

This paper is written as part of [CAST's UDL Rising to Equity initiative](#), a multiyear, community-driven effort to revise the [UDL Guidelines](#) to identify, name, and redress systemic barriers to equitable learning and outcomes. We encourage you to join the conversation by using the hashtag [#UDLrising](#) on your favorite social media platform, by emailing your feedback to udlguidelines@cast.org, or by joining in the comment boxes on the blog series made from this paper.

Cracks in the Foundation

Personal Reflections on the Past and Future of the UDL Guidelines

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with contributions and review by Jenna W. Gravel, and Nicole Tucker-Smith

A couple of years ago, Boston's iconic Museum of Fine Arts (MFA) was expanded and beautifully redesigned. A new wing made the building much easier to enter and navigate, for everyone. The long and imposing stairway at the front of the building had been augmented by a smooth and elegant entrance with no stairs, automatic doors, haptic signage, easy access from the parking lot, and so forth, making it much more universally accessible and less intimidating.

But in 2020, a busload of middle school students arrived on a field trip from one of the nearby inner-city schools, mostly Black and Brown students. After a relatively short time, the visit was curtailed by the teachers and principal because both they and the children felt unwelcome: The guards followed them around suspiciously, the staff spoke to the children punitively rather than educationally, and the other guests at the museum shunned them or expressed racially charged sentiments. These barriers made them feel as if they didn't belong at the museum.

Within days, the incident was reported in the Boston Globe and full apologies were issued by the museum—initiating a year-long analysis of racial and ethnic prejudices and biases that, from top to bottom of the institution, needed to be recognized and remediated. That analysis, and the subsequent remedial changes, were not conducted by architects but by professionals who focused more on addressing mental and social barriers rather than physical ones. Making the museum fully accessible will require fixing more than its building.

The episode at the MFA illustrates two outcomes that are relevant to the foundations of Universal Design for Learning (UDL). First, the new wing has made the MFA a more accessible building. The principles of universal design in architecture are readily evident in its design and have eliminated many critical barriers—notably for people with disabilities but also for anyone who comes to the museum with baby carriages or strollers, with wheeled luggage and carts, as well as those who are tired or injured.



Second, many other barriers remain. The principles of universal design did not help to make the overall institution more accessible or welcoming; they did not help to reduce the barriers that Black and Brown schoolchildren faced, among many others. There are lessons there for the future of UDL.

As it is well known, the universal design movement served as a powerful founding metaphor for the development of Universal Design for Learning. The two movements share a common approach—design for diversity and equity from the outset rather than attempt costly structural repairs and accommodations later. Like UD, the principles and Guidelines of UDL have been widely adopted and implemented, in both policy and practice, both in the US and throughout many countries in the world.

But, the story of the MFA is a cautionary tale about both the strengths and limits of UD as a metaphoric foundation for UDL. At this time of social unrest and disruption, when the inequities and injustices in educational systems (and in cultures more generally) have been highlighted yet again, it is clear that there are many barriers that the UDL framework and its associated guidelines do not explicitly address.

Those barriers are quite different than the barriers that are evident in buildings or in classrooms. They are typically institutional or systemic, they are more often about identity than ability, and more often implicit rather than explicit. They are barriers that affect people primarily on who they are rather than what they can do: Barriers such as racism, genderism, ethnocentrism, and ableism.

These barriers have always been apparent and abhorrent to most advocates of UDL but they have often seemed outside of our expertise, our experience, and unfortunately, our priority. It is time to re-examine the role of UDL in addressing those other kinds of barriers.

Why now? The last revision of the UDL Guidelines—a very minor one—was published 10 years ago. We have learned a great deal since then and one thing we have learned is that the UDL Guidelines need to be updated and revised to meet the needs of the expanding populations of teachers and students who now use them both locally and internationally.

But, it is impossible not to recognize the urgency for change at this moment in the United States and in other countries as well. The intersection of two infections—one biological and the other cultural—have re-exposed and highlighted the inequalities, injustices, vulnerabilities, and barriers that many people face in every culture.

I believe that UDL must play a stronger, more explicit, role in addressing those other kinds of injustices and barriers. For three reasons. First, one of the things we have learned is that classroom barriers and injustices—for any of its most vulnerable learners—cannot be fully addressed in isolation. Unjust and inequitable institutions, systems, and cultures inevitably project, either implicitly or explicitly, their inequalities into their primary means of enculturation—our schools and classrooms.

