully sharing your passion and ideas.

¹ Creativity, innovation, and organizational learning researchers, such as Theresa Amabile, Amy Edmondson, Andy Hargadon, Keith Sawyer, and Bob Sutton have led the field in identifying the key factors that contribute to collective idea generation in organizations.

Many of our students and faculty will need to develop Kickstarter, Indiegogo, or other crowd-funding campaigns to advance their projects. Last fall, I challenged my Curb Scholars to work with Vanderbilt writer-in-residence, Alice Randall, to develop a Kickstarter campaign that supported a “novel” approach to fighting diabetes in African-American communities. The project raised funds to purchase and ship copies of Randall’s book, *Ada’s Rules*, to start book clubs and conversations about beauty, health and identity at African-American churches and beauty salons, and invited women to add original sketches, art work, personal artifacts, and prayers that captured their own journey towards better health in the books.

Managing ambiguity: Four domains of creative capacity



My Scholars wrote, shot, and edited the video pitch, developed the accompanying narrative, and experimented with leveraging personal contacts and viral marketing to harness their creativity for the public good. While we were ultimately successful, throughout the entire process we wrestled with competing opinions of what our funding goal should be, and how to best engage the interests of our varying audiences and stakeholders—our potential funders and the communities we sought to serve.

Expressive agility is not simply for advancing creative projects—it is an essential skill for anyone working within a multi-disciplinary context. University of Queensland launched their 3 Minute Thesis competition to develop graduate students’ capacity to share their research with individuals outside of their discipline. Alan Alda has founded Stony Brook University’s Center for Communicating Science to help student and faculty scientists share their passion and research with lay audiences.

Capacity #3: Can you negotiate collective creativity?

While creative collaboration is an often-invoked term, it fails to illuminate the negotiated nature of harnessing collective creativity. While most creativity efforts focus on idea generation, I have found that editing and integrating those ideas—while maintaining the commitment of everyone involved—is often a more difficult challenge.

It is during the process of integration and editing ideas when disagreements over what constitutes quality or success, and whose expertise should prevail, comes to the forefront. When we have to say, “no,” to others’ contributions or respond to others’ critical (and often not constructive) feedback, deftly managing ambiguity becomes most salient.

To manage these difficult moments most effectively, students and faculty need the capacity to elicit not only others’ ideas, but also their underlying interests, goals, and assumptions. They need experience in building trust among uncommon partners, finding common ground, developing shared understanding across competing perspectives, identifying

tradeoffs, and negotiating the differing interests, goals, and values of all contributors to the projects—all while maintaining the commitment required for implementation.

Students also need the resilience to advance their ventures in the face of inevitable obstacles, and to pivot as needed in terms of scale or scope. Scholars who study entrepreneurs have found that the capacity to pivot not only influences one's ability to attract needed resources, but also, and perhaps most critically, impacts individuals' commitment to their venture over the long-term.²

Capacity #4: Can you navigate change and implementation?

Implementing ideas often involves change and challenging the status quo. From the inception of their projects, leaders need to be able to analyze and navigate the dynamics involved in change and implementation. Our students and faculty need the capacity to scan their environment for potential social, technological, and cultural obstacles to their efforts. And even as they negotiate short-term projects, they will also need an eye for the long-term—navigating the interests and goals of stakeholders involved, building coalitions, bringing potential adopters from trial to adoption, and establishing ways for their projects and ideas to be sustainable over time—even when they are no longer involved in the project.

The capacity to negotiate and navigate the often complex and obstacle-ridden terrain of implementing novel ideas has become an essential leadership skill on the job market. Students now encounter job interviews during which they explicitly are asked how they would handle a series of problems that may arise when implementing ideas at their potential workplace. Employers want to see how candidates solve problems and respond to obstacles under pressure, and hear what questions they would ask to survey potential blockers and challenges to implementation. In today's economy, students are evaluated not only on their own problem solving capabilities, but also their ability to survey their ecosystem and build support needed for implementation.

Making it Happen: Designing for Creative Fluency

Fluency in these four capacities begs for a holistic and systematic approach to designing the higher education experience. While the focus of this section will be on students, a systematic approach requires fostering the creative fluency of faculty and staff as well.

What is the goal? To graduate students who have a portfolio of experiences in imagining and realizing creative projects and innovative solutions—from inception to implementation. These experiences could include curricular experiences, such as senior design projects and honors theses, semester-long immersive learning experiences such as those offered by the Virginia B. Ball Center for Creative Inquiry at Ball State University, design-thinking courses at the d.school and the MIT D-Lab, and courses that offer the

² For example, see Matt Grimes' research on early-stage social entrepreneurs.

opportunity for scoping and realizing solutions for one's community, such as the innovative course, Classroom without Walls, at Parsons The New School for Design.

