Insights
Interdisciplinary Collaboration in the University

From 2012-2015, as part of the Mellon-funded SPARC (Supporting Practice in the Arts, Research and Curricula) project, we interviewed upper-level administration, faculty, and students at 38 member institutions about their arts-integrative and interdisciplinary collaborations (questions 17, 18, and 19 of the interview sequence). These included partnerships and group collaborations for teaching, research projects, community engagement, or other initiatives. We asked about the challenges they face in interdisciplinary collaboration, both because of disciplinary assumptions and because of university structures that pose obstacles. We also asked how they overcome those challenges, and what advice they have for collaborators. This report is a synthesis of our findings from that research.

Here we offer two different frameworks of interpretation for the same data, two different ways of telling the story. Readers can use whichever framework suits their needs, or consider them in tandem. The first framework follows the logic of the interview questions; it structures the data as a set of challenges and ways forward. In the second framework, we identify and explain four areas that are critical for successful interdisciplinary collaboration. Both frameworks operate *at the level of the collaborator*—where insights are relevant for faculty, students, researchers, and community partners who are themselves involved in interdisciplinary collaboration—and *at the level of the institution*—dealing with issues germane to promoting interdisciplinary collaboration through supportive structures, policies, and practices across the university.

We hope that this report will help readers move more smoothly through their own collaborations. In keeping with our goal of using research to generate good ideas, we look forward to the additional insight that readers like you contribute to it. Please direct feedback to vstanich@umich.edu.

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Overview

For this study, we started with all the responses to SPARC interview questions 17, 18, and 19. In these questions, interviewees were asked about challenges and ways to move through them, with specific prompts about disciplinary assumptions within a group of collaborators and about institutional challenges. We tagged every instance in which a speaker mentioned a challenge to collaboration or a way to move through challenges (total 463 tagged instances). Following the question structure, these were coded as particular types of challenge or way forward, for a total of 112 codes. We then grouped these codes into bigger "buckets" to create a more manageable scope.

From these buckets we constructed our two interpretive frameworks. At this point in the research process, the degree of subjectivity escalates; our "read" of the data and the structures they suggest are based on our understandings of interdisciplinary collaboration in the university, informed by our work with a2ru. All of the ideas in the code "buckets" are included here, although some of the specificity of the individual statements has been lost.

The first research framework is based on the interview questions; it details Challenges and Ways Forward for Institutions and for Collaborators. Note that the Challenges and Ways Forward are not symmetric; there is not a matching solution for every problem.

The second framework is based on four areas, or types of practice, or awarenesses, that emerge as important for interdisciplinary collaboration: 1) the role of the "leader," 2) solid structure, 3) bridging difference, and 4) positive environment. In this model, we see interdisciplinary collaboration as a smaller sphere within a larger one—a group of people working together within the larger world of the university. The four areas we identified are relevant at the larger institutional level as well as at the intimate level of the human group.

Both frameworks include examples drawn from the SPARC interviews. These quotations are anonymous, but have numerical indicators for researchers who wish to delve deeper into the SPARC data. This data is available at https://www.sparc.a2ru.org/insights/.

Some of interviewees' specific advice for "best practices" in these areas are included in this document. However, neither framework attempts to be a comprehensive or incontrovertible guide to best collaboration practices. Instead, they represent a beginning.

Interview Demographics

The 264 interviewees who responded to SPARC interview questions 17, 18, and 19 were primarily faculty (78%) but also included those in leadership roles at the Chair, Director, Dean, Provost, and President levels (15%) as well as students and other staff:

Professor (faculty)	195
Program Director or Chair (leadership)	15
Other Faculty (faculty)	12
Dean or Associate Dean (leadership)	11
Provost or Associate/Vice Provost (leadership)	8
Student	7
Arts Specialist or Curator	4
Other	4
President or Associate/Vice President (leadership)	3
Center Director (leadership)	3
Community Engagement Specialist	2

Ninety-two per cent of those interviewed worked at Research 1 or Research 2 universities, with the remainder at colleges and universities with larger Master's programs, arts-focused four-year schools, and universities with very high research activity.

