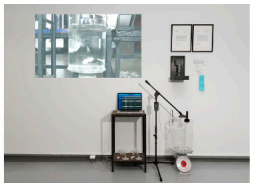
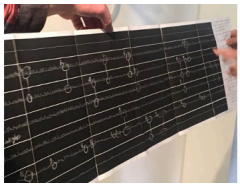
Titrations:

Curricular Integrations of Material Paradox for the Budding Glass Practitioner






A transcript of the presentation by David Schnuckel

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This is a full transcript of *Titrations*, a highly visual presentation of 308 slides delivered in 25 minutes that was presented as part of the Robert M. Minkoff Foundation Academic Symposium in Brooklyn, New York on October 13th, 2017.

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Paper Synopsis:

During the 2016-2017 academic year, Dr. Jane Cook partnered up with RIT Glass faculty to facilitate an educational experience for the RIT Glass student body to examine the intersection at which glass science and glass art converge. With the invitation to fully embrace failure, the project proposed by Dr. Cook and RIT Glass faculty would culminate in a research-driven exploration; one tasking students with thinking about glass-based phenomena and putting it to test. Not as artists, however, but as materials engineers.

This is the second of a two-part lecture and reflects upon this experimental project, speaking to its merits as an intervening educational opportunity and how its objectives directly and indirectly assist a student build towards a thriving professional practice. The presentation will also approach key areas on which an understanding of material science and engineering can enable glass art and craft: the roots of innovation in rigorous play and observation; a fact-informed praxis to give confidence and extend capabilities; and deeper insight into glass's nature for conceptual inspirations.

I. Context

The Glass Program of RIT withholds a long educational legacy for its value in exceptional handiwork, an intimate working knowledge of a chosen material, and a pursuit of developing a student discipline that activates curiosity and cultivates skillfulness.

This is now my 7th year as a full-time faculty member and co-chair of RIT Glass, most of which has been alongside my friend and colleague Professor Michael Rogers. Prior to my coming, he and Robin Cass, now Interim Dean, had established a legacy of excellence associated with the Program I've been tasked to not only maintain, but to enhance.

I'm proud of the rigor our curriculum demands of our students, am thrilled with the versatility of our student accomplishment based on our educational goals, and am honored to play a role as a contributor to their growth.

But the prompt of this Symposium is interesting. Directly it asks each of us to add to the conversation of what and how our teaching facilitates post-graduate "success." Indirectly, however, obligating us to consider what "success" fully means, what all it encompasses and, possibly, what it doesn't.

Our goal as faculty is to facilitate a sense of wellness and competency within our graduating students; not only in what they do as artists or how they go about it in studio, but in who they are, how they see themselves in relation to the world around them, how they engage their field as professionals, and how they contribute to their glass and non-glass communities.

But what educational value could be had in challenging those values of "wellness" and "competency"? ...specifically, in relation to material handling and process? How can things like flagrant malpractice and blatant pursuits of failure help nourish a budding practice? …and how does it pay off long-term along the lines of post-graduate "success"?

Forming a relationship with Dr. Jane Cook in the 2016-2017 academic year helped RIT Glass faculty and students explore these things in a highly unique learning opportunity…

…one that, on the surface, required students to put their glass artist hats to the side and assume the role of a material engineer; to wade into the waters of glass science quite a bit more than they ever had imagined they would.

But the opportunity is an example of a bigger picture: how can a dedicated focus on failure contribute to a broader understanding of success in how students learn? …what students learn? ...and how it translates into professional practice?

II. "Glass Protocol" and a Challenge to Media-Specific Learning

In terms of post-graduate "success", one of the most obvious aims of a degree-earning glass program is to accomplish a sound glass working comprehension amongst its students. It's far from being the only one, but it is a big one…

…and, as a material, glass is complicated; learning how to work it according to one's will is such a slow and methodical process to wrap one's mind (and hands) around. Every process is difficult to fully grasp. The notion of doing anything well and competently with glass – especially in the beginning of a student experience – can seem so mysterious and complicated. Sometimes for a long period of time.

Materials and media of any kind have rules ...and glass has got some doozies. When students begin to understand those rules, they become more consistently effective in accomplishing their glass-related objectives. Understanding the rules lends way to a sound technical relationship with glass, but not necessarily a relevant platform for when it comes to artistic practice.

"Glass Protocol" is a term I use a lot when addressing work and working methodology within student development that's only concerned about being "successful" under the most superficial circumstances: When the rules are followed just because they are the rules...because that's what my faculty taught me, that's what one just does, and one does it because it's right, and when it's done right, the work is good…right? It's a domino

effect of misunderstanding the role rules play ultimately leading to a false sense of validation in what's truly "successful" in student working. When not in service to a bigger idea, glass protocol compromises the potential for truly innovative happenings.