While focusing on the curricular component of the student experience is essential, considering the entire student experience is necessary to move from one-off exposures to a constellation of experiences that can nurture and sustain creative fluency. Such an approach considers a range of campus "touchpoints," from opening orientation to graduation, and the myriad campus resources that could be reimagined and aligned to support a student-centered design for creative fluency. This approach also embraces an expansive view of who on campus can be catalysts for creativity and innovation.

1. Invest in faculty *and* staff as co-designers and producers of creative-fluency building experiences

One of the most surprising findings from my work at Vanderbilt and other campuses is the power of inviting faculty *and* staff to re-imagine their work and become "catalysts" for campus change and innovation. A core part of my work has been to help people redefine their roles from administrators and managers to catalysts and change agents. For example, Nina Warnke, Assistant Dean of Vanderbilt's First Year Residential Commons, seized upon the potential for inventing new ways to adapt her existing programming—summer reading, first-year orientation, Commons courses, residential programming—to provide opportunities for students to build creative fluency. Jen Holt, former Director of Vanderbilt's Writing Studio, expanded her center's focus to launch a yearlong, campus-wide conversation around the power of revision and prototyping in higher education, teasing out the challenges of sharing works-in-progress and opening oneself up to critique in higher education.

Basic infrastructure—such as innovation grants, leadership development workshops, access to space, technology, and equipment, and coaching—are invaluable resources for supporting catalysts as they imagine, negotiate, and implement their non-routine ideas in the classroom, research, programs, and across campus.

2. Re-imagine spaces and centers for art, innovation, and problem solving as loci of creative fluency

Art centers, design studios, and innovation labs provide invaluable resources for *doing*: recording equipment, welding and machining tools for rapid prototyping, graphic design and editing suites, rehearsal rooms, performance spaces, smartboards and whiteboards, and screening rooms. These centers are even more valuable if they are available to inspired and curious non-majors, faculty, and graduate students *and* if they are trans-disciplinary. Spaces such as University of Michigan's Duderoff Center and Brown's Center for Creative Arts comprise a mix of music recording, film editing, sophisticated brain imaging, paper engineering, animation, virtual 3-D motion capture, and more traditional arts studios, and are hubs for prototyping, experimentation, and collective creativity.

These types of centers are strongest when they also leverage curricular innovation and collaborative research as ways to foster a community of practice—people who have a shared way of talking, thinking, and doing around creative problem solving and innovation.

Stanford's d.school offers an innovative role model for how students, along with faculty, staff and community members, can collectively define and scope problems, generate possible solutions, prototype alternatives and learn from them, and implement these ideas. MIT's D-Lab also provides a role model, offering courses, funding, and workshops that serve to build collective creative capacity to develop innovative solutions. Buffalo's International Center for Studies in Creativity offers a minor in creative studies and leadership and a master's of science degree in creative studies. The Swearer Center for Public Service at Brown University has recently launched the TRI-Lab: Teaching, Research, Impact—a multi-year curriculum that brings together faculty, students, and community members to address complex problems in the local and global community.

3. Bring together unexpected partners to advance campus-wide initiatives

Perhaps the most challenging, yet most fruitful efforts involve bringing together individuals from across campus networks—many of whom have never worked together—to imagine and advance a mutually common goal or initiative.

For example, over the past two years I partnered with Amy Wolf, Senior Public Affairs Officer at Vanderbilt News and Communications, to bring together a trans-disciplinary group of over twenty campus partners around a common interest in building the expressive agility of faculty, staff, and students. As one part of this project we collectively funded and launched the Vanderbilt Story Booth—a highly mobile and customizable technology embedded in classrooms, at events, and across campus—to enhance the ability of students, faculty, and staff to share their research, passions, and stories in compelling ways. Not only is the Story Booth deployed weekly across campus by an ever-expanding set of partners, but these partners also serve as an informal brain trust, spurring new collaborations and translating best practices and possibilities across one part of the university to another.

The possibilities and potential for trans-campus projects and initiatives are myriad. Multi-disciplinary research projects, collaborations between Colleges of Arts and Engineering, “hackathons” focused on specific problems or challenges, Rube Goldberg contests, Maker Faires, or a campus-wide “Creativity Open House” offering a glimpse into the creative process in labs, studios, repair shops, and classrooms are only a few excellent examples.

4. Engage trans-disciplinary centers as creative fluency advisors

Campus offices and centers such as student advising, centers for teaching and learning, career centers, scholarship offices, studio and performing arts, residential life, and centers for service and civic engagement are essential partners in a campus designed to foster students' creative fluency.

Extra-curricular projects—whether a theatre production, alternative spring break projects, or robotics club—offer students the opportunity to experience the entire creative process arc from idea generation through to implementation and review of the results. For some, extra-curricular activities may provide the only opportunity for students to be “producers” of innovation and creative solutions, as opposed to the “consumer” model that characterizes most student engagement in the classroom.