Interviewees represented disciplinary clusters as follows:

Music, Theatre, and Dance (24%)	63
Engineering, Design, Information, and Architecture (23%)	60
Humanities (16%)	43
Fine, Contemporary, and Media Arts (16%)	42
Social Sciences, Education, Business, and Law (12%)	31
Natural Sciences and Medicine (9%)	25

I. Collaboration: Challenges and Ways Forward

This section organizes insights as challenges faced, and ways forward through those challenges. The section is further subdivided according to elevation—the level of the institution or the level of the individual collaborator.

Research note on challenges

Interviewees' talk about challenges to collaboration falls into two broad types: *institutional* challenges (having to do with logistic and structural issues at the university) and *collaborators'* challenges (having to do with issues that arise within an interdisciplinary group of faculty working together).[1] Every mention of a challenge was coded with a quite specific identifier. Even at this specific, granular level, certain challenges were mentioned repeatedly; Table 1 shows the frequency of these repeated mentions.

Table 1: Challenges to collaboration: Frequency in original codes (≥10)

Challenge	Type	Frequency
language	collab	25
scarcity: funding	inst	17
scarcity: space or material resources	inst	16
univ structure doesn't accommodate interdisciplinarity	inst	16
logistics of cross-campus partnerships	inst	15
too busy, not enough time	inst	15
fundamental epistemological differences	collab	13
collaboration versus T/P requirements	inst	12
differing notions of product/goal	collab	10
stereotypes about a field or the people in it	collab	10

At this level, differences in language—a challenge within the group of interdisciplinary collaborators—is mentioned most often, but most of the other frequent challenges are institutional.

Table 1 includes all challenges with a frequency of 10 or greater, but there were many other challenges that were mentioned less frequently—1-8 times in the entire data set. When we start to put the many specific challenges into "buckets" holding similar types (a process called "first-layer code-sorting" here), a different pattern emerges, shown in Table 2. Here, the challenges talked about the most occur within the group of collaborators, not at the institutional level.

[1] There were also *external* challenges (from outside the university), not addressed here.

Table 2: Challenges to collaboration: Frequency in first-layer code-sorting (≥10)

Challenge	Type	Frequency
fundamental epistemological differences	collab	41
language	collab	25
superiority (inequality, territorialism, expertise wars)	collab	21
stereotypes and assumptions	collab	20
scarcity: time	inst	19
dis-incentives for interdisciplinarity	inst	17
scarcity: funding	inst	17
scarcity: space or material resources	inst	16
univ structure doesn't accommodate interdisciplinarity	inst	16
logistics of cross-campus partnerships	inst	15
group dynamics	collab	12

A. Institutional challenges

The values and policies of the individual university define the atmosphere in which collaboration thrives or struggles—including allocation of resources, systems, and policies. The capacity to change this atmosphere lies largely with upper-level administration. However, if faculty collaborators are aware that it will strongly affect their work, they can take steps to mitigate unfavorable institutional conditions. They can advocate for change.

1. Scarcity—an indicator of the big-picture.
Faculty who collaborate may perceive scarcity around their efforts—not enough funding, not enough space or material resources, not enough staff support, not enough time. People are also a scarce resource; individual departments may object to interdisciplinary programs "poaching" their faculty and students, and taking faculty away from the responsibilities for which they were hired. This sense of scarcity points to an institutional structure that isn't set up to accommodate interdisciplinary collaboration.

Examples:
"The biggest challenge is with space, figuring out where we can accomplish this research. We don't have a lab necessarily dedicated to this type of thing. And in general, my feeling is that interdisciplinary projects are prone to this problem of, they don't really have a lab set up to do just that." (Q19-3908-7685)

"Too many good ideas and not enough funding to support them all. I think that's a problem [with our university] more broadly. We have, it's perhaps a good tradition, but a longstanding tradition of not saying no, but never quite fully funding ideas. Everything is under-resourced, and we all find ourselves pulling at 110%." (Q19-2915-1606)

2. Tension between departments or colleges—another indicator of the big-picture.
Collaborating faculty may experience numerous roadblocks to collaboration as they work with colleagues across campus. Their individual domains are not set up to work together, again because of the prevailing structure of the university. These roadblocks include:

- conflicting expectations from two departments for faculty who hold joint appointments;

- difficulty allocating money, teaching credits, and student attendance for team-taught classes;
- timing conflicts: there are differing standards of faculty contact hours from department to department, and scheduling grids don't line up;
- curriculum requirements that prevent students from taking interdisciplinary courses;
- individual schools and colleges that discourage interdisciplinary work.

