MĀNOA FACULTY RESEARCH:
PATTERNS AND THEMES, METHODS AND METAPHORS

From August through October 2004, thirty (30) University of Hawai'i Mānoa faculty from various disciplines participated in a listening project on conducting research designed and facilitated by Kathleen Kane, Director of the Center for Teaching Excellence, James Caron, Director, Honors Program, and Christine Kirk-Kuwaye, Coordinator, First-Year Honors Experience. Seven focus groups were offered on a variety of days and times. The faculty who were invited were colleagues that one or more of the facilitators knew professionally and saw as good candidates for lively exchange and would be interested in meeting to talk about their research in the larger context of freshman collaborative teaching and learning in Honors courses. The composition of the focus groups was random, with faculty selecting times that fit their schedules. Faculty represented a wide range of colleges and schools, including: Library and Information Science; Colleges of Education; Arts and Humanities; Natural Sciences; Languages, Linguistics and Literature; Social Sciences; Tropical Agriculture and Human Resources; and Schools of Medicine; Hawaiian, Asian and Pacific Studies; and Ocean and Earth Science and Technology.

This listening project had two goals: (1) to share what was learned in the groups to help Honors students better understand how faculty from a full-range of disciplines conduct research and how they experience and perceive the process, and (2) to inform faculty about first-year course offerings in the Honors Program and to consider ways faculty could be involved -- being guest speakers or hosting students in their laboratories or studios for Honors, or even teaching a section of Honors 101.

Honors first-year courses introduce freshmen to the research process. During fall semesters, this introduction begins with the writing of a report on a researched project in the three-credit Honors 101, "Mānoa Campus and Its Neighborhoods." Honors 102, "Research at Mānoa," a one-credit follow-on course in spring semesters, introduces them to the resources of Mānoa as a Carnegie Doctoral Extensive institution through presentations of faculty research and field trips to research units and labs. As a capstone event, Honors 102 students attend the annual symposium for Undergraduate Research and Creative Projects, where juniors and seniors present their research projects.

Honors 101, and to a lesser extent 102, intentionally provide freshmen, the newest members of our campus community, with an introduction and orientation to college and to a new intellectual community, one defined by collaborative research projects. Thus there are two key elements to HON 101: interdependence (i.e. learning the craft of "working in a group" with other new students who are peers but nonetheless strangers); and learning the craft of research.

A foundational assumption of "First-Year Honors Experience" (FYHE), of which Honors 101 and 102 are the classroom components, is that "research as a concept and as a craft are among the most important tools that college graduates can take with them to graduate and professional schools and the workplace" ("Cultivating the Craft of Interdependence:

Collaborative Learning and the College Curriculum" – Kenneth A. Bruffee – *About Campus* Jan-Feb 2003, 21). Honors 101 is therefore shaped by and models research, in all disciplines and in all forms, as a fundamentally interdependent enterprise. We believe that discovering how specific faculty conducted their research would enrich the presentation of the research process for FYHE.

The format for our faculty focus groups was simple. No more than six and no fewer than four faculty would comprise a focus group; sessions would run no longer than one hour; and faculty were asked to come prepared to share their responses to two questions:

- How do you conduct your research?
- What metaphors or analogies best describe or exemplify that which drives your research?

This simplicity created a richness in each discussion, enabling the project to easily meet its first goal of generating insights into the varied processes and experiences of researching, which will be shared later with undergraduate Honors students. Indeed, the conversational material, although anticipated to be varied, exceeded our expectations. The second goal has been expanded beyond just informing and involving faculty in first-year initiatives to include seeking faculty who would be interested in designing and teaching seminars for sophomores, Honors 291. As part of this recruitment agenda, we will offer a series of seminars/workshops that will address key issues in the teaching of first-year honors courses.

When describing how they do their research (the first question we posed), faculty were most comfortable, and their descriptions were direct and accessible. As a result, we discovered that several strong themes had emerged. These we share below. For the second question on metaphors and analogies, several faculty reported struggling to find the right metaphor or analogy and some offered more than one in order to precisely describe their experiences. Often the liveliest exchanges among focus group members occurred around metaphors. These were moments of discovery, surprise, and recognition as faculty saw how differently their approaches and responses to research work could be and yet, how similar the experiences often were, even across disciplines. In compiling the selection of comments we offer here, we chose to identify participants by their department affiliations rather than by name.

How faculty describe their research: metaphors and analogies

Metaphors are concrete and visual, and the best ones cause surprise and nearly instant recognition. The focus group members produced a full range of inventive images that both novices and experts can understand. Here is what we heard.

- One faculty sees her job as dumping out well-organized *file drawers* in order to attempt to see things in new ways, while another saw file drawers as the "theory" that organizes, structures, and informs his work.

- Research was like a *hologram*, offering multiple views.

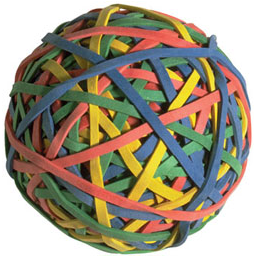
One individual also thought of research like a *cheerleaders' pyramid* with successive work being balanced on the previous efforts of others.

- Some historians are *hedgehogs* who know "one big thing," while others are *foxes* who pursue this and that. Another way to discriminate between these types is *parachutists*, the "generalists," and *truffle hunters*, the specialists, who seek out the exotic bits and pieces.

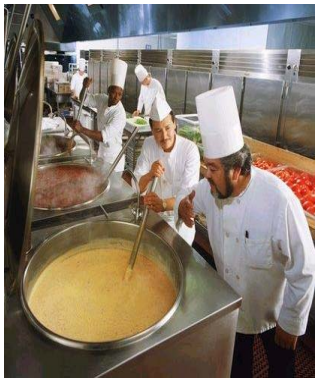
- Less exact but still visual or even visceral were descriptions of the research process as *haphazard*, as a *staged conversation*. One faculty described a process that developed from a *fighting stance* as if he were writing an op-ed piece, to *a*

hunger that couldn't be satisfied, then a *feeling of* intimacy with historical figures being researched.

