



When I first started working as an academic librarian, I happened to be hired at the same time as our new writing program director, and in the course of new faculty orientation, she introduced me to a parallel world. It turns out that people who teach writing occupy very much the same space as those of us who teach students how to navigate information. In both cases, we provide a service to other departments, which gives us a broad sense of what students experience as they travel between disciplinary ways of knowing. It also gives us a problematic status – we don't typically offer majors; we focus more on student learning than on passing on bodies of knowledge, and we are often seen as supplemental to the content knowledge that takes the center stage. Our job is to help students figure out things that some academics think are self-evident but peculiarly difficult for students, who should have been taught better in high school or shouldn't be in college or should simply try harder. Most faculty are not so blinkered and want to help, but feel unprepared. The space we occupy between and across disciplines gives us a clearer view than many faculty of what it is like to be a student navigating a strange new world full of unarticulated expectations and hidden knowledge.

One of the things our writing director suggested I read revealed this to me. In an [essay](#) published way back in 1986, David Bartholomae pointed out that we give all new students an incredible task: we ask them to invent the university. We know what a university is. We know how it works. We know how academics talk to one another. We know what knowledge looks like when it's dressed properly, which is to say wearing footnotes and big words in its title. We know that the big words historians use are not the same as the ones biologists use and adjust accordingly. We know that the world of knowledge is divided into distinct cultures where these different languages are spoken and where different methods are used to divine meaning. At universities, these cultures are housed in departments, local neighborhoods with different



cultural traditions. And in order to expose students to these cultures, we give them an itinerary called gen ed which, in any given semester, exposes them to a number of the cultures and languages and customs. Students' ability to stay in school depends on being first aware that a university is made of different cultures which speak differently – and don't speak to each other very often – and second, being able to adapt to different cultural situations fluidly by being able to develop a lexicon on the fly and figure out what's sacred and what's out of bounds. All that while navigating a new social milieu, perhaps living away from home for the first time, and

navigating the registrar's strange rules and regulations. We underestimate how very complex this process of invention is, and we forget how much it has to do with being able to feel like an insider.

As Bartholomae put it, "all writers, in order to write, must imagine for themselves the privilege of being 'insiders' – that is, of being both inside an established and powerful discourse, and of being granted a special right to speak." Because we ask students to write before they really feel like insiders, their writing, in Bartholomae's words, "becomes more a matter of imitation or parody than a matter of invention and discovery." Moreover, we expect them to perform this imitation when they have nothing of their own to say, or rather before they are granted the right to decide what is worth speaking about. Because of our emphasis on documented prose, they get the sense that they have the right to speak only so long as they speak using other people's language to tackle subjects they know very little about using a kind of argument they often have never encountered, much less practiced themselves.

Naturally, students make many mistakes as they try on voices and academic argumentation styles for the first time. For some students, these mistakes are interpreted as a message that they cannot be insiders, that they don't belong. A recent *New York Times* [story](#) on this topic suggested that first generation students who don't have family members who know something of university culture to help them out, or who may feel excluded already by their color or social class or life experiences, are much more likely to take seriously those moments every undergraduate has of thinking "I can't do this." The student who previously earned As



without much effort but flunks an organic chemistry test may be crushed, but only temporarily. She has always assumed she would go to college and graduate because that's what everyone she knows does. She interprets this moment of defeat as a message that she has to study harder or maybe change majors. The student who is trying to invent the university all by herself – and for whom the future other people have invented for her does not involve college – is much more likely to feel that flunking that same chemistry test is a sign that she can never belong, that what the world is trying to tell her is that she isn't good enough and should stop trying. Helping these students who are actually good enough but have doubts about belonging is something we need to think hard about in a world where higher education no longer is the force it once was for social mobility.

One of the ways that students can feel a sense of belonging is by finding their place in an academic library. Finding their place may be a literal, physical thing – the spot in the library where they feel most comfortable, safe, and welcome. A



librarian in the UK recently did a quick-and-dirty [ethnographic study](#) to find out why students were using a computer lab that seemed inconvenient and awkward. Librarians thought they should do something different with that space – but first, she thought she'd ask. All of the students had definite reasons to use that space – and they were different reasons. She also snapped some photos of study spaces students claimed during exams, where students have arranged things in a nest-like mode. You notice that in some cases these are almost idea maps – ways to spatially arrange information to make sense of it while also making the space their own. They've invented a place in a library where they feel some sense of insidership.