Second, as a white, middle-class, highly resourced educator, I recognize that I have inherited special privileges and advantages from the people and cultures that have shaped and matriculated me. As part of all that shaping, I have also developed problematic prejudices, unrecognized biases, and weaknesses that set limits on what I see and experience, on what I know and what I can do. I have still a lot to learn, and so does the field of UDL.

Third, a number of particularly innovative and highly-motivated educators have already demonstrated that they can apply and extend the existing UDL Guidelines to address the wider barriers in our school systems and institutions. Their individual adaptations, formerly inaccessible, are now becoming available in published form (e.g., see recent books by Andratesha Fritzgerald, Mirko Chardin and Katie Novak, Patti Kelly Ralabate and Loui Lord Nelson, Caroline Torres and Kavita Rao, in references) and in major presentations (e.g., Cornelius Minor, Marian Dingle, Lizzie Fortin, Cody Miller, Kass Minor, and Jon Mundorf at the 2020 UDL Symposium). Their work foreshadows the kinds of explicit recommendations, exemplars, and research that could deepen and diversify the impact of the UDL Guidelines in the upcoming revisions. The Guidelines need to build on what they have learned.

Why Me? As one of the prime creators of the UDL Guidelines (with Jenna Gravel and many wonderful colleagues at CAST) it seems appropriate for me to contribute some reflection and conversation on the next iteration of the UDL Guidelines. Now that I am at the age where reflection dominates projection, I have chosen to anchor my thoughts in four short stories (all true, but probably embellished) from the most formative year of my life as a teacher.

From the vantage point of those stories, I will try to revisit some of the basic foundations of the UDL principles and guidelines. My intent is to focus primarily on the cracks that have been revealed by history and practice. My intent is not primarily to undermine the foundations of UDL, but to strengthen them. Perhaps my intent can be much better captured in the lyrics of Leonard Cohen's most moving poem and song called "Anthem." The pivotal line in its chorus is this:

There is a crack in everything
That's how the light gets in.

So, I want to take you back to 1968 in Boston. There were lots of cracks that year, and a lot of light got in.

Cracks in the Foundation

● **Trouble at Latin High School**

In the spring of 1968, I was teaching for the first time in a public-school classroom. At the time, I was enrolled in a Master of Arts in Teaching program at Reed College and was assigned for my practice teaching to Portland, Oregon's only predominantly Black high school. Encouraged by that supervised experience, I decided to apply for a permanent teaching position in inner-city Boston's public schools. Over 700 teachers applied that year (it was the height of the Vietnam era). Following Boston's procedures, they ranked all of the applicants in order, literally from 1 to 700. Benefitting from many privileges, I looked great on paper: High

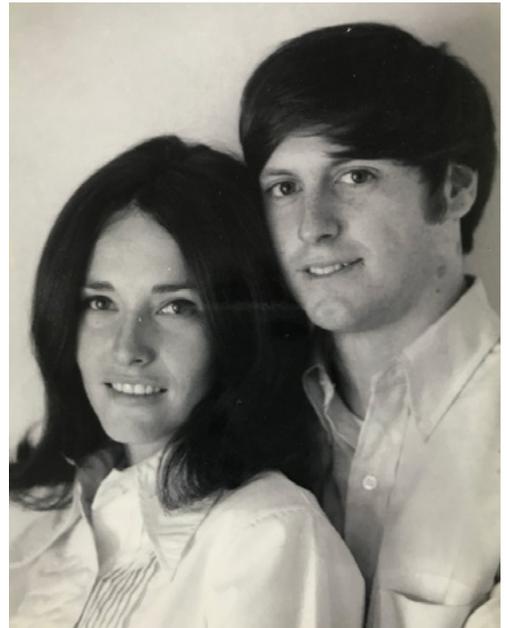
scores on the National Teacher Exam, enthusiastic recommendation letters from people like B.F. Skinner (at the height of his fame), and the principal of the school in Portland. I was ranked number 2 of those 700 applicants (I still want to meet the number 1). Delighted, I wrote a letter expressing my preference for a position in one of the poorest schools academically and economically—where I could best apply my possible strengths.

