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# **AC 2012-4065: ACCESS AND DEFINITION: EXPLORING HOW STEM FACULTY, DEPARTMENT HEADS, AND UNIVERSITY POLICY ADMINISTRATORS NAVIGATE THE IMPLEMENTATION OF A PARENTAL LEAVE POLICY**

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# **Access and Definition: Exploring how STEM Faculty, Department Chairs and University Policy Administrators Navigate the Implementation of a Parental Leave Policy**

## Abstract

Policies such as paid parental leave can be leveraged by universities to address ongoing challenges with women under-representation in STEM academic positions. We have undertaken a deep, comprehensive and systematic study of one such policy at one Midwestern institution, exploring the recently instituted parental leave policy that allows women and men faculty and staff to take a paid leave after the birth or adoption of a child. The study uses Dorothy Smith's institutional ethnography as a method to examine how people's everyday real world experiences are mediated by textual documents (here the parental leave policy). By locating disconnects between the policy and faculty's everyday experience with the policy we can offer recommendations on how to better align the policy with STEM faculty's day to day lives, thus increasing its effectiveness for addressing under-representation challenges.

Building on past and ongoing research efforts that look at this parental leave policy, we explore two new emerging themes: 1) how do faculty come to access and understand the parental leave policy and 2) who contributes to the actual affordances of leave a faculty member receives, and how are those affordances negotiated? To answer these questions we analyze 8 interviews (with 9 interviewees total) from STEM faculty members, department chairs and policy administrators. We also draw on the concepts of organizational roles and networks within organizations to understand the dynamics of access and definition of the policy at the university.

We find that, given the limitations of formal modes of accessing the policy, informal access networks can supplement access to the policy. We also find that there is a network of actors who contribute to the actual affordances of leave, including the leave taker, the department chair, the business office and the policy administrators. The terms of leave are negotiated between these different stakeholders who sometimes hold competing views on what form leave should take.

From these results we recommend encouraging and promoting the development of informal information pathways to complement formal information dissemination about the policy. Further we recommend that departments come up with localized solutions for guiding how negotiations about parental leave proceed.

These recommendations are not limited to the university studied however. We recommend that other universities that have a parental leave policy or might consider one make that policy flexible like the university studied here. Allowing input from various stakeholders, particularly the leave taker themselves allows for better alignment between the policy and STEM faculty member's everyday lives. If the policy is flexible, it will also be important to encourage and promote informal information channels as the flexibility of the policy will allow for many ways to apply the policy, which informal information networks can capture and be drawn upon by faculty members considering or preparing to take leave.

## Introduction

Updating policies or offering new policies can be used to address the ongoing difficulties in attracting and retaining under-represented populations in many segments of STEM, including academic STEM fields. Indeed, the National Academies of Science and Engineering's report *Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering* recommend numerous policies to address the under-representation of women in science and engineering<sup>1</sup>. In one instance they recommend: “University leaders should *develop and implement hiring, tenure, and promotion policies that take into account the flexibility that faculty need across the life course...includ[ing] provisions for paid parental leave.*”<sup>1</sup> (Italics in original report). Paid parental leave policies offer faculty members some allotment of paid time to dedicate to birth of a child. One such parental leave policy at a research intensive Midwestern university has been the subject of a deep, comprehensive and systematic study to uncover how this new policy aligns with the everyday lives and experiences of faculty members. Previous and ongoing analyses of this large scale research endeavor have examined disconnects between the parental leave policy and faculty members everyday experiences.<sup>2</sup> In both papers analysis of the disconnects lead to recommendations on how to modify the policy to align closer to the lived experiences of STEM faculty.

The research here aims to dig deeper into some of the themes uncovered in these two lines of work in order to offer further recommendations for such policies and demonstrate how methods like institutional ethnography can be employed to analyze and modify policies impact on women's under-representation in STEM. The two major themes that started to emerge in these studies and are pursued here are 1) how do faculty members learn (or not learn) about the parental leave policy at their university, or what we call 'access' and 2) how are the actual affordances of parental leave determined by those involved in implementing the policy, or what we call 'definition.' Access and definition are two critical components for policy effectiveness, and thus studying these two themes together offers one method to examine how a policy actually addresses the challenges it was created to address. Previous and ongoing research efforts uncovered difficulties STEM faculty members had accessing the policies as well as unclear and competing definitions of what parental leave entailed<sup>2</sup>. To explore these processes this study draws on a subset of interviews from the larger systematic study.