- One faculty described the work as dangerous and full of tensions, a *rubberband world*. And while *detective* was an idea that resonated with many, another faculty felt as if she were a *torturer* in



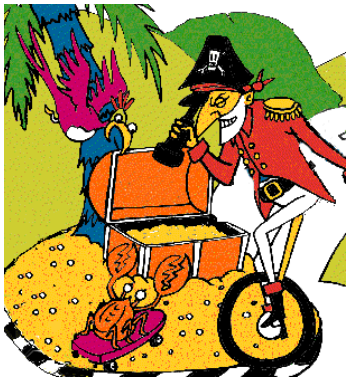
pursing information from subjects.



- In describing the work of his lab, an oceanographer talked about his staff as a *restaurant crew* with him as the *sous chef*.

- A faculty in journalism described the experience of the researcher-journalist as the *need to keep going beyond the 6 o'clock deadline*.

- The work was characterized as systematic and even magical -- *building a wall* but *running on one's own energy to create something from nothing*.
- And there was a *treasure hunt* and the fantasy of being *Indiana Jones*.



What follows are a sampling of metaphors that seemed to especially resonate with focus group members.

Addiction: making the pain worthwhile

[**Zoology]** What's the addiction? Why do you keep coming back to all of this? It's got to be an addiction. Because most of the time is spent in the lab, where I am banging my head against the wall. *What do you do on a daily basis? What do you do on a daily basis? I bang my head against the wall.*

Whether it's with the granting agency, whether it's with the administrative aspects of the job. Whether it's with getting data, getting an experiment to work, does it work? Will it work? Will it work? Banging my head against the wall. . . You have that brief, brief moment of joy [and] for that moment, it's spectacular and it's such a rich experience. . . it makes all the pain worthwhile.

Looking through different eyeglasses and a day at the beach

[**Religion]** I was working on a religious group that emerged and was new from the 17th century. . . I was reading through these . . . primary source materials, and it was like . . . putting all of our [eye]glasses in the middle of the table, and I am picking up different ones and looking through different lenses. That was what I was learning how to do . . . learning through different lenses.

I was learning to look at this thing; there were no objective texts. People either loved or hated [this religious group]. They were either trying to discredit them or build them up. Have you even put on somebody else's glasses? The world goes -- especially if they have astigmatism -- the world goes funny. That was the image I would use, that I was peering through lenses; that I was trying to look through other lenses . . . What I am doing now, I think the image that I would use, is that I am a kid at the beach looking for shells and polished glass . . . I am looking for treasures . . . a lot of what I do is really boring . . . [But] I get really excited about it . . . a day in the library. . . My neck hurts by the end, my heads hurts, and it's a little like that day at the beach collecting shells. It was fun, because I found a few and I want to come back again and again. But a lot of it is beating your head against the wall and it's boring, but then you find a great shell.

Guerilla librarian/performance librarian

[Library Information Science] I have a really hard time seeing myself as a librarian; I have a really hard time seeing myself in that role. So, I describe to my students that I am a guerilla librarian. To get them excited and thinking outside of how things are done. It's a metaphor to describe my process . . . I consider myself a performance historian. The idea is about energy and excitement. Whether you convey that through your teaching or your writing or whatever it is, that's what performance is and that's what keeps me going and keeps me going back to it.

Learning to play the violin and writing poetry

[Information and Computer Sciences]. . . I use two analogies [when talking about computer programming]. One that I always use is learning to play the violin, and how long it takes before not worrying about what others think. It's something that is measured in years, not something that takes weeks or months. And the second one is poetry. It's a very compact, precise way of communicating. And when people are making a computer program, they are saying, "Okay, I am doing this, so the computer knows what it is supposed to do." When in reality, it is one computer programmer telling another computer programmer, who has to look at it later, or even yourself in the future. It's a kind of language that needs to be executed by the computer but fundamentally understood by you.

A dentist who is scaling and Doris Duke's Museum

[English] When working on a piece of writing, I think of a dentist, you know how they go over things and go over things.

Facilitator: Are you doing the scaling? [Laughter]

[English] Yes, I am doing the scaling. I was also thinking today about Doris Dukes' Museum [Doris Duke Foundation for Islamic Art, Shangri-la]; it's the fifth largest Islamic art collection in the country, and there is nothing Islamic about this house, except for the individual pieces in it -- she has taken these nineteenth century vases and put holes in them. So, I was thinking about this as a kind of metaphor for research, because I feel that a part of it is using types of

things or genres, and putting them in configurations that [reflect a] personal vision that you have. . . . You know, a house is . . . private but also this thing you invite people into and it's public space at the same time. So I had that in mind for a metaphor.

Building a beautiful fly

[Information and Computer Sciences] I think of fly fishing because you spend ages building these beautiful flies, and you have all sorts of theories of whether they will work or not. All this work goes into this one line, and you have to eventually chuck it out there but whether it catches a fish or not is almost beside the point. But the bulk of your energy goes into these flies.

The journey and the hike

[Speech] I keep going back to journey. It's this long journey, and you're never really done. You don't think, "Okay, I've answered the question, end of story." It's always, "That's interesting." Especially when it's empirical, it's usually what's expected. You have to keep going, there's always another interesting thing, it's just a long journey . . . maybe a hike even; I've never hiked before, but I can imagine it's like, "Oh, that's interesting, and that's interesting."