A week later I got a letter telling me I had been assigned to Boston Latin—the district’s most exclusive exam school which was populated at that time almost entirely by white students from the most economically advantaged sections of Boston. I objected to the placement, but the Superintendent’s office advised me that they had carefully reviewed my request and were firmly convinced that I would be more “suited” for Boston Latin and its highly promising students rather than “wasted” in a depressed neighborhood school. I appealed the placement aggressively and was ultimately released and assigned to a recently integrated high school with an annex that was located in one of Boston’s “transitional” neighborhoods. As a temporary annex in a rough neighborhood, the school was under-resourced and under-supervised. That was respectively a hindrance and a blessing.

My assignment to Boston Latin did not itself constitute a barrier to anyone. But a consistent institutional pattern of assigning all the “best” teachers to the most privileged schools and the least qualified teachers to the neediest (and predominantly Black and Brown) schools, is profoundly and systemically discriminatory: It ensures that some students will have a much steeper climb, and less support, than others. And that is merely the tip of an iceberg. Most of the resources in my school were inferior to those at Boston Latin: There were fewer books (and no library), there was no auditorium or projection equipment, students in my school were suspended at vastly higher rates than at other schools, etc. The accumulation of those and other disparities created subtle but consistent barriers that were pervasive and systematic. They affected not only the productivity but the motivation of our students, and their teachers. Including me.

Nothing in the present UDL Guidelines addresses the kind of barriers that diverted the best teachers, resources, curricula, and administrators to Boston Latin or similar schools, and left students and teachers in the poorest schools to face harder tasks with weaker services, tools, and resources. These barriers are “institutional” barriers, rather than curricular or classroom barriers. Although more distal than classroom barriers, the effects of institutional barriers on student learning and well-being are often more persistent, unrelenting, and inescapable. That feels like a big crack.

But where do the barriers in institutions come from? Institutions are animated by people who individually and collectively make decisions about what will happen inside classrooms. Those decisions reflect their own goals, prejudices, biases, fears, hopes, and histories. Their decisions both envelop the classroom and intrude deeply into it—decisions about goals and priorities, about methods and materials, about testing and supervision, about the allocation of limited staff and services, about



David Rose (right) and his wife, Ruth in 1968.

who “belongs” in the school or classroom and who does not, about who is “gifted” and who has “special needs,” about who deserves special services or treatments and who does not. They decide who should teach at Boston Latin.

Like the foundation of universal design in architecture, the foundation of UDL in education (essentially the three principles and the nine guidelines) address a limited set of barriers. For the UDL Guidelines to ignore institutional barriers is not just to ignore the elephant outside the door, but to ignore an elephant that is intruding into the room. It seems clear that the UDL Guidelines cannot address all of the barriers in the surrounding institutions, but it is also clear that the UDL principles and Guidelines cannot plausibly succeed as a decontextualized or isolated solution. The Guidelines should explicitly recognize the institutional barriers, emphasize their importance, and provide accessible ramps that connect the UDL Guidelines to the broader ecology of educational equity and justice movements. More saliently, it is important to capitalize on the fact that most institutions (certainly schools) describe themselves as “learning organizations.” With that orientation in mind, the application of UDL Guidelines to such organizations should be fairly straightforward (the human brain is another example of a learning organization) with minor modifications to make the recommendations and examples more obvious and explicit.

Cracks in the Foundation

● **Trouble with Shakespeare**

In early September of 1968, and happily (if belatedly) assigned to the annex, I rushed to prepare for the arrival of 110 sophomores, all boys (this is what explicit gender discrimination looked like in those days). Fortunately, Boston had a well-established curriculum. One of the first things I noticed was that much of October would be devoted to teaching Shakespeare’s “Romeo and Juliet.” Fortunately, Boston’s curriculum also provided a comprehensive teacher’s guide. It specified what I should teach—the critical elements of Shakespeare’s style, his use of metaphoric language, his development of character—and how I would teach it—assignments, lectures, discussion questions, tests, etc. I loved the play and was eager to teach it.