Many stakeholders are involved in the policy and its implementation, so in order to understand how faculty access (or do not access) the policy and how it is defined through input from various stakeholders, we examined 3 groups: faculty members, department chairs and policy administrators. Like the other studies institutional ethnography is used to explore how people's everyday experiences are mediated by textual documents (in this case the parental leave policy).<sup>3</sup> Many times the textual document that affect people's everyday experiences are created at a particular institution, in this case the university<sup>3</sup>. Not only is the university behind the creation of the policy, it is also the site of its application. Further the university is home to the various stakeholders who contribute to the access and definition of the policy. Emphasizing the organizational focus of institutional ethnography, we additionally draw on the concepts of networks—two or more people (or things) linked by some relationship—and roles—expectations and responsibilities placed upon a person in a particular position such as an employee—to frame the interactions among stakeholders in these processes<sup>4,5,6</sup>.

Understanding access and definition processes not only offer the opportunity for recommendations for the local policy considered here, they also can offer illustrative lessons about how these processes operate—potentially informing other instances of similar policy introduction and maintenance. Lastly study of this policy comes at a time where broad changes in family friendly policies at NSF have emerged on the horizon; thus this study also offers a benchmark against which to contrast once these larger policy changes have come into effect. In the next section we take a detailed look at the other research on this parental leave policy. After this we discuss the guiding theoretical framework, starting with institutional ethnography guiding theory and moving into how organizational roles and networks help us uncover the dynamics of access and definition. Next we overview institutional ethnography as the method employed before turning to the results of our analysis and their implications.

### Past and Ongoing research

The authors and other collaborators ongoing project (the ongoing project and this study are part of a larger research project) and Santiago and Pawley (2011) used institutional ethnography to examine disjunctures between the parental leave policy and faculty's everyday experiences at the university.<sup>2</sup> Ten eligible faculty members and 13 interviewees, composed of eligible faculty members, department chairs and policy administrators are used in each study, respectively. Themes uncovered in these two projects guided the research questions for our current paper.

Santiago and Pawley (2011) reported that many professors found the official policy difficult to locate or once located difficult to decipher.<sup>2</sup> The university put the parental leave policy on their website so faculty members could access it as needed, but their findings indicate actually locating the policy proved troublesome on the university's website, and understanding it sometimes required other parties like policy administrators.<sup>2</sup> A related theme in our ongoing project also indicates that some faculty had difficulty completing the paperwork required for parental leave, which is also available online, while other faculty found completing the paperwork relatively easy. Those who stated that they were able to easily navigate the paperwork also often cited staff or other personnel who helped them. Taken together these two (in one case preliminary) findings suggest a new question: If the policy as it is formally written is difficult to access and some faculty members thus have difficulty completing the required paperwork—but others find the paperwork straightforward—**what are the kind of pathways faculty are using to access the policy that result in these different outcomes?** There are already hints that policy administrators are one possible source of help, however there may be other paths and other people also involved in assisting or complicating access.

Another theme emphasized in the past and ongoing work is that much of STEM academic work does not stop when a faculty member goes on leave.<sup>2</sup> Conferences still have deadlines, graduate students still need guidance, grants have time sensitive responsibilities that must be met, and so on. Beyond research and mentoring work commitments that cannot easily be stopped, the ongoing work also notes that questions arise about teaching responsibilities when on leave. The leave policy at this university does not cover an entire semester, so teaching responsibilities enter a fuzzy space. The authors found preliminarily that some STEM faculty members were able to negotiate with the department chair and faculty to adjust their teaching load during the semester

the child was born, for example by having others cover for them or teaching more classes before the given semester and thus “covering” in advance for the semester when the child is born. If and how faculty members were able to make alternate arrangements for teaching responsibilities varied depending on the actors involved. What both of these points convey about faculty member responsibilities is that there are competing views on how flexible and how encompassing parental leave can/should be for faculty members even at one institution. Even in the case of research and grants, recent discussions and proposed changes supporting more family friendly policies at agencies like the National Science Foundation suggest shifting views for some external entities that place demands on faculty. Taken together the competing views on faculty responsibilities and flexibility for parental leave lead us to ask: **who contributes to the definition of the actual affordances of faculty leave and how are these competing views negotiated?**