[Oceanography] Yes, that was mine. My hikes are very goal-oriented. What's my goal? I am going there. I almost have the blinders on; I am very focused. [But] other hikes I go on, I don't care how far I get and I usually [go] with my dog, and it's the experience of what's around, it's relaxing and pleasurable. I may take some offshoot trail and other times it's very focused and just "get to the end, get to the end!"

A game with rules

[Psychology] I think my metaphor is probably game, it's a game. By that I mean it's a game with lots of complex rules, and it takes a lot of time. But flexibility is very important because it's built into the rules.

Magic mushroom

[French] My metaphor, because I deal with literature, it's very different. My metaphor would be the magic mushroom, because I do a lot of reading. You've got to pay attention to detail, and then at the center is the mushroom, the question of what I've found, and it's magic because sometimes it

does lead to something that is new.

A slog through heavy snow and wrestling matches

[English] When I first pondered this, I thought . . . slogging. Slogging through heavy snow . . . I think that came to me because I have been advising graduate students . . . I realize that in research, there is a very high premium for just keeping it going. There is a simple advantage to knowing things. You need that long term commitment, coming back to it everyday. And I thought, well, that sounds a little dreary, so I came up with another one, equally unworthy . . . and that was wrestling. I think when I am working on research, a lot of it is wrestling. I wrestle with problems, that there are certain mysteries about art, about the imagination. There was a Times magazine [article], titled "What Makes Shakespeare, Shakespeare." Those are the kinds of things that I mean, about what should be answered, even the terms that should be used to evaluate those things. So, you are wrestling with problems, as you do in any area. But you are also wrestling with other specialists. You are reading people that have strong opinions, or have taken a certain attack at something, and usually you are doing that because you have a question or a problem that they don't answer and you want to figure out why you are not satisfied with what they are doing or why it doesn't seem right with you. So you are interacting with them even though you may not even know them. And you are trying to wrestle with your own thinking, to come up with something that is more satisfying and make an advance. . . . One reason for going to scholarly meetings, giving papers and giving feedback and publishing [is] because then other people can read your stuff and analyze it. So, slogging and wrestling.

Detecting versus detective novels

[English] I am intrigued by the comparison to detective novels because it's very appealing to us since we try to do that in research and we are looking over a bunch of information and we have to decide. You know the trick about detective novels -- I am going through a phase where I am anti-detective novel and this is why. The thing is that they are too easy, this is what makes them fun but it can be tiresome at times, because there is one answer in the end, everyone knows "who's done it." You find out in the last page. Everything is solved. I think that in

popular culture, especially in drama and in fiction, we like that, we know that life doesn't work that way, but we like it when it does and when it doesn't and we can put aside its unreality.

But in research it doesn't work that way, and in English, the perspective that you started with is different because the field has changed. Because people are reading different critics, the arguments we had are different from the arguments we had back in the 60's in graduate school . . . the field has become more diverse, and contentious and maddening, but interesting.

Oceania: making one's own map

[Pacific Island Studies] Usually I try to keep Oceania in mind, whether it be with teaching, research, whatever. Oceania meaning an expanded definition of what counts as the Pacific. So it is an idea rooted in place in the ocean but the potential to engage beyond this place, this ocean, and these islands. It's this idea that you are always dealing with multiplicity. There are many islands . . . so you have multiplicity, diversity, similarity and connection. And I always try to keep those things in mind and [remember that] you can't have one or the other. We are all the same, we are all different, and you have both. You are trying to keep multiplicity in mind, and the best vision of multiplicity is Oceania, diverse peoples and islands rooted in this ocean but connected in different ways, to other places, other oceans, other people. So that's the overriding metaphor for my life, for my research, my career, my teaching.

Facilitator: That's interesting, because you said place, and I didn't sense map.

[Pacific Island Studies] No, you make your own maps. You can actually, re-figure, re-map, re-construct difference and similarity. It's definitely not that static map up on the wall. . . . I like that detective metaphor, because I've done a lot of archival research. I sort of closed myself off for six weeks in Australia and I dealt with thousands and thousands of boxes of papers and thousands and thousands of photographs. And what I would do is I would read the paper and it would refer to something and I would go to the photographs and make the connections. It was one of the best experiences I have ever had. You are dealing with actual peoples' lives in the past and you are working with very limited resources. So you work with text, image, and imagination. I would give anything to have two months off to do something like that again, but my schedule is booked for the next two years.

How faculty do their research: themes

As mentioned previously, the assembly of faculty who attended focus groups was random, based on times that best fit their schedules. Only one group had two faculty from the same department, and in all cases the groups represented an interesting mix of disciplines and an enlightening array of perspectives. Frequently, the faculty at focus groups were colleagues who had not met before and their focus of research was often unknown or little known to others in the group. As a result, focus groups consistently had an air of discovery and freshness, and conversations often continued after the focus groups concluded. Nonetheless, specific themes emerged within and across disciplines.

Collaboration

Aside from the two questions we asked faculty to consider – how they do their research and what metaphors or analogies best describe their research processes – we did pursue the collaborative nature of their work if this topic did not emerge on its own. Because students in the first-year Honors courses are required to work collaboratively on research projects, we were interested in hearing about how faculty work in pairs and groups to produce knowledge.

In the natural sciences research is known to be highly collaborative, team-based, and often physically situated in laboratory communities or in field teams where researchers literally work side by side.