Examples:
"It's hard to do, to just say, with a teacher across the campus, 'Oh, yeah. Let's do a course.' There's barriers to that. You can do it if you don't sign up for getting any money, but I think you have to then convince somebody that, well, 'This is time that I'm taking away from here to do there.' It gets a little bit tricky as to whether you're paid." (Q17-1117-5600)

"I would say the hardest part is that I'm in not just two different departments, but two different colleges. They use two wildly different economic models. I need money that can move with me between them. Often it's that. It's the money that is the most difficult thing. It's crazy." (Q17-2108-423)

3. The big picture: top-level structure
Although a university espouses interdisciplinary values, its systems and structures may be slow to change and reflect these values. There may be a lack of leadership to push such changes forward. This results in

- a slow-moving bureaucracy that seems to dog cross-campus efforts, strangling potential collaborators with red tape.
- a system that dis-incentivizes interdisciplinarity—for faculty who find a tension between their interdisciplinary work and Tenure and Promotion requirements, and for students who would like to expand the boundaries of their disciplinary learning but are restricted by curricular requirements.
- an atmosphere that is inhospitable to arts integration including, for example, barriers to connections with potential collaborators, faculty stakeholders left out of program planning, and a low value placed on the arts.

Examples:
"The bureaucracy is insane, and I have yet to figure out a path to get through it efficiently. It's always, 'Where do we go? Who do we go to? How are we going to handle it?' It's a different thing every time." (Q17-2706-2114)

"I think it's easy to get people to come and talk to you for a short amount of time. To have sustained collaboration across the colleges, I find is a lot more challenging because of the obvious, for the institutional reward structures for those individuals and the demands on their time." (Q17-3708-8377)

"The only barriers would be, we don't normally talk to each other that much. I wouldn't know who to ask. I wouldn't even know if there's anybody who is interested in that." (Q17-1307-7165)

B. Institutional ways of moving through challenges

1. Leadership

President, Provosts, Deans, and Chairs who support interdisciplinarity can tailor university systems and policies to promote it.

Example:

"When a faculty member says, 'We'd like to do this,' I feel like it's my job to figure out how to help them get it done. That's going to be different for every situation, whether it's sitting down with the director and helping them brainstorm about how can we cover faculty A's duties and allow them to do this? Is there some way we can swap something out? Is there some way we can take some summer money and put it into your fall budget so that you can hire an adjunct to take this class? Or whatever that happens to be." (Q18-2513-5183)

2. Creating supportive policy and systems

University leaders can create policy that aligns incentives for faculty (e.g. Tenure/Promotion policy) and students (degree requirements) with interdisciplinary values. They can allocate money—both seed resources and ongoing support—to interdisciplinary initiatives. Scheduling grids can be revamped so courses are broadly accessible. Cross-listing (and a number of alternative options) can streamline the process of offering team-taught courses. These and many other practical, structural changes smooth the way for faculty to collaborate with ease—itself an incentive.

Examples:

"Well, I think you have to acknowledge that it probably is going to demand more resources than the standard course that you're offering. You have to make a decision. Do you value having courses like this at your institution? If so, then how can you make the resources available to facilitate this kind of teaching?" (Q18-2002-4956)

"There are so many hassles and barriers….All those things need to be easy in order for faculty to be incentivized to take the extra effort that's really required to integrate their practices. And they have to recognize that it is extra effort. And so the only way to make that happen is through whatever incentives are possible. And one of the primary ones is just streamlining the procedure as much as possible to make this kind of work possible." (Q18-2002-4956)

3. Creating a supportive environment for collaboration

Cultivating a pro-faculty, pro-arts campus environment enables interdisciplinary—and especially arts-integrative—collaborations to thrive. Specific recommendations for creating such an environment include the following.