Only one problem. The printed textbook was completely inaccessible to my students. I was teaching the lowest “track” of students. Their average reading level was at second or third grade level, some lower than that. Given text difficulty, as well as the Elizabethan vocabulary and iambic pentameter, the textbook version was completely inaccessible to all of them. (Note that I had no “disabled” students. Students who were blind, deaf, physically disabled, etc., had already dropped out or were in segregated classrooms. None of my students were diagnosed with reading disabilities—more on that improbability later.)

After several weeks of growing frustration, lowering of expectations, and ineffective classes, I scavenged about for a different way to teach Shakespeare. Fortunately, while my students were “poor readers,” they were sophisticated teen-agers (indeed, some were in gangs not so different from the Montagues and Capulets). And I wanted them to confront what was so unique and artful about Shakespeare’s way of telling the story, not a “simplified” version or comic book.

Ultimately, we “read” the full text in a highly scaffolded way—by listening to the Royal Shakespeare Company’s recording of it (on a 78-rpm record player!) while following along together in the textbook. We paused frequently to talk about it or (better) to improvise the scene in their own language as a way to check comprehension and to highlight Shakespeare’s craft as a dramatist. In that way, I emphasized the actual goals of the curriculum—understanding the literary art and genius of Shakespeare—by reducing the barriers of decoding. Also, by using the recording to scaffold the reading—even though awkward—provided the best pre-digital opportunity for them to continue to practice and develop as readers.

My experience in Boston was hardly unique. Many teachers before and after me have created similar (and often better) adaptations of their curriculum to improve its accessibility. But each of those adaptations required hard work, were usually created on our own time, and designed without sufficient background, guidance, or resources to do them properly or optimally. Equally troubling, each of our efforts was independent, isolated, and redundant, repeated again and again in countless schools, districts, and states throughout the country. This was adapting the general curriculum, not universally designing it.

The idea of applying universal design to a curriculum was not articulated at CAST until more than 25 years later—in 1995—followed soon by a publication of the basic principles of UDL in early 1998. Largely on the promise evident in UDL, CAST was awarded its first large grant from the U.S. Department of Education—called the National Center on Accessing the General Curriculum (1999-2004).

The Center gave credibility to UDL and also provided support for developing many ideas that would be core to the foundations of UDL. As one example, where we had begun by identifying deficits within children, we came to realize that our first responsibility was to identify barriers within their learning environments. The UDL Guidelines were our attempt to address those barriers. Overall, the Guidelines have been remarkably generative and resilient. But we have learned a lot in the last decade from research and practice and cultural changes. What we have learned has revealed significant cracks or weaknesses in the foundation, cracks that limit its future. Let’s start with two of them.

A) Cracks in *what the Guidelines address.* The source of one of the big cracks in the UDL Guidelines is apparent in the title of the center—The National Center on Accessing the General Curriculum. The Center’s mission assumed that the existing core curriculum was a given. That is, our mission was not to transform or re-envision the core curriculum in a school, but to make the existing curriculum more accessible. That seemed enough at the time.

But it is a problematic foundation for the UDL Guidelines. In the years since, colleagues at CAST and elsewhere have grown restless with that original mission. As one colleague noted, by applying the UDL Guidelines we were often merely “increasing access to boredom.” For some families and cultures, it was much worse than boredom. For them, accessing the general curriculum was an implicit (or even explicit) submission that their own culture and families were substandard, ignorant, broken, deficient, even pathological. (To that we shall return later.) To design a curriculum in which all students will feel equally challenged, supported, and belonging will require more than making the existing curriculum more accessible, it will require universally re-designing the *mission* or goals of the curriculum.

During the last decade, there has been significant wrestling in the UDL community with mission and goals. Ultimately what emerged was the idea that the primary goal of UDL is to create “expert learners.” That goal has many advantages: It focuses on preparing students for their future in a rapidly changing world, it reduces the emphasis on rote memorization and routine practice in favor of advanced strategies and skills for new learning, it encourages mastery motivation and self-regulation rather than dependence on extrinsic rewards, and so on. (The three principles, of course.)

But the existing Guidelines lack sufficient attention to how to universally design either goals or activities for expert learning. There are not enough recommendations or examples to equitably inspire and motivate the investment in expert learning that will be required of students (and teachers and parents) who are very diverse in their abilities, aspirations, resources, and backgrounds. At the least, that will require diversifying the typical domains in which expert learning can be practiced and achieved, in the kinds of mentors and models that will guide novice expert learners, and in the kinds of options and scaffolds that should be provided along the multiple (not standardized or uniform) pathways to reach expert learning.