> **[Zoology]** You have that brief, brief moment of joy but for that moment, it's spectacular and it's such a rich experience . . . it makes all the pain worthwhile. And if you have students make that happen for the first time and they are looking through a microscope (this happened recently in lab), you tell them, "We are the only people that know this," and it's a very powerful experience. It's very powerful. "Powerful" is the wrong term. The things we know are very trivial, in many ways, but it's very exciting to be the first to find something and it's those moments of --
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> **[Office of the Vice Chancellor for Academic Affairs]** Connectedness, and "ah ha," the insight . . . I couldn't agree with you more. What you just said is exactly how I feel, when you get it, there is nothing better . . . I want to just say that I don't know a scientist that won't come running down the hall to the closest colleague that might understand what they're doing. It's like "I got it! Eureka!" You can call it what you want, the quest for enlightenment, a sojourner on a path. When you hit it at those rare moments, it's very metaphysical, and it does feel good . . .

However, surprisingly, even in the more solitary disciplines, such as the arts, humanities, and some social sciences, faculty spoke of their need or even choice to work with others:

> **[History]** So much of my field has to be interdisciplinary; there are all these technical sides of it that people just get slotted into. If people in the different

> [fields] don't talk to one another, we have very distorted notions. So, I have been doing a lot more collaborative work.
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> **[Speech]** It's in our field as well. But there aren't very clear rules about who is the lead author [for a scholarly article]. There are issues about status, if you are the senior person, versus [who] did more of the leg work. I don't see it in our field . . . how people talk about it, who is going to be the first author in the writing of the research. The implicit rule is that if it's your grant, then the PI [principal investigator] always gets to be first, even though the PI may have not done any of the work.
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> **[English]** I have been doing writing with a colleague, sentence by sentence writing. And it helps because sometimes I feel I don't have this in me. And we sit down together, both feeling that way and there is something about getting to a sentence with another person. [Pause] I have enjoyed that process of writing with a buddy. There are just different methodologies, too. She wants a blank screen to start something, and I want a detailed outline.
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> **[Art]** I have been doing collaborative work for a long time. [For] each project I think I deal with collaboration very differently. It's always shifting. Collaboration has taught me so much more about how to ask questions. I think that is what is keeping my research very alive; because once you are out of school you have to keep challenging yourself.

Some collaborative colleagues are frequently at a distance, sometimes never seen in person. Others manage to have collaborative discussions in unconventional settings. In an example from the mathematics field, the work is jointly done, with researchers working solitarily on particular aspects of a project who then come together to share their results.

> **[Mathematics]** I have worked a lot with a professor here, and I would say that most of the work we do is joint work. And in different ways, I am working with a couple of Russian [women], in their thirties and forties, one of them I have never even met. I am working on another set of problems with a couple of grad students. Most of your work is driven by the work with your colleagues. The actual work you do, you are on your computer, you go hide in your hole, then you go back and talk. I had one paper, where all the joint work was done while we were running. We would run down and around Kapiolani Park and so forth and we each would discuss what we would do the next day. Then we would discuss what happened and do it again.

Echoing many undergraduate students' distaste for and frustration with the process of "working in groups," the faculty, even as they admitted that collaboration was necessary, acknowledged that it was not always easy:

> **[Art]** I have learned from everyone. I think it's important to choose people that share the same objective. And you can only find that through working with people and that the conflict may be educational but may not be productive in sustaining the project. You <u>can</u> learn nothing.
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> **[Economics]** In programs with graduate students, collaboration is an important part and that would be true for undergraduates as well. I always think of collaboration as being a real mixed bag, to have good ideas and being aware and feel you need to collaborate with people. I also find there is a dark side [in] that you have to deal with these people. They may have a different pace and you can't agree with what you are doing. It's not a pretty process all the time, but I think it's necessary for most of the work that I do.
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> **[Institute for Teaching Education]** Teachers are famous for not collaborating and closing their door. Learning to collaborate takes a lot of time and energy. I think that one of the areas of research is the idea of the lesson, which is a collaborative process of engaging people and looking at the lesson that is taught. So, four of us will design the lesson. I would teach, three would watch and then we will sit and talk and evaluate. Then one of the other three will teach and I would listen. So, we continue to improve the lesson. And I can't think of anything more collaborative than sharing what can be very dangerous times when you are pushing an agenda that students are really engaged in. And it's pretty dangerous as a teacher . . . So, we structure a lot of our work around that collaboration. And I find this very good for beginning researchers, that the group of them, have many more ideas than one of them.

Although we were initially interested in learning about how faculty work together to do research, our notion of what it means to do research was expanded as we listened to faculty talk about their research subjects or informants as partners. Ethical issues emerged, sometimes subtly, other times directly as in this comment.

> **[Ethnic Studies]** In my research, I like to think of my participants as collaborators, because I just don't think of them as people that have knowledge, but they are knowledge producers themselves. However, there is a gap between doing research and lines of ethics and commitment, but ultimately when I am writing my book, it's my name that goes on there. And all the twenty other people that are my collaborators don't get [their names] on it. And that is something that we need to address in the Social Sciences. So, how do we acknowledge their work? And it is the ethical question of appropriating that comes into play.

We also began to understand ethical behavior in a larger context as well: a scholarly work done with care and according to a procedure, which could mean creating highly individual ways of doing things or following an established protocol.

A cycle of reading, thinking, writing

[History] What I am delving into this summer is reading, thinking, and writing, [with] thinking in the middle. I read a lot and I take time and write some and I go back, and it's sort of this interesting inter-relationship between those three. The goal of historical research has many possible outcomes but the major one is a phrase used by many historians now, and that is "historical empathy." And that is the "why" questions, not just the "who did what, when and where" and using names and dates -- that's boring and tedious and I hate it, and I don't remember the numbers anyway.

The "why" question is, "Can I understand how and why people in the past lived and thought the way they did, especially if it looks different?" So history is sort of this process of inquiry into human past actions, but you just can't make it up; the purpose is human self-knowledge. There is a lot of reading while I am looking at artifacts, so the process for me is moving in between two poles, which in history are primary sources, but sometimes are archeological artifacts or other pieces of artwork, or something like that. Those primary sources are hard to read. In my field most of them are in different languages, and I will have to be able to work with those sources, but even when I can translate them, they are not always clear. So a lot of it is working with that data, and trying to figure it out.