Faculty focus:

- Hire faculty with breadth.
- Support faculty-driven initiatives.
- Build relationships across disciplines and maximize opportunities for contact among different disciplines.
- Remove excess burdens on faculty time.

Arts focus:

- Broaden arts curricular offerings.
- Support arts initiatives at many scales, including grassroots and student initiatives.
- Make arts integration a daily occurrence, not a special occasion.
- Create good "spin" around the arts.
    - Make the arts visible, providing examples and persuasive demonstrations of arts successes.
    - Celebrate university accomplishments, including those in the arts, on equal terms.
    - Advocate for the arts to local and regional legislature.

Examples:
"I think they need to let the faculty that are excited about working together, work together and find a way to see that they work together. Then I think really magical things are going to happen." (Q19-3605-8044)

"It was very late at night and I came out and there was a moon that night out there in the quad and there were all these young people bending over. I had no idea what they were doing. And they were writing in chalk…And I thought we don't know those people and they were writing a poem all the way down to the club town…We could have bought them the chalk; we could have found out who they were; we should know who they are; we should support that. We should not regard anything as too small for supporting that moment in the arts when someone says, 'Let's do this.'" (Q17-2808-3300)

C. Faculty collaborators' challenges

Faculty who choose to collaborate across disciplines face unique challenges.

1. Different worlds

When faculty collaborate across disciplines, different worlds come together. There may be a vast gulf between the practices and theoretical/epistemological underpinnings of, say, neuroscience and dance. The reality of "different worlds" colors all these challenges.

a. Stereotypes and assumptions

Stereotypes of scientists and of dancers inform a potential collaboration at the outset. This can stymie the process before it has begun if individuals decide not to participate because of their perception of potential collaborators, or if departments assume that a cross-campus collaborator's work is irrelevant to their own.

b. Knowledge gap

There is likely a lack of understanding about the nuts and bolts of what another discipline does, and a lack of shared content knowledge.

c. Fundamental difference

Different disciplines hold fundamentally different epistemologies; these differences manifest in practices, standards, language, and countless other ways. They are writ large when one of the disciplines at the table is arts-based, and are made evident in, to name a few:

- differing familiarity with/expectations of quantification and measurement,
- differing perceptions of what is "good" or worthwhile,
- differing approaches to time,
- differing understandings of what constitutes "research,"
- differing notions of a product or goal (often in relation to T/P requirements).

Examples:

"There was a lot of both of us not understanding what the other did, and what the capabilities of what the other person was doing. For example, [my collaborators thought] 'We can have the robot do this and this and this,' and it's sort of like in the movies. So I guess certain assumptions about what the capabilities of that discipline are." (Q17-2204-4885)

"Yeah, just in terms of publishing or figuring out what the final goal of the collaboration is. A lot of the artists don't care about publishing. Scientists care about publishing and sometimes it's hard to combine both, but I've found that there are really interesting ways to view both and be good at both, too, and I normally do not accept an excuse that you cannot do both." (Q17-1704-2549)

2. Group dynamics when worlds meet

University collaborations face the same challenges of ego, imbalanced workload, assigning credit, and mistrust as any group. However, the reality of the "different worlds" present in interdisciplinary collaboration colors its group dynamics, creating unique challenges.

a. Participants can't "get out of a disciplinary box"

Earning a terminal degree, taking on a tenure-track position—these processes imply enculturation in a particular world that is usually disciplinary. Faculty absorb deeply the norms and values of their disciplines, and for some, that enculturation prevents them from adapting to the practices of a cross-campus collaborator. The situation is exacerbated when interdisciplinary collaborations are mandated rather than faculty-driven.

b. Assumptions of superiority

If the different worlds are not understood as equal, then issues of control arise—whose way is better here and should prevail? Specifically, there is sometimes the attitude that the arts are in the service of other disciplines, that they provide a decorative or presentational aspect to a collaboration—the icing but not the cake.

c. Different disciplines have different perceptions of group work.