In the university setting we bring in the concepts of organizational networks and organizational roles to better understand the ways the policy is accessed, defined, and enacted or fails to pass through these thresholds.

### Guiding Theoretical Framework and Key Concepts

Institutional ethnography is not only a method for collecting data that exposes disjunctures between the lived experiences of people and the mandates or provisions of organizational texts and policies. It also contains a guiding theoretical framework that often identifies organizations or institutions as the central point of policy creation. Policies or other textual documents created in organizations and institutions are then activated or put into action in local settings, such as a policy administrator meeting with a faculty member, thereby connecting the larger policy creation to the day to day experiences of individuals.<sup>3</sup> For this study, the everyday experiences we are interested in are those of faculty members, who are explicitly members of the organization. Therefore our inquiry is looking within a given organization, in contrast to other uses of institutional ethnography that might examine an organizations' policy impact on an outside population.<sup>3</sup> Further, both the processes of accessing the policy and the reconciliation of competing views that define the actual affordances of the policy involve a number of agents, many within the organization and a few beyond it. Thus to better understand the organizational dynamics at play in the enactment of parental leave, we bring in the concept of networks and roles to compliment institutional ethnography's organizational emphasis.

Networks broadly are composed of two or more components that are linked in some arrangement. In graph theory, the components are called *vertices* and the links between them *edges*. There are many kinds' of networks, for instance power networks composed of power plants, towers, lines, and places that receive power or disease networks composed of carriers and links to those who they infect, who then also become carriers.<sup>6</sup> There are two types of networks of interest for this study, but first a distinction needs to be made. Hierarchies and networks are contrasted in the literature on organizations.<sup>4,5</sup> Hierarchies also contain components that are linked, however they take a definite structure: hierarchies have a clear “top” and interactions across the links flow from the top to lower sections of the hierarchy.<sup>4,5</sup> Thus the classical vertically integrated organization has a CEO on top, with middle managers below the CEO and workers below the middle managers, with information and commands proceeding from CEO

down. Networks, in contrast, are less centralized in information and demand transmission across their components and links.<sup>5</sup> This distinction will become clearer below as we talk about the results. What is key to recognize is that networks, unlike hierarchies, do not have one final or ultimate point for transmission of information or decision making, instead these processes are distributed across a web of connections.

“Roles” are bundles of expectations and obligations that come with taking a particular position in society—such as an employee of a business or a parent of a child. Expectations and obligations for the employee come from the organization in which they are situated and expectations and obligations for the parent come from the larger societal institution of family. Roles can be highly “scripted” or prescribed, like the work of an assembly line worker, where much of the expectations and obligations are clearly delineated (hierarchically, nonetheless).<sup>4</sup> However Hagel and Powers (1992) argue that the shift into post-industrial society has also seen an accompanying weakening of role scripts or prescribed ways of acting out a role, and an increase in role flexibility.<sup>4</sup> Academic positions like faculty positions have historically been less scripted roles than those of a line worker and others, however there is another important change with modern day roles that is relevant for the analysis here. Roles have not only become more flexible across many fields, they are also now subject to more role redefinition.<sup>4</sup> Unlike flexibility which allows for less strict or more open expectations and obligations (there are many ways to complete research and teaching work), role redefinition involves permanently or temporarily redefining the content of role obligations and expectations.<sup>4</sup> Such redefinition could involve a sole role in a particular setting, such as an employee at an organization or redefinition may link with roles in other institutions, for example a parental role linking with an employee role. Thus parental leave is one example of role redefinition where the within university expectations for a faculty member are redefined due to the influence of a role (parent) outside the university. However, role redefinition cannot happen by fiat of the person in a role, it must be negotiated with others who are connected to the role occupier (e.g. boss, colleagues), connecting this role redefinition process to the definition network mentioned above.<sup>4,5</sup>