The other pole is the theory side, where I interpret how I am going to think about this, and how I can I understand it. Right now, this week, I am in the theory phase. And I am looking at how I understand text. I have physical texts that are bilingual, but they reflect oral performance as well, so how do I think about that, how do I talk about that. So I kind of go in the processes and go back to this big picture theory stuff and the data itself.

The product in history is the whole sum of what we do. It's the article or the book or whatever we write, so oftentimes the writing is most of the battle . . . it's the writing where I [ask], "How do I make sense of all this?"

A question, something that can't quite be explained

[English]. . . How do I conduct my research? Well, for my first book project, that took a lot of time for me to do. And it usually starts in a very vague kind of way. I will say that this project that I am working on now, I started after my first book project. You know, not really able to just sit and read novels all summer and hike, and also read theory and catch up on all the things in my field, so I started to read these memoirs and it seemed like it was just "in between," and then I kind of got fascinated by it, the fact that all of these academics were writing their memoirs. And I like it, especially since it went in kind of a counter way to their body of work that was theoretical. And I started to read more of them, and started thinking, you know, "What was going on?" And that is generally how I get

started, with a question, or something that just strikes me that I can't quite explain. And so I just started reading as many of these that I could, which is usually the way that I work, and then finding a trail when they refer to each other and looking in the works cited and finding more and more things, and the same thing, looking for the little bits of criticism and getting a sense that I had some things to say because there really had not been much said on these things. Then the way that I generally work is to think about chapters or a table of contents, or sections, and start where I am the most interested. And I have done that since working on my dissertation, where I went in with a prospectus and a graduate advisor laughed at me. "This project has mushroomed alarmingly!" I remember that exact phrase. And one of my dissertation advisors, who was very kind, said, "Don't worry, just start where you are the most interested." So I started in the last chapter.

And so I take notes, and I always feel as though I am procrastinating, but I take a massive amount of notes and I type them on the computer. I go through this process of cutting and paste them into sections. And those become a kind of framework for my argument. My argument is a clump of this stuff and then I draft and usually do some more reading as my arguments start to crystallize. And what is really an important process for me, once I have a draft, is giving it to my writing group, which is a really, really crucial part of conducting writing, which in my field writing <u>is</u> conducting research. And I give everything I do to my writing group, and also to a number of other colleagues that I exchange work with as well. I don't do it all at once, but I'll give some to the writing group and then I will revise and then I will give some to another person. So I do a lot of revision.

The other thing I have to say about starting with a question, or where I am most interested, [is that] I think serendipity plays a pretty big role in things and a lot of times when I think I am wasting my time or getting distracted, where I am following this alley way, you know, that [may seem] very self-indulgent, it will turn into something interesting. So, I am coming to trust in that process. You know, cleaning the bathroom when I should be writing. And I now know that's what I need to do . . . I no longer fight that. Okay this is the prewriting process, you know, distractions from writing are what I have come to understand that this is the way I do it. And just, you know, setting aside time to build in those timewasters.

Solving a problem

[Economics] This ties into metaphors, because a lot of the research is related to asking questions about policies, and appropriating policies, and policy responses to different economic problems. A lot of the research has to do with solving the problem. Most of the results are empirical. So, there are these stages, and the first one is trying to identify an important question, "What caused a particular problem to develop or a debate about policy, and the response to that development of a particular problem." And that stage involves a lot of discussions with people. So, there is sort of this stage of deciding on an issue that you want to look

at. And then a second stage maybe involves the traditional library research and also Internet research, trying to figure out what has been written about a topic. Most of my work involves statistically trying to answer questions, so there is a stage where one tries to come up with useful data to answer that question. And finally you try to find appropriate statistical tools to [handle] that data and try to come up with some testable questions and answers to put to those facts. So that's a traditional kind of social science method, starting from identifying the problem, working through theory, whatever you know about the problem and then to data and using appropriate tools to analyze the data.

Solving one's own problem

[Institute for Teaching Education] Well, in education . . . our methodologies [are] where you are in a learning setting, or in a school setting where problems arise. We are really problem-oriented, probably even more so than economics. The problems are very real and they are very contextualized. So, there is this process where we are examining what we know about this and actually it's really limited. Because the contexts are so definitional, finding something in the same context is very, very special. But then we dig deep and we do something that is done a little differently, or I do something that is different. We focus on the actors and think of them as researchers, and as a part of the research team. And they understand the underlying agenda and they are part of that agenda. We are not looking at it statistically from outside the system but from a part of the system. . . . So a lot this stuff I do, in education, is based on self-actualization, that you are analyzing your own problem, and there is a lot of psychology coming in and a lot of educational practice. We are drawing from those traditions but in the end, it's sort of your context and your solutions [and] you look for data that tells you information about how successful you were. Did the [students] get what you wanted them to get? So it's short term, those aren't huge questions, because everyone is working at the small problem level. One problem we have is extrapolating those problems into a larger system in teaching, because everyone is working at this small problem level. . . . when we publish all these findings, we are trying to synthesize among a number of cases.