There may be different assumptions about the value of working alone, about leadership (institutionalized in the Principle Investigator, or PI, model), and about the definition of "collaboration" itself.

Examples:

"I think the typical tension that I've experienced, and I think a lot of my colleagues experience when they collaborate with any other group, is that there are a lot of misapprehensions about what art is and what artists and designers do. The most common misapprehension is that what we do is about decoration and entertainment, and that we're not the people who really deal with the serious ideas; we're just the ones who make serious ideas look good, or we make them entertaining." (Q17-1111-5503)

"I'd call it academic arrogance. My discipline is smarter than your discipline and I don't want to water it down. The physical geologists, the geographers, won't talk to the social geographers. The macro economists won't talk to the micro economists. The people in the Business College think they're a hell of a lot better than the College of Agriculture and vice versa. You have those petty differences that can be a show stopper right from the start." (Q17-2714-2219)

3. LANGUAGE

Different worlds←LANGUAGE→Group dynamics

Language is both the communication medium that defines group dynamics *and* the marker of each discipline's worldview. Common words ("subject," "program," "abstract") mean differently from discipline to discipline. Language is the most often-cited challenge to collaboration.

Examples:
"They are butting heads because they don't understand. When I say 'context,' I really mean 'platform' in your world. Or when I say 'learner' I mean 'audience.' It's really kind of getting at part of what the problem is, what exists in the dynamics of the group or the team and clarifying what maybe those misconceptions are. And I come across that almost daily. It's like, 'When you said this, no, that's what this means.' I may clarify and I'm going to tell you what I'm talking about and that usually fixes the problem." (Q17-3701-8236)

"The most common thing is vocabulary mismatch. People have buzzwords, vernaculars, technical terms, and I don't think the arts shy away from that kind of thing as most do. Now, to a degree people think language determines your thought patterns, or sometimes modes of thinking underlie the use of vocabulary. So there are ways in which trying to tie into those modes of thinking is a stumbling block…" (Q17-1313-7257)

D. Faculty collaborators' ways of moving through challenges

1. Communication

Experienced faculty collaborators recommend a conversation for all participants at the outset, clarifying expectations and sharing practices. Continued communication throughout the project—including frequent check-ins and re-evaluation—is also key. They also offer numerous strategies to surmount the problem of language, including the use of images, developing a shared lexicon, and stopping to define terms.

Examples:
"Not everything was figured out. We showed up to class and there was some spontaneity. I definitely talked for a while and she said, 'I don't know what you just said.' Then there were a couple of times she'd talk for a while and, 'I don't know what you just said.' We'd talk it out. It was really good. It was spontaneous. The students actually piped up into it as well." (Q19-2907-1449)

"We have a metaphor that we like to use, which you may have heard of, about speed dating, dating, marriage, related to partnerships, understanding what kind of partnership you're looking for. Are we just speed dating? Are we dating? Are we steady dating? Are we really getting married? Are we creating a partnership through which we're each bringing something clear to the table? We're bringing expectations, and partnering at the level that we need to develop a system and a commitment for communication. We're very committed to very open, clear communication. We've learned through experience that if you have hidden agendas, or agendas that you feel a little embarrassed about, and don't bring them to the table, that that's always going to come back to bite you." (Q19-2511-5144)

2. Attitude

Participants who have an open, collaborative approach—characterized by mutual respect, humility, and acceptance of one's own state of not-knowing—set the project up for success. Kindness and patience help.

Example:
"It's respectful, and what I love about it is there's a sense of curiosity. It's not so much like, 'Wait a minute. This is my domain.' It's more like, 'Oh, really? You did that? What's that like?' You get a sense of people leaning towards you and saying, 'Really? What's that about? Tell me about that.'" (Q19-1101-5341)

3. Worlds come together
Collaborators can bridge the divide between different worlds by:

- taking time to specifically discuss underlying ontologies,
- respectfully educating each other,
- sharing/witnessing each other's practices—what does this person *do* when she's working? (can be part of the model of starting in the disciplinary comfort zone—the art studio or lab, for example—and moving to the interdisciplinary neutral space),
- explicitly addressing language differences,
- exchanging materials and information so that a body of shared content knowledge develops,
- prioritizing the project over the individual.