B) Cracks in *who* the Guidelines address. Because the funding for the National Center came from the Office for *Special Education* Programs, its focus was to serve those students with diagnosed disabilities. But such a focus creates cracks in the foundation of universal design. While advocates for UDL consistently emphasize the importance of recognizing and addressing student strengths (not just deficits), the UDL Guidelines focus primarily on addressing weaknesses rather than strengths. One consequence is that many people continue to see UDL as a deficit-based pedagogy rather than an asset-based pedagogy, and too rarely as a universal pedagogy.

As one example, consider students who have remarkably strong talents or abilities. For them, the standardized, one-size-fits all, curriculum consistently imposes ceilings (another kind of barrier) rather than challenges. They commonly face boredom and restraints rather than the optimal difficulties that education often requires. Rarely, if ever, do the Guidelines explicitly address how to design options that raise that ceiling.

As another example, consider intra-individual differences. Focusing primarily on an individual’s disability or deficits makes it much more likely that they will be identified primarily by their weaknesses. A consequence is that strengths are unappreciated, unattended, and unexploited. They are likely to be shuttled into remedial activities (often of questionable effectiveness) and often to the exclusion of opportunities to amplify or accelerate their strengths. As a result, their identity development is harmed, they are under-educated, and they are not adequately prepared for their future. More explicit, and more prominent, articulation of strength-aware options and alternatives is an obvious way to dispel the perception, or even the reality, that UDL is a deficit-based pedagogy or one that is primarily about disability or “special education” students rather than being truly universal.

Cracks in the Foundation

● Trouble in the Department Chair's Office

By late winter of the school year, I had settled into a regular routine as an English teacher. My placement at the annex turned out to have been very fortunate. For one thing, it gave me considerable freedom to experiment; the bulk of the faculty and the department chair were miles away in central Boston, and I had very little formal supervision. But the best thing was that I had a number of dedicated and creative teachers around me. I was very lucky indeed to strike up a friendship with the art teacher down the hall. Soon, we began finding projects on which to collaborate. The first, and best, was to launch an art and poetry magazine, *The Annex*, that published original poems and illustrations produced by our students.

We loved doing it, primarily because it showcased the talents of our students and encouraged them to share their work meaningfully with each other, and with their friends and their parents. It was produced on the school's mimeograph (look it up), so the art was limited in its range, but the combination of art and poetry was often moving and very personally expressive.

Sadly, and frighteningly, one of our students was shot and killed while he was ordering a fast-food burger and fries near his own home. It was terrible for all of us but was not, more revealingly, as unexpected or shocking to our students as to us. Many wrote about it in their journals.

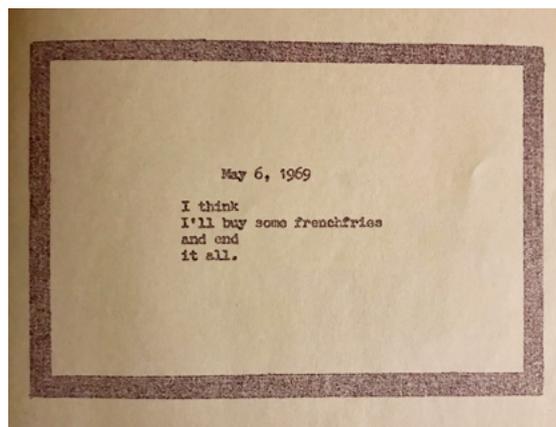
At that time, we were studying a few poems by William Carlos Williams (his bracing brevity made him appealing and highly teachable after Shakespeare). One of the students wrote the first draft of the following poem in his journal and we encouraged some minor revisions for publishing in the magazine. I still remember it exactly by heart.

May 6, 1969

I think
I'll buy some French fries
and end
it all.

Sometime later in the spring I was called to the central office by the head of the English department. As I entered his office, I noticed that the latest issue of our magazine was on his desk. I was delighted to see it and imagined I had been invited for some kind of plaudit.

Instead, he began with an accusatory tone: "What made you think your students actually wrote these poems?"