### Institutional Ethnography

Institutional ethnography, as mentioned above, is a method for examining disconnects between some text document, such as a policy written by an organization, and the everyday lived experiences of people who are affected by that policy.<sup>3,7</sup> Sociologist Dorothy Smith developed institutional ethnography as a method to explore how textual documents, created in some external setting, can hide or obscure the everyday lived experiences of people in a local setting.<sup>7</sup> Recommendations for how to better align everyday experiences and a policy can also be gleaned from an institutional ethnography analysis of textual documents and everyday experiences.<sup>3,8</sup>

To use this method we draw on a set of semi-structured interviews that explored peoples' everyday experiences and the parental leave policy at the university of study. Interviews were taken from STEM faculty members who were eligible for leave (some who took it and others who did not), STEM departmental chairs and policy administrators. These three groups were interviewed because they have different day to day experiences with the policy. By interviewing these different groups a fuller picture of how the parental leave policy impacted peoples' everyday life could be drawn. We used the qualitative data analysis package named Dedoose to

systematically examine the interviews for data related to the themes of access and definition. As is common and accepted with qualitative inquiry, themes were uncovered through repeated and deep examination of the text<sup>9</sup>. By doing so we came to a richer understanding of interviewee’s responses. Altogether 8 interviews for a total 9 people (one interview had two interviewees) were used. These interviews consisted of 4 faculty members, 3 department chairs and 2 policy administrators. Complete demographics for the interviewees are detailed in table 1 below. Exact disciplines are not revealed to protect the anonymity of interviewees.

**Table 1**

Interviewee	Department	Position	Gender	Leave status
A1	Science	Professor	Female	Used
A2	Non-STEM	Professor	Female	Used
A3	Non-STEM	Professor	Female	Used
A4	Science	Professor	Female	Eligible
A5	Science	Department Chair	Male	----
A6	Science	Department Chair	Male	----
A7	Engineering	Department Chair	Male	----
A8	----	Policy Administrator	Female	----
A9	----	Policy Administrator	Female	----

### Parental Leave Policy

The parental leave policy was put into place at the university in late 2008. Employees, including faculty, staff, graduate students and post-docs with benefits are eligible to take an allotment of time off after the birth or adoption of a child with 100% of the employee’s regular pay. To be eligible an employee must have worked for the university for 12 months before taking advantage of the policy. Birth mothers are given 240 hours of parental leave and fathers are given 120 hours; additionally parents of a newly adopted child also receive 120 hours of paid parental leave. Paid parental leave can be taken continuously, intermittently or at a reduced work schedule rate. The latter two options require that the employee work with their supervisor to arrange how leave is used. Parental leave can also be combined with other types of paid and unpaid leave including vacation, sick leave, personal business days and short term disability. All of this information is available on the university's website.

### Policy Access

As other studies suggested one of the primary formal modes of access for the parental leave policy—the official policy available on the university website—is not always the easiest to navigate or understand the policy. Faculty members in this study expressed similar difficulties with the official policy on the website:

**Participant:** My experience with the benefits website in general is that it’s not very

useful. [Laughs] But it tends to send you around in circles and not give you the information you need and just, you end up having to call somebody over there or go over there anyway.

[A1/ Science / Professor / Female / User]

**Participant:** I had to go through several different like links on the website ---- to get to it but once again it was more about talking to people and finding out well we have this generous thing of parental leave and all these days and I'm like oh I didn't know that. That wasn't really made too clear on the website.

[A3/ Non-STEM / Professor / Female / User]

The first professor expresses that most of the university's benefits described formally on the website are unclear or unhelpful. Given her past experience attempting to access other benefits through the university's website, she instead opted to talk with policy officials instead of attempting to navigate the website for the parental leave policy. The second professor indicates she was able to locate the policy but that even after locating it, the policy remained unclear until talking with other people about the policy. Even in cases where potential users found the policy more understandable online, talking to others about the parental leave policy whether they were administrators of the policy or people familiar with it, seemed to be a common approach many professors took.