Example:
"The way it's easiest for me is to bring it down to an image. And, for me, it's easiest to draw on the board or draw somewhere. They know what cells are, they know all the organ systems and so forth. And so that, I know for sure, we have in common. It's when you get to the deeper molecular and sort of real basic parts of it that they probably know something about it, but are not just much into detail as I am. The way I think about it is if I can make them understand it through drawing in an image and talking—so it's using images and speaking—then I think we will make more progress together." (Q19-3909-7655)

4. Navigating the university
Experienced faculty collaborators offer advice for navigating institutional/structural challenges:

- Secure a physical space for the work.
- Address timing conflicts creatively.
- Get familiar with administrative structures so you can work through them.
- Use student interns and graduate assistants to balance workload at minimal cost.
- Persevere in the face of opposition and negative reactions.
- Recruit relevant university organization to negotiate outreach and administrative details.
- Optimize available resources creatively.

Examples:
"Maybe you work at different hours of the day then you typically would, push it a little later into the night. If it's a larger team, then you break up a task; maybe have a representative from both sides get together and get on the same page. Then go back and talk to the groups again if not everybody can get together." (Q17-2801-3185)

"I had a space that was a storage space in one of the dance studios that I turned into my media lab. And I kind of worked somewhat with and somewhat just outside of university structures. But because of the department here, we have scenic builders and things like that and people that can make things. I had them build a very low-tech screen, but it was a giant screen. They made it out of materials that we found in the theatre, so I didn't have to go, say, through a campus purchase of a projection screen that would have cost me thousands of dollars." (Q19-3002-4556)

5. Words of wisdom for collaborators

- Honor the specifics of each collaboration, case by case.
- Stick to the pragmatic (what's in front of you); avoid the theoretical.
- Assemble a group in which every member is strong.
- Start small.
- Generate fun and excitement about the work.

"Here's what's needed. If you have this between the collaborators then it works; if you don't, then it doesn't. First of all, you have to have mutual respect for the areas that the people are in. You have to consider them just as important as yours. Because you're a scientist you can't think that the arts aren't as important or because you're in art you can't think that sciences aren't. You have to have that. Then you of course have to respect the abilities of the individual person that you're working with. Three, you have to have a problem that is important to everybody on the project. Four, as personalities you have to be collaborators. That means you have to understand teamwork, and everyone needs to take responsibility for what they're supposed to get done. As I said before, you really have to want to learn everybody else's field, so that when you have conversations everybody can help to pull together wherever this project is going…Then you just get beautiful things." (Q17-2808-3300)

II. Collaboration: Four Areas

This section organizes insights according to four areas of attention: the role of the leader, solid structure, bridging difference, and positive environment. The section is further subdivided according to elevation; each of these areas has implications at the level of the institution and at the level of the individual collaborator.

A. Role of the leader

Institution

In the absence of strong institutional leadership, interdisciplinary collaborations struggle. When the Provost, Dean, and Chair support both the arts and interdisciplinary collaboration, they connect potential collaborators with each other and help them navigate red tape. More importantly, these university leaders are in positions to craft policy and structures that institutionalize collaboration (minimizing that red tape), build bridges across disciplines on campus, and create a supportive environment (areas B, C, and D here).

Example:
"What we were lacking, until [the new Dean] came, which is the critical role I think organizationally for this, was someone who was truly faculty, who was not only committed to these ideas but in the position to begin to make it happen." (Q19-1006-1879)

Collaborators

While any group of collaborators may have a strong leader who drives the process *personally*, collaboration thrives when no set of *ideas* or disciplinary epistemology is "in the driver's seat." All disciplines are on equal footing. This entails putting aside:

- assumptions about how other disciplines work,
- stereotypes of people in other fields,
- assumptions that one approach or worldview is superior,
- the premise that art serves a decorative function in a collaboration,
- disciplinary territoriality,
- the need to assert one's expertise,

and replacing these with mutual respect and an open approach. Participants are willing to be in a position of not-knowing, to be educated and to gently educate.