The department chair did not know any of the students in my class. He had never seen their work, nor studied their backgrounds or their test scores. He was instead projecting his own expectations (some would say biases or prejudices) about what kind of work they would likely to be able to do. Based not on any evidence from their work or their actual abilities and disabilities, but on who he thought they were—their identities. He knew they were poor, and they were Black and Brown, not the “quality of students” they used to have before the school was integrated.

As I left his office, part of me withered inside. I had just read Rosenthal and Jacobson’s book on the Pygmalion Effect (published in 1968), a book of research showing that a teacher’s expectancies about a student had a lot to do with determining—either negatively or positively—their outcomes. For me, the book had a powerful but depressing impact: I recognized that the department chair’s low expectations for my students ultimately posed yet another kind of barrier for them, a profoundly different and insidious kind of barrier.

The biggest crack in the foundation of UDL is evident in the gap between barriers of ability and barriers of identity. Barriers of ability dominate the UDL Guidelines. There is no doubt, however that there are other kinds of barriers, barriers that are barely addressed in the UDL Guidelines at all. Those barriers are faced primarily by students who have been excluded, marginalized, or diminished because of their skin color, their language, their ethnicity, their gender, or their sexual orientation. There is certainly plenty of evidence that such students face barriers and low expectations. There is little evidence, however, that the UDL Guidelines are either relevant or attentive to the particular kinds of identity barriers they face.

And those barriers have consequences. When my department chair revealed his low expectations for my students, those low expectations led to inequities and impediments in what kinds of goals he would set for them (and me), in what kinds of resources (and new teachers!) he would dedicate to reaching those goals, in how he would recognize and evaluate success, in how he would interpret behavior and language, in how he would reward and punish, and so on.

Some would argue that barriers of identity need to be addressed by other organizations and guidelines. And that is true. But scientists in any field would recognize the criticality of examining the intersection of ability and identity (rather than addressing them separately) in order to properly predict or understand the effects of causal claims or interventions. The simple truth is that in American schools, reading difficulties for a White student are not the same as reading difficulties for a Black student. A youngster who is Black and poor is much less likely to get a diagnosis of dyslexia, much less likely to have had effective remedial instruction, much less likely to find accessible or universally designed materials in his classroom, and so forth. (It is startling to remember that most of my students were reading at more than seven years below grade level yet none of them had any special reading instruction or support). Contrastingly, a disruptive behavior by a student who is Black or Brown is much more likely to lead to a diagnosis of behavioral disorder, or lead to expulsion or suspension than a peer who is a White student. To the extent that the Guidelines ignore those intersections, they are less informative, less helpful, less realistic, and less equitable. Opening up the existing crack in the Guidelines—between identity and ability—will allow and encourage more effective, more universally applicable, guidelines.

● **Trouble at Parent Night**

Near the end of the school year, the entire annex staff hosted a parent night. I was eager to meet the parents and also nervous. I had had almost no contact with them over the year, and I had no idea what kinds of concerns or questions they might have about my not-very-traditional teaching. And I looked (and was) very young and inexperienced. So, I showed up early, wearing my best (only) suit and tie.

On the way into the school, I met the vice principal. He greeted me and said: “I see this is your first parent’s night.” I looked puzzled so he patted me on the shoulder patronizingly and told me it would be a disappointing evening, and hardly worth wearing the nice suit.

He was right. Out of my 120 students, only 3 parents showed up, all mothers. In several of my 5 classes, no parent showed up at all.

At the time, I felt many emotions. Relief was one of them, but anger was also among them. One hundred no-shows seemed to reflect a depressing lack of parental investment. Looking back, now embarrassingly, I recognize the fundamental social and cultural divide between the school I taught in and the home and community in which my students lived. Certainly, that divide was evident in my English curriculum. Most of the required reading could best be described as neo-colonial. While I loved teaching Shakespeare, the surrounding curriculum was dominated by novels like *Ivanhoe* and *Great Expectations* and poetry by Wordsworth and Kipling. Something should have seemed amiss to me—too narrow, too homogeneous, too English. And my reading list was just the start of the problem. Basically, the school was suffused and dominated by literature, music, art, language, customs, expectations, biases, and a “hidden curriculum” that were foreign, unfamiliar, or at least obscure to many of my student’s families, and oppressive to many. It is not surprising that few of my parents felt they belonged.