There is also another way of finding one's place in a library, and that's both emotional and intellectual. We know students use library spaces for a variety of purposes, and they use different parts of libraries for different reasons. Sometimes they need to study together. Sometimes they need to study alone, but in company. Sometimes they need solitude. Often they come to a library for these things even though they could find these qualities in a café or a dorm room or in a quiet corner of an academic building because the library is symbolic and being there puts them in the space of that symbolism. It's inspiring, and not because of architecture.

Now, libraries can be intimidating places. We have heard a lot about library anxiety, and it's associated with challenging tasks that call on students to invent the university, and yet I strongly suspect that a student's capacity to feel at home in a library is partly because libraries

represent knowledge and learnedness and give students a sense that they are participating in that culture of knowledge, even if they are studying for a chemistry exam and are only using their course materials rather than the library's collections. A library signifies not only academic work – a place where studying happens – but also a place where students can signify belonging. They may be frightened about that test, but they are in a place where others will see them at work and will recognize them as insiders.

Yet unlike space, our library systems and services are not particularly designed for developing a sense of belonging, of nesting. To use the language of the fascinating [Visitors and Residents](#) study going on in the US and UK, library users (as well as users of the Internet) can be categorized as falling on a continuum from visitors to residents. We tend to design our services for those in visitor mode – those who simply want to stop by, get something, and get out. We assume that's what people want from our libraries, and often it is. (In fact, this

Library



emphasis on efficient service dates way back – John Cotton Dana [wrote](#) about it before 1900.) Our catalogs and databases and discovery systems are designed for fast acquisition. Five scholarly articles, none more than ten years old. Done. There's not much that is engaging about a list of results, a list sorted by an invisible

algorithm like Google, but not like Google because somehow the information seems less well-sorted and the information behind the links less instant. The results may match the demands of the assignment – lots of big words! – but unfortunately those big words make it hard to know which links to click on. And quite often, the only way to get good results is to start a search with big words students don't yet know. How often have you had a student say they need help because they just can't seem to find the right search terms? Imagine going into a bookstore in Thailand or Sri Lanka, on a mission to find three books about some aspect of local culture, and you come out with a translation of a Malcolm Gladwell book, a history of Western art, and a romance novel and are crushed to learn they won't do. It would be a lot easier to make good choices if you knew the language.

What we really want for our students is to feel like they are more than mere visitors to the world of knowledge with nothing but a tourist phrasebook to help. We certainly don't want to send the message that perhaps they don't belong there at all. We want them to feel as if it's their world. This doesn't mean they need immersion courses in the languages and customs of the cultures they're encountering so that they can pretend to be academics more effectively, but rather that they begin to feel as if the world of ideas that their professors inhabit belongs to them, too, and isn't separate from their personal worlds or from the wider world that they will graduate into. We want them to believe that the ways that scholars explore ideas, even if the form it takes is unlike anything they've encountered before college, has value beyond college,

that their participation in the world of ideas might change the world for the better. To get there, though, we first need to make sure that students know they belong.

We know from [Project Information Literacy](#) that librarians and writing instructors, though both hold relatively low status at universities, are frequently the people who help new students invent the university. What we need to do, I think, is be conscious that as we help them invent the university, they are also able to claim an authentic identity within that university – that they aren't simply finding ways to mimic academic practices so that they can pass through the university without being found out as a fraud.

Let's look at some of the differences between visitors and residents to libraries – and here I'm extrapolating from some early findings of the Visitors and Residents project which initially studied the behaviors of web users.

VISITORS	RESIDENTS
<ul style="list-style-type: none"> • Sources are random piles of things; you use the web and search engines to sort through them and find what you need. • The important thing is to get what you need quickly and not waste time. • Information is something you find and use, not something you create and share. • Authority is found in good sources. • Research is finding out what the authorities have to say. 	<ul style="list-style-type: none"> • Sources represent communities making meaning and so are connected together. • You can't be sure what will be useful except by poking and prodding. • When you're making meaning, you're getting ideas by drawing on other people's thoughts and making connections. • Authority is a socially-negotiated. • Research is a process of making meaning.