Example:
"When we began the discussion, you have a lot of psychologists, psychiatrists, neuroscientists saying sure, we're happy to come talk with you architects and you designers and you thinkers about culture and art. We're not really sure what we can contribute but it sounds like fun. And then shortly into the discussion we have these same people going, 'Oh my gosh, now I know why we're here: because we're really dealing with culture and brain, and how culture is a crucial, crucial factor in the evolving architecture of the brain.' And so I think that the resistance is first from disciplines who have no concept of how their particular, highly technical field of study might contribute to another discipline. Second, how people from another discipline might be able to understand or interpret their highly specialized field of study." (Q17-3804-1071)

B. Solid Structure

Institution

When a university prizes the arts and interdisciplinarity, its top-level structures are set up so that collaboration flourishes. This means that:

- Not only do university structures support interdisciplinary collaboration, college- and department-level ones do too.
- Interdisciplinarity is incentivized, for example, with Tenure and Promotion policies that recognize arts-integrative teaching and research, and student degree requirements that are expansive rather than restrictive.
- University resources such as space and equipment are available for interdisciplinary as well as disciplinary endeavors. The precious resource of faculty time is respected through, for example, policies that give full credit for team-teaching. Financial support is available, and long-term planning accounts for sustainability of collaborative initiatives.

Example:

"We're undergoing a re-calibration of Promotion and Tenure here, so I'm constantly thinking through a framework of innovation, and in terms of how so-and-so's case can be explained to the college and campus as innovation, in the ways that a research university wants to foster. On a very basic level, paying attention, and articulating what is innovative about something, and implicitly or explicitly, steering a faculty member or student in that direction." (Q18-1115-5576)

Collaborators

The structure of the group of collaborators is designed to support the collaborative process. This begins with basic decisions of whether to collaborate at all (if, for example, some participants are not enthusiastic about it, or the project will be watered down because of the collaborative process) and whether to continue the collaboration if it is not working out. There must be at least a basic understanding of what members' roles and responsibilities are. It's helpful to have a structure in place to negotiate the group dynamics that shade any collaboration, including the likely conflict that arises around issues of workload, ego, and assigning credit. Perhaps most important is establishing and maintaining communication. This starts with a conversation at the outset, clarifying expectations and sharing processes, and continues with frequent check-ins and re-evaluations. Having these structures in place enables the group to move their project forward even as they deal with the basic logistics of functioning within the larger arena of the university—securing space, optimizing available resources creatively, working through administrative systems, and solving timing conflicts.

Words of wisdom:

- Honor the specifics of each collaboration, case by case.
- Prioritize the project over individual egos.

Examples:

"Each of us will sit down with a set of objectives at the beginning and decide together what our objectives are for the course, what we hope our students will be able to take away from it, what sorts of processes we would like to use in order to facilitate that result. It's very much sort of a nuts-and-bolts deliberation, I think. Everyone tries to be as specific and

concrete about these objectives as possible while still leaving enough wiggle room for creativity and for the unexpected surprise that may come along, which I think makes everyone's life that much richer and certainly makes the process of teaching that much more enjoyable." (Q19-1013-1957)

"With my engineering folks, we get together a lot. We get together every other Wednesday, and we talk through where we're at. We sit around a table not unlike this, and we talk it through. There are people tapping in from other universities that are projected up on the wall, and there's a lot of discussion going on. 'What about this?' 'How does it work?' 'What about this?' 'Wait a minute. Wait a minute. Wait a minute. I did work on this, and this is what I found.'" (Q19-1101-5341)

C. Bridging Difference

Institution

Interdisciplinary collaboration necessarily entails participants working across campus. As part of the larger task of establishing structures that support interdisciplinarity (area B), the mechanics and logistics of different units on campus must be reconciled if collaboration is to thrive among them. Aligning class scheduling grids across departments; systematizing the allocation of money, teaching credits, and student attendance for team-taught classes (perhaps through cross-listing courses); and clarifying expectations of time for faculty who hold joint appointments are all institutional measures that help bridge different disciplines.