As was the case with the MFA, closing that kind of gap—a gap in who belongs—will require more than sensitivity training workshops or community outreach, it will require re-examining and often relearning how the school belongs in its community. Given the historical legacies and barriers of racism, sexism, ethnocentrism, classism, ableism, etc., that re-learning will be difficult in many communities. And given that communities are at least as diverse as students, that learning will require careful universal design.

The UDL Guidelines were developed to address internal barriers—those inside classrooms—not the barriers between school and community. But it is clear that reducing the external barriers will require attention to many of the same principles and guidelines as the internal barriers (e.g., barriers are inevitable when the school communicates in only one language, assumes one culturally specific body of background knowledge, values, etc.). Rather than reviewing the applicability of each of the Guidelines, let me highlight how the UDL descriptions of “expert learners” may apply to schools.

Expert learners are resourceful and knowledgeable. A UDL school is more likely to belong in the community when it is resourceful and knowledgeable. But that would require some adjustment. While many schools see their role as disseminating culturally privileged knowledge to needy constituents, a UDL school would emphasize a different role: Embodying and modelling what it means to be an expert learner (not just an expert teacher). For example, it is *resourceful* in that it leverages the existing knowledge networks in the surrounding community and incorporates local expert learners—of all kinds—into its pedagogy and mentoring. It is *knowledgeable* in that it recognizes the limits and biases of its own knowledge and continually seeks, very publicly and collaboratively, to expand the things it knows, and the ways it knows. A UDL school belongs in the community because it knows how to learn in that community.

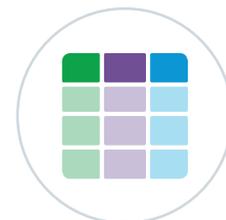
Expert learners are playful and strategic. A UDL school belongs in the community by being playful and strategic rather than reactive. Expert learners are aware that many of their reactions to the world are unconscious, instinctive, automatic, biased, evolutionarily ancient. The advantage of those reactions is speed—humans jump to avoid a snake before the time it takes to become consciously aware of it. But many of those automatic responses are maladaptive and they are very hard to unlearn. Expert learners engage the evolutionarily (and ontogenetically) newer parts of their brain—primarily prefrontal cortex—to predict and anticipate what lies ahead so that they can take advantage of experience, context, logic, probability, etc., to make more careful, more deliberate, less biased, decisions. Schools, as human organizations, also exhibit biases and prejudices that are “implicit” and unconscious—often creating barriers with the larger community. Expert schools, UDL schools, anticipate their own biases and prejudices rather than ignore them, and actively design plans and strategies to reduce the barriers to their belonging.

Expert learners are purposeful and motivated. A UDL school belongs in the community by sharing its values. Neuroscientists have learned that there is a large and specialized area in the prefrontal cortex whose function is to calculate the *value*, the relative reward, of any future goal. Without being able to estimate and anticipate that value, the brain loses its ability to set priorities or sustain them—it becomes purposeless and unmotivated. Not surprisingly, even more than its knowledge or strategies, a school’s success is determined by its values. A UDL school recognizes that its values—including antiracism, anti-ableism, etc.,—must also be universally designed. That is, its values must be constructed in concert with the full community, including those who have been traditionally under-represented and marginalized, in which it hopes to belong,

As I look back, I am shocked by how little I knew about the community from which my students emerged. I knew almost nothing about the knowledge, the plans and strategies, or the values that motivated and animated them. It is hard to imagine any theory of pedagogy that would think that was a good idea. With some revision, and some explicit prompts and supports that direct attention to the interface with the community, the UDL Guidelines could help future teachers like me, and their schools, be better learners in a community in which they belong.

● Addressing Cracks in the Foundation

In many ways, UDL has been very successful. UDL principles and practices are evident, if not always prominent, not only in my old school in Boston but also in the policies and practices of schools, universities, and even businesses throughout the world. Overall, the foundation of UDL (the principles and framework) has proven to be both sturdy and generative. But the gaps and cracks in the guidelines highlighted above limit their application and the future growth of UDL. Fortunately, the process of reviewing and revising those guidelines is now underway.