Solving contentious problems

[Economics] I think that I have changed my view of what I want to say. [I think of] problems that are contentious, where there are differences of opinions on a topic, and that matters for some reason. That's obviously affected by something that has to do with policy making, by a business or our government. And so I was thinking of examples, one is this question of the outsourcing of jobs, on whether it's a good thing or a bad thing. The image of that question comes from the fact that there is contention on the issue. You know, there are strong opinions where they can rally the evidence on one side and on the other; there is a very different view of how policy should be directed. So, having something that is contentious and therefore, a potentially important policy question that can be addressed, gives

me something to go out and be interested [in]. This also means that there is a lot of opinion and descriptive material that's out there, and that you can start to collect information and collect ideas about what you would like to evaluate and what your hypothesis may be. I mentioned this idea of research as a problem-solving kind of enterprise, which is a little different than thinking about it simply as trying to address a question of contention. But they become the same thing and once you identify this issue as what people are arguing about, it gives you something to explore in terms of looking for information, what's already been written, different points of view. It helps to hone your hypothesis and actually evaluate, to know that outsourcing is in fact a necessary part of an economy, which is different than a particular hypothesis where you would go out and try to collect information to form a hypothesis and text.

Economics is an interesting social science because we look at the published paper and we don't do a lot of fieldwork. That's speaking a little too broadly. I think sociologists do a lot more of going out into the community and finding the answers to the questions. The way I would see a formation of community needs is looking at the published papers that would have to do with the displacement of jobs in different industries and seeing how that affects the surrounding communities.

Listening to people and building theory from their experiences

[Ethnic Studies] As a qualitative researcher in social science, we have very specific methods and we do talk about our methods and write a chapter on them, which thankfully we don't have to write for the book. [Laughs] In regard to qualitative, the kind of research that I do, I am very influenced by what we call the grounded theory approach, where you don't actually go and test a hypothesis. We actually go and talk to people and then we develop a hunch that we have or a particular focus that we have. So, I work on immigrants and globalization, so of course I have my hunches. But the idea I have is that -- and this comes from feminist methodologies -- the way we develop theory is not by imposing theory on reality but having reality develop theory. My commitment is to listen to people and then develop theory from their experiences.

Rigorous, formal, quantitative

[Psychology] Psychology is much more related to the natural and biological sciences, and not the social sciences. It's very interesting. Being in the College of Social Sciences, I discovered that [psychology has] very little in common [with other departments in the College]. For example, the quality of the research methods that dominated most of the social sciences played a relatively small role and we still tend to be very quantitative. It's not that qualitative methods don't play a role, but they were at the very beginnings of our research. So, these are the kinds of things we are trying to get a handle on, so we know what's important. So

that's a big debate about whether we should write that out and some people do and others will [include] their qualitative observations . . . So, it's a much more rigorous and formal method. It almost always involves intervention with a survey or classic experimental methods, and other ways of course, but it always involves direct observation.

Speculative and definitional

[Information and Computer Sciences] I am in the Information and Computer Sciences Department. So my research is in kind of a funny place, I do my research in Artificial Intelligence (A.I.) and I am also in Astrobiology… which gives me the dubious honor of being in two fields that do not exist. I study Artificial Intelligence, there is no artificial intelligence, I study Astrobiology, and we haven't found any astrobiology. So this obviously affects the nature of what we do. This is inherently speculative, and definitional. So trying to imagine how things could be, there is a lot more imagination than other science areas, but a larger percentage of it is speculation, and definitional: what do we mean by artificial intelligence? Life? How would we know it if we saw it? What should we be looking for? So it's those two features [speculative and definitional] that make my research what it is.

Curiosity driven, funding driven, toy driven

[Oceanography] I am actually a geologist. I guess the type of research that I've done has gone in a couple different directions and I have had a very focused and specific question-oriented research, I actually do a lot of geochemistry, so I do a fair amount of laboratory type work in some projects, and there may be a specific question that arises out of the literature, and something doesn't quite click or it's not understood yet, so it can design a specific experiment to address that question.

And that's the type of work I did before my Ph.D. and I was in the laboratory and running experiments for several years and it's interesting because just a couple of years ago, a current graduate student was pulling out old work that I had done with a colleague years ago, during my Ph.D. research, so this was thirty years ago. I had to pull out my notebooks from my Ph.D. research, three lab books full of stuff, and go through it looking for the original data research on some stuff, which wasn't published. And all these years later we are trying to dredge it back out again, doing more work on it. And it impressed me how little of that work ended up in my dissertation. Probably five percent of the experimental work that I did ended up in my dissertation. So there was all that preparatory [work]: design an experiment, see what happens, redesign it, test another aspect, and all that earlier stuff was just the background and the base of the pyramid. And only the very top of it was up and seeing the light of day.

So that was interesting, and the other type of work that I've been doing most recently, I don't know if it's an evolution in career or it's what I have been doing, it is not directed at specific questions, it's more open-ended. I have become interested in paleo-environmental work between sedimentary materials. So what I

do is go out and collect cores and look for sediment and start doing analysis on what I find. The cores from this area should be interesting, because they should reflect the amount of rain that is collected. There should be a record that's just really general and other things are coming out of that and this is a fascinating area. That's not a specific question; it's just general curiosity. Also, I've gone in those different areas, I am toward the more open-ended, curiosity, rather than address the specific questions.

Another comment I'd like to make is that it may be different in other sciences; a lot of it's driven by the funding agencies. And so, you know, I am very interested in the paleo-environmental studies but it just so happens that it's rather a hot topic these days, and if it wasn't I would probably be directing my energies on another topic. But it's very driven by what the funding agencies are pushing and the hot topics of the decade. A lot of the research is done with colleagues; it's a joint work . . . [And] the research is very toy driven. We went on a field trip, and we found this instrument that finds bacterium in the ocean, that is actually the most abundant bacterium on the planet. So, new toys allow you to make gigantic discoveries. So, we are very toy driven. You spend a lot of time tinkering with the toys, to get them to work, and that takes up a lot of time.