Examples:

"When we invited host speakers, there are completely different cultures, in the arts, and in the sciences, and in other fields of how you do that. How you invite people, how you compensate them, what's an appropriate thing to do when you're hosting them, and how are things handled administratively." (Q17-1319-7332)

"Basically all the courses here are Monday, Wednesday, Friday—you know, the typical kind of thing—whereas at an art school, there's six-hour studio courses. For all the will of the world, these two different pedagogical methods really are somewhat incompatible…One of the ten recommendations that was in here was that course schedules be changed to make it easier to have collaboration between [the art school] and [us]…They did agree, which was not easy for them to do, and not only because of the arts, but just for this larger purpose to change that system here so we were on the same pattern with the Monday, Wednesday, Friday and Tuesday, Thursday. That was an important recommendation that got there fairly quickly." (Q19-1006-1879)

Collaborators

Interdisciplinary collaborators come together steeped in the different working styles, different knowledge sets, different epistemologies, even different languages of their own disciplines. Collaborators overcome these by

- stepping out of their disciplinary comfort zones,
- explicitly addressing underlying ontologies,
- sharing or witnessing each other's practices (*what do you do when you're working?*),
- using drawing and images to sidestep language and share information,

- taking the time to stop and define terms, arriving at shared definitions.

Words of wisdom: Stick to the pragmatic—what's in front of you—and leave the theoretical for another day.

Example:
"Someone can take a look at the outcome, the product, and people go, 'Wow, that product is beautiful. I have no idea how you got there. It seems like you just got there by fancying around in your studio until the muse struck you on your head and then off you went.' No, there's an actual practice to that, that can be taught and learned, and honed, and perfected. Bringing those two things together can be useful, if you just share that much. How do you do your work and how do I do mine?" (Q17-2102-294)

D. Positive Environment

Institution
An environment where collaboration with the arts can flourish…

- …is art-positive, with broad arts curricular offerings, and recognition and support for arts initiatives of all sizes.
- …is faculty-positive, with few barriers between disciplines and many opportunities for interdisciplinary contact. Faculty have time to pursue collaborative efforts.
- …has good "spin." The arts are visible and supported, and arts successes are celebrated. In some universities, this may include advocacy that demonstrates the value and impacts of interdisciplinary and arts-based ways of knowing.

Examples:
"Perhaps the best advice would be to have outside consultants and spin doctors to help them deal with this, especially in a state like this where somebody who is on the forefront of plastic arts, or who is doing experimental musical composition, has no audience whatsoever….You don't need to give another grant to somebody to paint another canvas. You don't need to commission another cantata. You need to get somebody to deal with this foundational problem, so that in the long term there is support for those kinds of efforts." (Q18-2716-2266)

"To the extent that we can figure out who the right people are that support it in engineering and hook them up with the right people in the arts school, get them talking together, get them generating some course ideas, I think that's what's really necessary. It sounds trite but maybe one of the best practices is to throw some social interactions. Maybe have a reception at our art museum and have arts faculty and engineering faculty both invited and get them mixed together and talking about things. Maybe we'll find some commonalities." (Q18-2520-5288)

Collaborators
Participants generate fun and excitement around their shared project, persevering in the face of opposition and negative reactions. Openness, kindness, and patience inform the work.

Examples:
"Paying attention, listening, staying open-minded. There's never one way to do a thing. It's never that simple and oftentimes the best intentions really lead in the wrong direction and you have to be able to put your ego aside and be able to step back and be open to listen to something that might actually be better than you may have thought. It may actually lead to where you want to go, even though that's not the path you thought would get you there. Paying attention, keeping an honest, open-minded approach, I'd say would be most important." (Q18-2807-3286)

"I find, if you're not a jerk, if you're kind, people will come and meet you a long way. So start with being kind and conscientious." (Q19-2908-1471)