Could we elevate the role of trans-institutional campus centers in helping foster creative fluency? Could Career Centers become a Center for Student Professional Development, as it has under the leadership of Director Cindy Funk at Vanderbilt—advising students on how they might best develop the creative capacities demanded by employers—from their first semester in college? Could such centers help students integrate their disciplinary passions with advancing solutions to problems they care about—in the curricular or extra-curricular projects that they pursue?

5. Encourage change from the “bottom up”

This is perhaps the most radical idea of all—let faculty, staff, and students be the initiators of change and innovation.

For example, many students arrive on campuses with a multiplex of interests—curricular and extra curricular—and the desire to create change in the world. Universities and colleges provide the context for students to discover the problems they want to address, whether helping their families and communities thrive in difficult situations, devising novel public health interventions or biomedical technologies, or launching entrepreneurial ventures. As they attempt to realize solutions to these challenges and exercise their creative muscles, they often identify gaps in our existing higher education infrastructure. How do I integrate my dual interests in neuroscience and theater? How do I obtain video equipment to advance my documentary if I am not a film major? How can I find someone to work on the coding for my new website?

The key is to help students find ways to become system innovators. Students are eager to make change happen, if given the opportunity and the support to do so. Students are also often early-adopters of exciting new technologies, such as CollabFind, a new platform for garnering expertise and interest for creative projects that could be deployed across campus. Students can also serve as coaches to faculty and staff as they embark on curricular innovations and campus innovations.

Now is the time

If the goal of 21st century higher education is not only to provide disciplinary knowledge, but also to build individuals’ ability to harness that knowledge to advance innovation and implement novel solutions, we need to design and assess for creative fluency.

The call for creative fluency exists at the graduate level as well. Policy schools are challenged with developing graduates who not only can analyze data, but who also can solve “wicked” problems that are global in scope. Medical schools are rethinking their models to encourage empathic listening and the ability to harness fluid networks of expertise to deliver better client care. New MBA programs, such as Philadelphia University’s Strategic Design MBA for Hybrid Thinkers™ that embrace empathic listening, user-centered design, and integrative thinking to address today’s business challenges have been touted by both *The Wall Street Journal* and Roger Martin, former Dean of the Rotman School of Management, as the model for the future. “More organizations are realizing they need people grounded in creativity, who are agile in asking the right questions, framing the

problem, and then identifying opportunities. Markets require an empathetic stance, and new services and products require prototyping and iteration before a multi-million dollar launch,” says Natalie Nixon, PhD, Director of Philadelphia’s SD MBA program.

Whether the focus is undergraduates, graduate students, or faculty, **a systematic approach to building creative fluency is needed.** While this may seem daunting, **such an approach can breathe new life into existing programs, leverage existing untapped resources, and align often-siloed parts of campus in meaningful ways—often without any additional expense.** And while not everyone on campus will be on board, traction can be found by starting small and forging a community of inspired catalysts who, as a network, can create change in all facets of campus life.

Further, **a lab- or pilot-based approach allows for ongoing learning and insight into what is most meaningful for *your* campus given *your* unique resources and constraints**—personal, technical, cultural, and institutional. From these pilots will emerge insights into how to build sustainable systems and programs that can support your catalysts in their efforts.

A systematic approach to *assessing* the impact of these pilots and programs is also needed. One of my next projects? Focusing on assessment. The four creative capacities provide a useful framework for exploring how we might measure impact on students’ overall creative fluency and their relative strength in each of the four areas. This framework might also explicitly assess students’ tolerance for ambiguity, resilience in the face of the obstacles and failures, and ability to work within constraints.

In advancing this framework, we will also need to evaluate how and when we might best utilize technology to enhance creative fluency, and technology’s inherent limits. Are certain creative capacities best developed in the classroom, face-to-face? Which can be effectively developed virtually or using simulations? In a world where collective creative work and problem solving is increasingly done through fluid, and global short-term projects, addressing technology as both resource and constraint is imperative.

Developing assessments that more fully capture the range of creative fluency capacities will require drawing on insights and pedagogical practice from researchers and faculty from an array of disciplines, including industry experts. For example, in addition to drawing on the foundational creative assessments, such as the creativity and wisdom assessment developed by Robert Sternberg, we also need to engage industry leaders such as Google, which has already recognized the limits of standardized testing and the need for more qualitative assessments that tease out *how* and *why* job candidates have approached creative problem solving and implementation in the past.

Advancing the field will echo the creative fluency framework outlined here—requiring a systematic approach that recognizes the need for non-routine partnerships and lines of inquiry—to best harness the passion and disciplinary knowledge of our faculty, staff, and students in the 21st century.