Just solving the problems

[Mathematics] First of all, the nature of mathematical research I work in [is] theory algebra, and I work a little bit in biological applications, more by virtue of there not being any professional mathematicians here, so I am the contact person. There are some famous open problems, and there are some less famous open problems. And the idea is not to solve a single problem, but to solve a class of problems. I have worked a lot with a professor here, and I would say that most of the work we do is joint work.

It is very much a social thing, but not the detailed work. At some point, you just got to hide and do your detailed work. The other thing is computation. Computers are still fairly new, and since been available for mathematical purposes. And I was able to get ahead of the game, by doing programs to solve algebraic problems. People would use computers to solve numerical problems for years, but not for algebraic problems. Right now I am looking for a certain kind of geometry with 157 points, and 157 lines, this is one of the big problems. The number "157" is not a magic number; it's the smallest number that is not known. Every weekend I worked on ten to twenty computers, I have my grad students work on ten to twenty, and all the time in my office and at home, I have programs running. And we just keep it going. We have nothing so far.

I am the youngest by three weeks of thirty people. We look for the answer to about ten questions. The whole focus of our profession and from the time in grad school is to solve those questions. And we have about eight problems and there are those who have two problems. I am not going to quit until I solve those problems. It's not research anymore; it's just solving the problem.

How faculty experience the research, what drives the research

Throughout the conversations, we noticed that often faculty described their work in physical terms. This way of describing research may seem counter intuitive to most people's views of scholarly labor as cerebral and perhaps even passionless. But according to many faculty, a good amount of adrenaline that is generated can lead to exhaustion. It can also be the source of the high energy felt when we are at play. Faculty also mentioned the importance of knowing oneself, finding a balance, consciously controlling the work environment, and establishing good habits.

It's about excitement and energy

> **[Library and Information Science]** I deal with compost, the deterioration of library materials. I find it really exciting to engage students in a broad area of thinking, not only to the library, but also to information and other deterioration . . . . I love doing these events where you start engaging in things in all kinds of ways. I find that I love to talk about my work. I love to drag my colleagues into things that they may have not done before. That's really exciting and it's about performance and it's about energy. For me, in science, it's the museum world, and it's Charles Willson Peale [American painter] pulling back that wonderful drape and exposing the depths of his natural history [collection] and all of those curiosities and things that the we continue to have questions about. And it excites me and drives me, being engaged with my colleagues at the university.

Childlike curiosity

> **[Speech]** It's a childlike curiosity in doing research. I cannot wait to get the data; I can't imagine having a stack of surveys on my desk or worse yet hearing, "Oh, I didn't have time to get around to it." Even if it's a little mini-student project, I am like "Oh, I want data, I want to crunch some numbers." It's exciting; all the possibilities are all there. I have this unbridled, "Give me the answer." I measure uncertainty and I have to have the answer right away. It keeps me going. Going through all the deadlines, I can get through it. It's the means to the end. Information, numbers.

Stressful, obsessive

> **[Information and Computer Sciences]** The stressful part is all the stuff you are doing when you are not doing research. Getting all the verbiage done and finding all the key works for the funding proposal. And it's a very cynical process, and finally when I get to it, I find it relaxing.
>
> **[English]** I don't find it relaxing when I have a deadline. . . . And also when I am in the throws of a project, I dream about it and it's not relaxing, it's more of an

obsessive experience. The dentist metaphor is not meant as an anxiety thing, it's something I tell my students, making sure that they check things, "is that holding, is that loose?" But there is that anxiety, when you are doing other things than your research, you think about what you should be doing.

[Information and Computer Sciences] Maybe there is a better word than relaxing; I like to play a lot of computer games. It's a type of play, you know when you are really into a game, and you are really into it.

Managing time and energy

[Economics] Time management . . . it is so critical to be a successful researcher, if you understand yourself, even understanding when you think the most clear. I think for some people it's at night, and for some it's in the morning. And if you know that it's in the morning that you are clear thinking, don't check you email, or do these sorts of mundane, routine tasks in your primetime. It's when you are exhausted or when you are tired that you do things like checking your email. When you have your door open to meet with people or go to lunch. It's important to go running; it's at those times when that pesky question you have been trying to figure out will come to you. Research is a part of your life, it's how you wake up and it's a part of it.

Orchestrating and educating

[Zoology] The orchestration is more what I do . . . that's how I conduct the research. I am not sure that it exemplifies what drives my research. That's a trick question because the way I interpret that question is what is motivating me to do what I do. And all of us should look at ourselves in the mirror and ask why we do what we do. On a yearly basis when the students come and tell me they are going to grad school, the first thing I do is ask, "Why?" And, "You're crazy . . . are you nuts? Look around you, is this the lifestyle you really want? Wake up and smell the roses! Is this what you really want to do?" We are all here because we love what we do, but it's the internal reasons that drive you to do that. It's not the external world that does that. So, for students that want to go this route, they really need to think long and hard about that, and I think they should [do it] before they take that leap of faith.

For me, what drives the research, some of it goes back to your childhood, things you did as a kid, doing crazy things, but I think one of the things that does it is teaching the students, educating the students, that for me is fundamentally important. So that one of the things that drives the research is not just that I am inherently interested in all of these things, [but that] it's all tied together. One of the things I am interested in is I work on brains. I work on how brains are assembled, so it all comes back to this area of learning. Educating the students, that's what drives the research.