You'll probably notice that these behaviors or beliefs map pretty closely to stages of intellectual development. Very often younger undergraduates just getting started have a binary view of truth – things are true or not true; ambiguity is messy and uncomfortable. They may also be more familiar with learning in that mode because it's much easier to test that kind of right-or-wrong knowledge, and testable knowledge has come to dominate K12 education. It may well be that first year undergraduates are not developmentally ready to handle the messy work of understanding how information works, to handle the fact that it's contingent and

socially situated and while more than one answer might be perfectly plausible, some better than others and some are simply wrong, even ones that are widely embraced.

But I suspect a lot of their difficulty is less developmental and more social. They are familiar with different kinds of knowledge and the ways people negotiate meaning. But students who have never seen a journal article in their lives are often told they more authoritative than popular sources, and therefore should be used in their papers. It's not hard to find journal articles – a simple search with a limiter turned on can turn up thousands. But that simple appearance-based definition of authority is not helpful, any more than it would be helpful to tell students to use lots of big words because that's what scholars do, but don't worry about which words you use or what they mean. Any big words will do. A similar message is sent by the way many assignment prompts are fashioned. They don't typically say very much about the research process or even how to find a focus when exploring an unfamiliar topic. (As an aside, scholars never approach research this way – if asked to take a well-reasoned position on a topic they know little about and do it five or six times in fifteen weeks, they would think you were crazy.) Assignment prompts say a lot about what the finished product should look like, though, and how stiff the penalties for plagiarism. This reinforces a right/wrong binary way of thinking. The message that getting citations exactly right, having a certain number of sources and pages is important. Margins are important. Having ideas of your own? Gee, that's probably against the rules. After all, you're supposed to provide evidence for everything you say, which means somebody else has to have had the idea first. Which means my ideas don't belong here.

It's interesting to think about why this kind of documented writing is so firmly embedded in academic practice. In one multi-institutional [study](#) of first-year writing that looked at errors students make in writing, comparing findings from the mid-1980s and 22 years later, the authors commented that the kinds of writing students were asked to do had changed dramatically. They were doing far more long-form source-based writing in the first year than in the past. It seems faculty are more inclined to expect students to invent the university right out of the gate, and it's not working. Another multi-institutional study, the [Citation Project](#), has found that when writing from sources, students do a lot of patch-writing. That is, they find quotes, arrange them, add a few transitional sentences, and are done, except for the tedious work of composing that detailed ingredients label required by law, the works cited page. They tend to focus on locating quotable material rather than on reading and understanding scholarly articles. The quotes they choose almost always come from the first or second page of the articles they use, and often do not represent the article's main point. This, by the way, is nothing new. It's entirely consistent with earlier, pre-Internet studies of student writing.

When we tell them to find five scholarly sources, show them how to do it using library databases, and emphasize not getting busted for plagiarism, we are inviting them to invent only part of the university, the part that is about formal rules and big words. Not the part where

people discuss ideas that matter. It's a kind of etiquette book for a foreign culture that they have to master before they're allowed to have a voice of their own.

I would argue that this is exacerbated by the inequality built into our educational system and the ways in which late capitalist values have seeped into everything we do. Faculty must be productive, so generate as many publications as they can. Students must prepare for the workforce, so can't waste time dabbling in ideas that might go nowhere when they should be completing assignments. And libraries – even those designed expressly for undergraduate researchers – are expected to provide as much information as possible in platforms that strive for the retrieval efficiency of Amazon and Google, though we don't have their deep pockets and don't spy on our users to improve their search experience. We treat research as if it's a shopping experience, and that promotes passivity, outsidership, and the kind of behaviors that characterize visitors rather than residents. When we design our libraries and library programs for learning, we need to resist that seemingly efficient, yet uncritical approach to information.

Here's where threshold concepts come in. These are concepts that are troublesome, integrative, irreversible, and transformative. They're the big, life-changing moments when students learn something about themselves and the world. They are the opposite of the how-to skills that so often are the focus of our instruction. Those skills matter. We provide a service, both to students and to their professors, when we help them use



the library to accomplish specific goals related to courses. I've always believed that though one-shot instruction is terribly limited, it at least has the value of reaching a lot of students in specific contexts where the library is needed. Information literacy is a practice bound in contexts, and the academic curriculum is rich with those contexts. The students won't learn all that they need in that hour or two we spend with their class, but it gets them started. They become information literate through experience, interactions with their professors and with research materials, and through developing over the course of several years a firmer knowledge base, greater comfort with the messiness and complexity of information, and greater confidence in their own ideas. If you've spent time discussing research with a first semester student and a senior, you know how much more sophisticated they've grown in a few years, and how much more committed they are to playing an active role in their own learning. Our encounters with their classes can't make them information literate, but they can provide moments of insight and opportunities to play with tools and some practical know-how that will come into play as they develop deeper literacies.