**Interviewer:** where did you first look or with whom did you first talk to to find out about [Midwestern University's] policy on parental leave?

**Participant:** Oh, I looked online. All the policies can be found online.

Interviewer: And did you find them right away --

**Participant:** Pretty fast.

**Interviewer:** -- or was it difficult.

**Participant:** Pretty fast. Then of course I followed up with people in my business office too.

[A4/ Science / Professor / Female / Eligible ]

Here the professor was able to find the policy with relative ease, but still contacted her business office to learn more about the policy. What is consistent through these professors' experiences and some of those mentioned in other studies is that understanding the policy often requires input or advice from other people who have experience with it.<sup>2</sup>

Other possible formal mechanisms for accessing the policy are also underdeveloped. For instance there has been limited systematic training or workshops for those responsible for implementing the policy (e.g. department chairs and business office personnel). As one of the policy administrators explains:

**Participant:** But when this was approved through the board of trustees, it was had to be swiftly put in motion from where it was approved. Being able to put together training and go out and really explain and have people grab onto how to put these things together in a swift manner was just about impossible to do. There was-- this was a very visible policy when it came out. There were people waiting for it to come. It was delayed in coming out

from when it was originally promised.  
[A8/ Policy Administrator 1]

Given the high profile nature of the parental leave policy at the university and the time sensitivity of its implementation (some cutoff date had to be given for when the policy went into effect, so those who were pregnant or had a pregnant partner were anticipating its implementation) systematic training became too cumbersome to coordinate. There are plans for more systematic training to come, but at least within the time frame of data collection on the policy, it does not appear to have begun.

Furthermore although there is an expectation that department chairs will discuss the policy with their faculty, dissemination of policy information tends to happen through informal avenues such as in case by case discussions between the chair and an expecting faculty member.

**Participant:** I don't -- I have probably had informal discussions with most faculty about the process um but I don't -- I don't make a habit of sitting down with someone new and going over the policy with them to make sure that they're aware of it.

[A5/ Science / Department Chair / Male]

**Interviewer:** About what percentage of the procedures that you described are documented in written form and about what other percentage are discovered through informal communication?

**Participant:** ...Um but I -- um I would say 100% of it is in documentation and probably, hopefully, 100% is in informal discussions also. I have a -- I have an annual conversation about just everything with all our -- with all of our young faculty, including the females, and these are the kinds of things that I always bring up --

[A6/ Science / Department Chair / Male]

The first department chair notes that he does not have introduce new faculty members to the policy explicitly as a matter of departmental practice, however he notes that the policy comes up in informal discussions with he has had with most of the faculty in his department. The second department chair notes that he brings the topic up more formally in annual meetings, but that he also hopes that it comes up through informal avenues. Even if it he does bring it up in annual meetings, the second chair seems to be suggesting the meetings are not enough for faculty members to fully understand the policy, so informal means are also required. Both of the chairs cite informal means as a major contributor to the dissemination of information about the parental leave policy, even though department chairs are part of the formal process of taking leave. The inability of the university to enact systematic training for the policy partially contributes to this as does the complexity of leave itself which will be discussed in the following section.

Exploring deeper we found other informal mechanisms—mostly a set of common contacts—that people frequently cited as sources for information about the policy.

**Interviewer:** Let's say I'm new to the university... And I need to-- I'm expecting and I need to affect a leave. What are the steps I need to take in order to make that happen? Who do I talk to first and those kinds of things?

**Participant:** There's many different ways it can go. We can, you can look on the web

under the HR information. You may first start with a business office, you may start with a supervisor within your department. You might start with-- you can mention it to a co-worker and they'd say you can, here's what I did. You can call me directly.

[A9/ Policy Administrator 2]

**Interviewer:** So were-- do you feel, were you able to find the policies right away, or did you have to look in several places before you found what you needed to understand how to take leave?

**Participant:** [Business Office Personnel] was able to tell me right away. I think if I had been trying to figure it out myself, it may have been a little difficult.