Surprise, humiliation, delight

[Information and Computer Sciences] I am a professor in Information and Computer Sciences, and my specialty area is in software engineering, which involves groups of people building into our software system, and how to do that. I think the biggest thing, or seduction about what I do, is that from the undergraduate level on up, if you build a really innovative piece of technology, you get hundreds of thousands, millions of people using it, and really make an impact, you know, internationally . . . and that's kind of hard to do in other disciplines. The part that makes it science, in terms of research, is not just throwing together some software and throwing it out onto your website, and hoping to get emails back, but actually do something to find out what was the impact of your technology in some kind of semi-controlled way, so you know what happened. And it's very interesting, because being the developer of a piece of software, you may think users will use the software in a particular way, which should be very obvious and any idiot could be able to use this software and have certain kinds of effects, and it works for me great. When you do the research on it, and you actually find out what the people do with it, you find (a) it's way harder to use this than you thought, or (b) you made some incredibly idiotic mistakes, [even for] myself [in my] thirty years in software development. It's to my humiliation . . . (Laughs) Or (c) people use it in ways that you never expected, which is an incredible payback from the process. You know, you find out that users are very creative and imaginative people and you look at this piece of technology that you've developed, thinking, you know, he might have thought it might be good for this, but he made use of it for that, which is much more suited to my context.

So many windows, so many ways

[American Studies]. . . all of us are trying to figure out what makes people tick. How do people learn? How do people teach? How do these authors exist as psychological beings, and how is that reflected in their writings? So many ways of how to go about that and that is why there are so many wonderful ways, and that's what is truly wonderful about being at a big university, there really are just so many windows.

[Psychology] But what's interesting is that you come up with different answers, because you have different methodology. And that, to me, is the fascination of it all. At the very beginning, I am going to be teaching something that is very structured and you are going to come up with a set of answers, and they are not going to be the same answers. And there is no way to say which method is right and which method is wrong. They are all right, they are just different realities.

Risk taking

[English] I was just thinking about risks. The nature of the risk often can take different forms, but for me it has to have meaning and relevance, but for me it has to be a risk factor involved.

[Information and Computer Sciences] I think that if you are in academia, in this sheltered environment, if you are not taking risks with your research here, and you are doing cautious things with your research, you might as well be in the industry.

No fear

[Biology] Research opportunities for undergraduates are kind of testing modules of whether or not they will like research or whether or not they will like a particular subject that they have chosen. I think that graduate students need to be put in a learning environment where there is not this fear of failure or reaching a dead end and thinking that is a failure. You may not know at the end of the semester how it's going to be. You need the freedom to explore.

Deeply meaningful work

[Pacific Island Studies] I was thinking about what I tell graduate students. Basically, Pacific Island Studies is a Master's program. And the first thing I tell them is, "study something that is meaningful to you, it has to be something that you will be passionate about and continue to be passionate about. That way we will not be prodding you to do the work, you have to generate your own fuel because it's something that you absolutely are engaged in, and we hope that you are in grad school just to do that." Most are looking for their credentials. But we encourage [individuals] to study something that is deeply meaningful to them.

Seeing the University in a New Way

Comments from the faculty can give students important insights into how faculty have made work lives for themselves, that the work they do reflects not only what they see in the world but how they see it. And while faculty acknowledged the similarities in methods and perspectives among disciplines that provided a kind of identifying and identifiable markers, they also talked about the fluid nature of disciplinary methods. Here is an exchange among faculty from the natural sciences who share a perspective yet do employ different approaches:

[Zoology] We [scientists] are looking for the same perspective. We want a perspective that it doesn't matter who you are, or where you are in the universe, that you see the same thing we are seeing, we want to know that no matter where we are it's the same thing.

[Office of the Vice Chancellor for Academic Affairs] The motivation is different . . . Sojourners and the quest for enlightenment and how you grow. It is different for I don't think arts and sciences people. It's not about a single answer, it's about making connections and the process, and for us it's the quest for that answer.

[Natural Resources and Environmental Management] Regardless of the areas we are covering, when it comes to research, we almost follow the same steps,

> from hypothesis, to the objective, but we do the same thing, but we may follow the steps differently. What I am saying is that the procedure itself is the same. We go through the steps, but maybe have different ways of handling.

Serendipity, the finding valuable or agreeable things not sought for, became a perfect description of these focus groups for us, the planners and facilitators. We knew that we would learn more about faculty research. We expected to gain informative and even imaginative insights into how research gets done and how it looks and feels to do it, and we did. We were certain we would encounter faculty who were excited about their work and about teaching. But what we had not sought or perhaps what we had forgotten to remember is that faculty rarely have an opportunity to gather in an intimate and relaxed setting to talk about the process, rather than the product, of their work with faculty outside their departments and disciplines. As a result, focus groups became highly collaborative and creative encounters that enabled us, the facilitators and focus group members, to see the faculty within our university differently.

Although it wasn't a dominant theme in all focus groups nor true of every faculty participant, we discovered that much of the research done in Hawai'i is rooted here. If not directly <u>about</u> this place such as scientific and island(s) research is and must be a good deal of research is <u>of</u> this place as a crossroads between Asia and the U.S. and beyond, and as a unique member/participant in the Pacific community. The research many UHM faculty conduct does not function from a peripheral place but rather from a center that extends to, reflects, supports, and nourishes local as well as global communities.

Throughout the project and in the focus groups, students were not present but never out of our thoughts. At the outset of our work, we knew we wanted to share videotapes and edited transcripts of the focus groups with first-year students with the intent of conveying a kind of texture of the research endeavor – faculties' motivations, the physical, mental, and even emotional labor that goes into scholarly work, the excitement of discovery and completion, the drive to move to the next phase or the next project. We thought if students knew more about the process of research, they would have greater understanding and appreciation of the products. We hoped, too, that they would become excited at the prospect of doing this work themselves.

None of this has changed; these are still our goals. However, what we also discovered is that the shape of the University emerged more clearly as the disciplines, as described by the faculty through the work they do and the methods they employ, came into relief. We began imagining how what we were hearing might help students to find their own places at the university. And this is precisely what we in the Honors Program will be looking at as we go forward to share what we have learned with the students in Honors 102 in Spring 2005, and to ask them to share their perspectives.

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Cordially,

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