But it's important to make sure our teaching doesn't inadvertently undermine what we're actually trying to do. When we emphasize how the database works, we're leaving out the bit about how much work must go into making choices. When we focus on finding sources instead on learning about something, it suggests sources are interchangeable, inert things, and research means demonstrating that you found some. When we try to make it clear and simple, we oversimplify a process that is anything but. Though we need to help students get their work done, we sometimes undermine the fact that playing around with what you find is how research works. We may reinforce the idea that if you don't find the right stuff quickly, you're doing it wrong. We also send the message that tools are just the way they are, not systems made by people within a cultural and economic context that makes some things harder to find than others.

When we help students understand their place in the world of information, we are really trying to give them a map and a compass and a sense that this is a journey. The journeys they will undertake will largely depend on choices they make in a complicated landscape full of complexity. Having choices to make is both liberating and frightening. It's much easier to follow a checklist and march in a straight path toward the end point. That's not how research works. That's not how knowledge works.

Threshold concepts are places on that journey that give students a new perspective, a view of things they've never experienced before. It's hard to get there, and you can't cross a threshold by hearing about it and taking a test on it. It's a place where learners get stuck, a place that's really difficult and troublesome, but if you cross that threshold of understanding, if you grasp that concept, it's learning that is irreversible. Your perspective has changed. It's not something you'll forget because it has fundamentally changed the way you think.

I first heard about threshold concepts at a LOEX conference where Lori Townsend and Amy Hofer were [presenting](#) a Delphi study they were conducting among LIS professionals to find the stuck places students encounter when they learn to use information. A few weeks later, I heard about them again from [Gayle Schaub and colleagues](#) who were using core concepts to rethink their instructional efforts at Grand Valley State University in Michigan. We read one of the foundational articles in our library journal club and thought it was an inspiring notion – that we might be able to figure out which concepts are most troublesome for our students and then find ways to help them across those conceptual thresholds. But we didn't want to find out what those stuck places are from other librarians. We wanted to hear from our faculty.

My colleague Michelle Twait and I wrote [a grant proposal](#) that provided small stipends for ten faculty to participate in a pilot project exploring threshold concepts for information literacy. We held two group discussions about what these concepts might be in the spring, invited librarians from six liberal arts colleges in Minnesota to spend a day thinking about threshold concepts for information literacy, and had a workshop at the end of the term during which the ten faculty participants could look at specific assignments together, think about

where these thresholds might be encountered by students in their programs, and how the library might help. One outcome of the workshop was the suggestion that threshold concepts for information literacy be included in the faculty retreat next fall on the subject of the liberal arts.

Between the time that we learned we'd received the grant and our first meeting with faculty, we discovered that threshold concepts were being adopted in the process of revising the familiar standards for information literacy into a new framework for information literacy. That process is still under way, and many of you have participated in it, I'm sure. The concepts that have been described in two drafts so far are:

- Scholarship is a Conversation
- Research as Inquiry
- Format as Process
- Authority is Constructed and Contextual
- Searching is Strategic

With each of these concepts, the team working on the revisions include a lot of ideas about what these mean and how we might use them in teaching. Our conversations with faculty arrived at a similar but somewhat different – and longer! – set of concepts

- Knowledge is made by people. When we talk about facts or sources, we are really talking about people talking to other people. (It seems important to also get across that students are among those people and have something to say.)
- Research involves posing a question and proposing an original response to that question. (It's not finding out what others said and reporting on it, though what others say about the question will be helpful.)
- Research is a recursive process. What you learn will lead you to ask new questions, some of which you may not be able to answer conclusively.
- Every use of information requires acts of judgment.
- Knowing sometimes means questioning something you previously believed to be true; it can change your mind.
- Research is guided by ethical principles, such as approaching a question with an open mind, avoiding cherry-picking evidence to support a predetermined position, representing other people's ideas accurately, etc.
- Knowledge is social and collaborative. It's made by people working together over time to advance what we know about the world and is influenced by economic and social contexts. [
- The purpose of research is to pursue deeper understanding while recognizing that understanding is inevitably elusive.