**Interviewer:** And then are there any other places that you would say that you looked?

**Participant:** Let me think of who else I talked to. I talked to [Business Office Personnel]. I talked to some of the other junior faculty. So they're all other guys, but they had children during their pre-tenure process and many of their wives are academics too, yeah.

[A1/ Science / Professor / Female / User]

The policy administrator outlines many of the possible contacts a faculty member can make to about the policy. The formal location is mentioned but so are many other contacts. The science professor reiterates some of these reoccurring contacts including business office personnel and other faculty members. Throughout the interviews of faculty members, department chairs and policy administrators a set common of contacts emerged. Common contacts mentioned included many people who are involved in administering the policy some way, including the chair, policy administrators, and business office personnel as well as those eligible for the policy, particularly other faculty members (staff, who are also eligible for parental leave, were mentioned sometimes as well). In order to understand and map out the various informal contact points that may be available for a professor, we created a generalized access network of informal contact points. The access network is cumulative across the professors; in other words, it represents all of the common and recurring contacts across professors' experiences of acquiring information about the policy, not the individual network of any given professor.

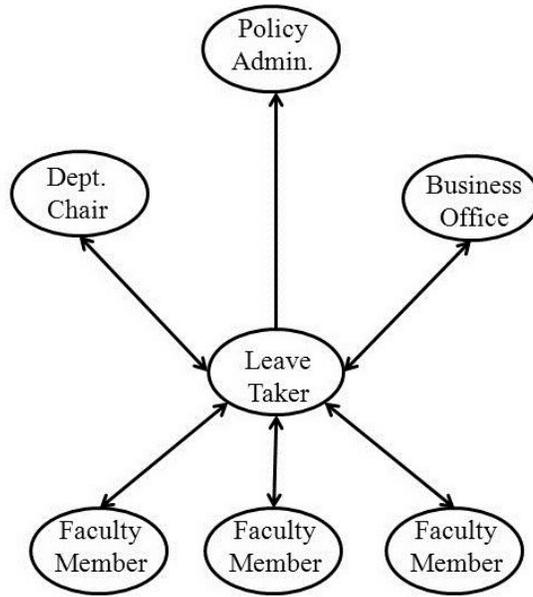


Figure 1: Generalized Access Network

Figure 1 displays the generalized access network for faculty. The central node with all the links extending outward is the potential leave taker. The links represent connections to people who may have information about the leave policy and all the nodes at the end of the links are contacts a leave taker may learn of or about the policy from. In terms of informal information on an access network, double-headed arrows indicate that information may be given from some party to the potential leave taker or the leave taker may seek information from some other party. All arrows are double-headed save for the arrow leading from the leave taker to the policy administrators, as it is unlikely that the policy administrators, in a centralized office of the university, will seek out and provide informal information to individual professors who may consider taking leave.

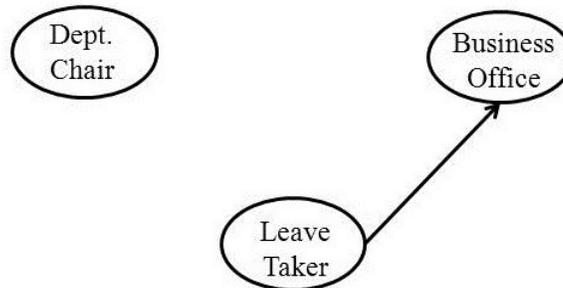


Figure 2: A4 Access Network

A generalized access network can then be contrasted with the actual contacts and experiences of

a given STEM professor to explore the dynamics of their individualized access network within their department. For example, let's return to the science professor earlier who mentioned being able to easily access the policy online and then contacted her business office for more information. Her individualized access network can be seen in figure 2. During the interview, this same professor also stated:

**Interviewer:** Did you, um, talk to your [Department Chair] about, um, relief of committee or teaching responsibilities after either one of your children were born?

**Participant:** I don't think I had to. I mean he knew I was having a kid so... I mean it was just sort of understood that... no committee work would be coming my way until -- until I was officially back.