The perfect polish, the flawless casting, and the straightest anything are all examples of good things in and of themselves. Even as specific as they are, these examples are outcomes of following glass protocol: when the rules had been followed and executed flawlessly, but only in service to nothing else but being performed "right."

But what if one were to purposefully pursue glass working wrong? ...or better yet, dedicated time to examine the ins and outs of specific contradictions to glass working protocol?

In the call for papers for this Symposium was an excerpt adjacent to the bigger idea that grabbed the attention of both Dr. Cook and myself: papers looking to speak on "… the educational interventions that are most effective in preparing graduates to thrive."

Between Michael, Dr. Cook, and myself we collaboratively developed such an intervention: an initiative that forced students to acknowledge the rules, focus on one of them, and develop a project that would tenaciously work against it.

The project was proposed as an opportunity for the Department to examine the intersection at which glass art and glass science converge. However, the challenge, from my point of view, was much broader than that. How can student development occur when required to fail - and fail miserably - according to the standard rules and obedience to "glass protocol"?

III. Material Paradox Initiative

To help us develop some context for the project – and this presentation - Dr. Cook identified a scientific term that truly encapsulates the motive of this curricular

intervention: educational intentions for faculty and students to seek unforeseen capacities for change in our working and thinking…in relation specifically to our relationship with glass:

Titration: *Using a well understood material or method to systematically probe and measure properties of an unknown system.*

The project that we put forth was a challenge to consider glass as a material on its own; to put aside the natural inclination to "make an artwork with it", but to make an observation about its physical rules and put one of its unique physical qualities to the test: clarity, color formulation, stress, structure, incompatibility, heat in relation to time, time in relation to heat, material cross-over, and on and on. The world of malpractice and failure was their oyster…

To help our students prepare for this challenge, Dr. Cook had come to our program and provided a lecture to us regarding glass science in relation to glass art, gave us a private, scientifically-oriented tour of the Museum's permanent collection, and hosted an intimate question-and-answer discussion afterwards with us. Very generous on her part.

After all that Dr. Cook had given, students were given the opportunity to identify and pursue a glass-based paradox:

"Propose a project that, despite sound or contradictory reasoning from acceptable glass working procedures and premises, leads to research that may conclude in senseless, logically unacceptable, or self-contradictory glass-based discovery."

As long as students stayed within those guidelines there was no wrong way to approach this project, nor was there ultimately a right way. The only rules (and they might've only been stated like this by me in private 1 on 1 conversations) was that no "art work" or "art objects" should be made, no "meaning" or "metaphor" should be forced upon the products of their research, and all objectives to come out of all this work should be unintentional.

IV. Student Findings

But, whether they liked it or not, or even fully comprehended all that had been revealed, the project culminated in some fruitful learning experiences. A few exciting discoveries included the following student explorations:

Jieun Yoon: inquiries into incompatibility. Small fusing samples between a variety of glass bodies differing in COEs to observe and document how versatile the palette for fracturing or breakage can be. Stress-induced crack studies that also investigated variables like dimensional ratios between incompatible glasses, thickness ratios between incompatible glasses, and integrations of graphic applications to glass in relation to the mark making of incompatibility fractures.

Jamie Katz: a metal on glass study where different cup jacks were used to shape and open blown cylinders. The degree with which the tool marks were prominent or not were measured optically by the linear activities recording on or in the glass surface and the shadows they cast or not cast against the wall they were presented against. The study was taken one step forward where the abrasive nature of tool marking led to alternative jack blade materials impregnated with added contaminants from the cold shop.

Suheyon Kim: Mixing various raw ceramic materials and metal oxides with clear Bullseye glass powder to look for unique reactions. A wide variety of findings in how to cultivate transformative color opportunities, interior structural happenings, and exterior surface happenings…and how those formulations change as a resulting glass body at various temperature ranges.

Chenyang Mu: measuring the acoustical relationship between hollow glass forms and sound. She had a friend compose an instrumental piece based on the prompt of "paradox", blew bubbles of various shapes and sizes, and connected them to a small sound system. Charts and diagrams recorded how the relationship of that recording played through the interior space of each glass shape and how each glass shape influenced the "shape" of the recording's sound.

Tate Newfield: looking for shades of clear when forming, malforming, and distorting the clarity within soft and float glass in the hot and cold shop.

Eric Meeker: Using hot glass color applications to measure the multiple personalities of selected glass color rods in regards to density, transparency, and each test subject's relationship with various light sources.