Two things are important in fortifying that process. First, the process must itself be more universally designed. It must be led by “expert learners” who are much more diverse in the research they conduct and attend, in the settings, communities, and cultures within which they practice and learn, and in the lived experiences of privilege, barriers, bias, and prejudice that will motivate and engage them. That process has begun. But even that will not suffice. Other organizations and movements are already well established in addressing domains of equity that are not well addressed by UDL. Two articles in the *Harvard Education Review*, for example, have urged better “cross pollination” between the fields of UDL and Culturally Responsive Education (Alim, et al., 2017; Waitoller & Thorius, 2016). Even more recently, Fornauf and Mascio (2021) describe how disability critical race studies (DisCrit) can be extended to more fully develop the UDL framework. The next stage of UDL will require, and benefit from, such cross-pollinations and intersections and a more intentional embeddedness in the wider networks of equity and inclusion.

Second, the process ahead must address two important concerns: That attempting to address new kinds of barriers may weaken the original focus of the UDL Guidelines—on equity for individuals with disabilities—or weaken its foundation in the learning sciences (that concern will be addressed in an accompanying paper). For the first concern, consider an embarrassing omission in the existing guidelines. A person with a physical disability—someone who uses a wheelchair, for example—typically faces two kinds of barriers, not one. The first kind, actual physical barriers, are typically very obvious. But there is a second kind. A student in a wheelchair continually finds that many people, including teachers and other students, will generate implicit biases about their intelligence, ambition, education, future promise, etc., that are not based on their ability but on their identity as a disabled person. The same is true for learners with labels like autism, learning disability, ADHD, and so forth. They all face the barriers of identity and lowered expectations that are not addressed in the existing UDL Guidelines.

The lesson is simple: It is not possible to adequately address the barriers of ability without also addressing the barriers of identity, and vice versa. And that is also true of the barriers that emanate from institutions and communities. The next stage of the UDL Guidelines will require careful (and care-full) attention and remediation at the intersections of ability, identity, institutions, and community. That will inevitably open new cracks. And that is how the light will get in.

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A Note on Authorship and Context

This essay began as a personal reflection by me, David Rose, written merely as an introduction—a prologue—to a longer research paper that would review current advances in the neurosciences that would hopefully inform or guide the process of updating and revising the UDL Guidelines ahead.

During the process of writing that introduction, however, I was increasingly captured by remembrances of a pivotal year in my own development—my first year of full-time teaching in an urban high school in Boston. When I shared the first draft of those reflections with Dr. Jenna Gravel and Nicole Tucker-Smith, who are leading “UDL Rising to Equity,” CAST’s effort to update the Guidelines, the piece was already too long for an introduction. But they encouraged me to develop it further. In so doing, however, they provided such rich and challenging feedback—sometimes stimulating and supportive, sometimes unsettling and even troubling—that many drafts followed. Importantly, that written exchange was embedded in biweekly conversations—an alternate means of expression—where we could more fully share our changing cognitions and emotions. That extended dialogue (actually a triologue) turned out to be one of the richest and most consequential educational journeys of my career. I had much to learn and they were great teachers.

The essay is thus both personal and collective. The vignettes (in italics) are completely mine, and the subsequent reflections are in my voice. But those reflections have been so altered and educated by our conversations (and readings we shared) that they can no longer be isolated from that context. As a result, I have asked Jenna and Nicole to be coauthors of this piece, an accurate reflection of their role. Now that the “introduction” has been drafted and ready to be circulated to friends and colleagues, I am eager to attend to the substance of the neuroscience paper. But, in the light the process just described, my approach will be inevitably altered. I used to think that a review of research papers—especially relatively “sciencey” papers about fMRI’s, dopamine, and the like—would be free of the embedded biases and prejudices that often cloud our institutions, our intuitions, and our progress. I no longer think that. Any paper that I would write (on my own) would inevitably be limited by the biases and lenses that I would bring to searching, selecting, and interpreting that research.

As a result, I have asked Jenna and Nicole to join me in coauthoring the upcoming neuroscience paper. While the three of us are hardly diverse enough to adequately represent the full population of plausible consumers, it will be at least be a better start (and more fun). The next step is to share our initial thoughts with the much wider—and more representative—group that will be engaged in updating and revising the Guidelines. We expect to learn a lot from them.