Though we could agree on these concepts as ones that underlie all forms of disciplinary inquiry, we will have to dig a bit deeper to figure out what experiences and practices will help

students encounter and pass through those thresholds. This is not easy stuff. Yet it was cheering to see that all of the faculty, drawn from different departments in the sciences, social sciences, humanities, and fine arts agreed that these are important outcomes of a liberal education in addition to the methods and the knowledge base of their own disciplines. We agree that we have to create a ladder or scaffold for each student to get from where they are to where we want them to be, and that effort has to be cross-curricular and extended across a student's entire education.

What's interesting is that these processes involve people and are social, just like the research process. That makes it awfully difficult. One faculty member described how they are working toward a shared understanding of what their majors should know, and that is being worked out through redesigning a methods course and a capstone that many of them will teach and none of them will own exclusively. Another professor, fairly new to his department, thought seniors were surprisingly uncritical of core concepts, and thought this work of questioning and testing needed to start much earlier in the program. A third said, basically, "it's complicated." A variety of factors make conversations difficult. Personal differences, power relationships, competing ideas about what the discipline is and where it is headed, and lack of time all make this kind of deeply reflective pedagogical work challenging. We have our own thresholds to cross.

But the preliminary work we've done so far has, I think, affirmed a set of shared goals and given faculty in ten different departments a sense of how this kind of learning connects across disciplines. Libraries are places in their institutions where such connections can be made because we are the intellectual common ground for the campus. Librarians are particularly well positioned to host these conversations because we are custodians of the commons. We value what happens in the space in between classrooms and between disciplines where students begin to connect ideas and to find their own identities as participants in this vast, multivocal, ongoing conversation that is knowledge.

Only connect. That is a great challenge. It's interesting to think back to the [essay](#) that Vannevar Bush, head of the U.S. Office of Scientific Research and Development during World War II, published in *The Atlantic* shortly before one of his projects was revealed to the world when the atomic bomb was dropped on Hiroshima. In August 1945, he described a hypothetical machine that would give every scientist the world of knowledge at his fingertips through the miracle of microtext. This machine, the Memex, would not only provide access to knowledge but would allow its users to annotate and link it together. Connections would be made through "trails of association" that could be shared. This is a startlingly prophetic vision of hypertext, but the Internet doesn't work quite that way anymore. One of our faculty participants said something very interesting during our conversations: Google has flattened information. A search results in a page full of links, separate bits of stuff that are arranged according to an

invisible hand, the Google algorithm. The algorithm, in turn, is shaped by Adam Smith's invisible hand, a belief that self-interest channeled through market forces will benefit us all.

The Internet that was once a publicly-supported network of government and university nodes became a publicly-supported platform for commerce, and in that transformation the relationship between web users and the platforms they used changed, flattened, became both a



shopping mall and a surveillance system. The social web that promised such empowerment has turned us all into contingent content creators who are encouraged to constantly promote our identities as brands while concentrating a lot of power in the hands of a few giant corporations who are spying on us, to boot. Our identities have become both brand and product. We have lost ourselves and our ownership of the web just as we have lost ownership of our libraries, of the record of knowledge itself. Curation and the establishment of authority has been outsourced, knowledge turned into

[corporate intellectual property](#). This doesn't make it any easier for our students to see their role in a social process of knowledge creation that philosopher of science Michael Polanyi described as a [republic](#). A republic we will only have if we can keep it.

But just as last week, a lot of individuals dissatisfied with the surveillance-industrial complex that the Web has become took steps to "[reset the net](#)," we're seeing the academy strike back through the open access movement and a greater commitment to sharing and to the commons. We've made real gains in the past couple of years, and we need to keep up the momentum and a clear sense of values to guide us. Our core values are an excellent framework for resetting the net and reclaiming our commons. We just need to make sure we act on those values. Students aren't the only ones who have to invent the library.

But in the end, what we are trying to do is something more. We need to invent a society that is more just, equal, and free, and toward that end our work as academic librarians is to prepare our students to participate in society and make it what they believe it should be. We need it to be more than a financial transaction, the kind of education [Paolo Freire](#) called "the banking concept of education." We need to provide education that is the practice of freedom. After all, liberal learning is meant to be liberating. The library – the very idea of a library as a place where people are free to think and encouraged to invent and share – is a good place to start.

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