I even took part; of looking for low-tech ways to map the heat and energy changes in the unannealled products and by-products of the cup making process. I wanted to demonstrate a few things to our students by wearing the hat of a project participant and put my searching publically on view: going through the proposal process, the vulnerabilities of trial and error in studio, the physical resolve and presentation of my findings, opening myself up to student critique, and the opportunity to show a healthy and informed attempt at defending my decisions were all part of that...

In turn, the research conducted by all of the Department shared a sense of wondering what kind of collaboration can happen between control and coincidence when in the context of material curiosity.

But, when all said and done, what was taken away? …and how could it contribute to their development or their career down the road?

V. Project Learning Outcomes

The prompt of integrating glass science as a spring board for glass-based ideas and glass making was very much a genuine launch pad for this learning experience. But its intentions were rooted in so much more; more than a dabbling into glass science and material engineering, but a tutorial of what "success" can embody by way of perpetual "failure."

To fail, one has to have a goal…to throw out a point in space and try to work towards it. To proceed by choosing elements known to work or not work, to see the differences of their outcomes, and then to formulate further direction based on those observations. In the case of us studio practitioners, sometimes those observations might incite further procedural exploration. Sometimes further aesthetic exploration. Sometimes both.

This invitation into material paradox with Dr. Cook was one very intentional curricular disruption that allowed faculty to educationally dwell on one of the most essential principles of a successful studio practice: tenacious trial and error. Because making isn't necessarily about making. Making is about perpetuating discovery and this collaborative educational experience with Dr. Cook withheld some really exquisite learning outcomes. In terms of material paradox within a glass curriculum:

1. It introduces new ways of looking at material. Having ideas about glass and glass working influenced when considered under the lens of science opens the door to any number of possibilities for influence: any branches of interest that could broaden a student's creative appetite and the questions they may use to build their practice upon. To introduce to students the idea that the potential for a thing to change while in proximity to an entirely different thing is, in fact, a thing.

2. It challenges students to rethink what they think they know…about glass, about glass making, and about idea development. It pushes them past their own limits and annihilates any pre-conceived notions of what's "CORRECT" or "RIGHT" "GOOD" or "PERFECT".

3. It puts an emphasis on what's valuable in "the build" to what students are working towards: looking, getting lost, waiting, scrambling, finding. Material Paradox putting less emphasis on the arrival to an "artwork" and more value on the artistic nature of the jaunt to get there. It helps students see the story of their development when they finally "get it right."

4. It obligates students to use their relationship with glass in ways not previously engaged. Challenging the rules of glass protocol is a practice in how to think; following the rules of glass protocol produces practitioners who only know what to think. There is a difference, and they are equally important…they both culminate in very different notions of successful engagement within personal practice.

5. It provokes important relationships with figures and entities within the glass field. Our work with Dr. Cook is not only cool because we got to work with Dr. Cook, but it was also a creative opportunity that connected students with a learning institution like CMOG with which she is affiliated with. The lesson being that relationships matter in one's personal and professional development.

6. It provokes important relationships with figures & entities outside the glass field. In one student's case, Eric Meeker was able to approach the Munsell Color Science Lab within RIT's Program of Color Science to help with his spectral-based glass explorations. Not only does it relate to the previous outcome, but builds upon it by serving as a wonderful example of cross-disciplinary studio practice at its most genuine.

7. It establishes a viewpoint on material they wouldn't normally cultivate in the usual studio-based learning environment. Interesting disasters and informative messes revealing scientific truths; revelations that facilitate a new and highly unique tier of material understanding.

8. It illuminates a distinctive manner of questioning possibility. Even when knowing of a technically-based impossibility, material paradox creates a desire to still try and find a loophole…of wondering what information hasn't been discovered when attempting to challenge the obvious.

9. It develops a mindset that failure is a success that hasn't found a useful application…yet.

VI. "Post-Graduate Success

When it comes to releasing our students into the professional realm, what is proper "preparation"? ...and exactly what kinds of "success" does it lend way to? How is it measured? Perhaps that's what is most exciting about the prompt of this Symposium…that we're all here to chew that over together.

There are the student accomplishments that look good on paper: the hot jobs, the terminal degrees, the jet setting, the stellar shows in prestigious places, the baller grants, the press, the workshop teaching gigs, the kudos, the recognition. As vain and gimmicky "careerism" can be, it does feel good to see our students become acknowledged as major players on the scene or game-changers in the field.

Could a healthy curricular integration of material paradox, risk, and failure "prepare" for those sorts of things? Maybe...

Under the cover of glass science colliding with glass art, students were able to better understand a very difficult thing to illustrate: that unconventional methods of thinking culminate in some truly successful outcomes in their doing…not only in regards to what they do in studio, but how they conduct all matters that come along with navigating the field at the professional level.

Material paradox teaches anybody that the superficial understanding of "success" in or out of studio has got no long game; "success" in that sense is about pulling something off…making known what is already known. Our quests in paradox disregards the notion that success is measured in what one can do; instead it asks what one could possibly uncover. It denounces phrases like "the right way" and words like "perfect" in the student's budding vocabulary…and puts language rooted in things like "possibility" or outcomes in the spirit of "discovery" in their place.

It puts value upon wandering in one's practice: the freedom to explore. Not only can this aspect of material paradox expand a student's viewpoint of material or process, but it trains them how to ask bigger questions than they had before. When asking bigger questions, students then learn how to solve problems in more unique ways than they had before. When students learn how to solve problems in unique ways, it enables them to turn out innovative happenings more readily than before.

Engaging material paradox isn't rooted in de-skilling or in the name of undercutting competence in material handling. In fact, skillfulness is upped in the most unconventional of ways. Over time, a new vocabulary develops: technical information, aesthetic information, theoretical information gained. But not only does putting the rules of glass protocol to test facilitate learning how to do something in a new way, it could potentially assist students in finding new frontiers in making work that doesn't or can't exist yet.

Success in material paradox occurs by paying attention…and that can pay off in a post-graduate context in any variety of ways. Anytime one sets something up and nothing happens, something still happened. Developing an acute ability to examine cause and effect allows students to know the ins and outs of wrongness or unexpected results. Being as intentional as one can is important, but learning how things behave when they go wrong is one way to really understand what can make them go right; in studio, in one's time management, in applying for a job, in preparing for a show, in approaching an interview, in developing educational programming, anything.

But it all comes down to paying attention: whether it be a making-based moment or not, material paradox hones a budding practitioner's ability to "see" what's going on, to "see" what variables might need adjusting, or to "see" new opportunities in unexpected mishap to chase down instead.

Failure and dwelling in wrongness by way of material paradox also enables opportunity to discover how to make adjustments…how to fix things. Failing enough to find the rectification to fix whatever with whatever is on hand. Discernment, then, not only becomes a tool in a budding practitioner's toolbox, but perhaps one of the most important ones once out in the field.

When it comes to working with glass, discernment provides the student a level of flexibility when working against a lot of strict material rules set about by glass…of trying to make something happen within a very tight framework of scientifically-based laws mandated by glass to stay intact, unblemished, symmetrical, and/or structurally sound. But a broader stroke of discernment gained in the experiences of material paradox allows a student to develop a professionally-relevant intellectual flexibility…one that enables a wide variety of career-building "successes" along the lines of punctuality, social interactions, integrity, communication, planning ahead, communication, and so on.

Whether affiliated with a material specific program or not, we're all here to talk about preparing our students for "success" following graduation. It's easy to let the mind wander towards measurements of success related to money, jobs, exhibition records, achievements, sales. However, I can't help but head off the beaten path of what post-graduate success is usually associated with…

VII. Conclusion

From my point of view, what we engage in educationally is a microcosm of a bigger picture; Glass, glass making, and glass programming a vehicle for students to develop a deeper connection to themselves and a broader understanding of how they relate to their world. Although post-graduate successes of our students that culminate in juicy lines on our teaching resumes catch the attention of our administrators, there's a higher sense of accomplishment when student learning experiences in a glass program stimulate unique life experiences - fulfilling experiences - experiences that allow students to become more in tune with who they are, how they operate, and how they connect to others.

Perhaps the most significant outcome of this learning experience is having students discover the true nature of the creative process in a roundabout way…let alone what being an artist is all about. We assumed ourselves in this work as material engineers. But only to a point. Engineers walk towards a goal, attempt to reveal a known. They go down a path of cutting through possibilities to arrive at a resolved, defined, functioning solution. For an artist, our endpoint isn't as concrete…nor is the journey to get there. It's our job to ask questions that result in creative activity with materials and media…things that, in turn, reveal findings that perpetuate more questions.

What glass does so well hasn't really changed in the past several thousand years. To make glass do what glass does well in new ways is a true challenge; newness in a material that is highly restrictive and constraining is a tall order. The experience of putting certain glass rules to the test within our curriculum alongside Dr. Cook could very well culminate into all sorts of post-graduate successes, but none greater than the opportunity to recognize how perpetual risk and brazen approaches to failure in all matters – both in life and learning - lend way to some truly prosperous human experiences.