[A4/ Science / Professor / Female / Eligible]

Above the professor states that she did not talk explicitly with the chair of her department about options for committee or teaching responsibilities available if she had taken advantage of the parental leave policy. Ultimately this professor chose *not* to take advantage of the parental leave policy in part because of the mistaken impression that leave could only be used for 6 weeks after birth. Other options like using leave intermittently or negotiating different teaching responsibilities with the chair could have allowed for more reprieve from teaching responsibilities, but the professor does not appear to be aware of these options. Later in the same line of dialogue (started above with the interviewer's prompt), the professor further states:

**Participant:** I mean that I should have pursued the option of the semester off, I really should have... but again it's not in place, you've got a lot less you know going on -- had that policy been in place I would have been more than happy to have the semester off of teaching cause that would have been completely appropriate.

[A4/ Science / Professor / Female / Eligible]

While there is no clear "semester off" option for the policy as it is directly written, other professors mention negotiating with their department chairs to take a semester off from teaching when the child is born, or teaching an extra class in an earlier or later semester. Why then does this professor not think this is a viable option? Recall earlier when she discussed accessing the formal policy she also mentioned contacting a business office personnel about the policy. She also mentioned not talking explicitly with the chair of the department about the policy. Her department chair was also interviewed for this study and is indeed familiar with the policy: her chair was the person who mentioned bringing up the policy at annual meetings (assuming this professor attended the annual meetings, this also means meeting was not sufficient for disseminating information about the policy's options). She relied on the formal website version of the policy and the business office personnel, some of which may not be highly familiar with the policy due to its newness at the time and the transitory nature of business office jobs. Thus *her* individualized access network is weak, she only makes ties to one possible contact point from the larger set available in the generalized access network, and this contact point was unable to clarify some of the policy options relevant to the faculty member. Her access network is visually displayed in figure 2. Notice there is only one, one-way tie to the business office. Judging from her statements she may have had some recognition that the department chair was also someone who can be consulted, however she did not do so. Her department chair remains

an isolated node in her access network. Contact points like the chair or other members of faculty may have been able to clarify the policy options for the professor, but they were not part her individualized access network. Although the STEM faculty member did not state why they did not contact their chair, her seeming recognition of the chair as a point of contact and hesitancy to do so could be indicative of her department having a “chilly climate” or hostile atmosphere for women, a recurring barrier women face in academic STEM positions.<sup>1</sup>

Thus, by comparing who professors’ contact about the policy to the generalized access network we can begin to understand the dynamics and people involved in how and if professors are able to understand the policy. Taking into account the limitations of formal pathways to accessing the policy discussed here and in prior research, informal pathways, like those represented in the access network, can greatly facilitate understanding of the policy.

### Policy Definition

The story is not yet complete after a faculty member un/successfully accesses the policy or opts to not take advantage of it. The policy is written such that the actual details of a faculty member's parental leave requires input from a set of stakeholders. As the policy administrators explain:

**Interviewer:** OK. And the centralized approach is what began in March then, is that right? Prior to that, or...?

**Participant:** Well, actually it started with implementation. [Policy administrator 2] was named back when it was rolled out as the primary contact because paid parental leave was such a new kind of offering... And it was so very difficult to get everybody up to speed and be able to consistently apply that and understand the intent behind the new policy and how to build a personal plan. That kind of thing. So the decisions at the time were really to build that expertise with [Policy administrator 2] so she could drive that. [A8/ Policy Administrator 1]

The policy administrators are members of a central office within the school that administers benefits, including parental leave. The interviewer was asking this policy administrator when the handling of the policy was centralized within their office. At the time the policy was officially put into place at the university, it was centralized with policy administrator 2, who was given primary responsibilities for administering the policy and dealing with its complexities. As policy administrator 1 indicates, the policy allows for some customization depending on the circumstances or needs of a potential leave taker, so having someone build expertise in the policy and its application was necessary to avoid having a haphazardly applied policy. Having a point person for the policy in their office means the office itself helps defines faculty use of the policy according to the policy's language and their practices in implementing it.

Another party involved in defining the contours of a given parental leave use are the leave takers themselves. The same policy administrator further explains later in the interview:

**Participant:** The strengths are the level of individual counseling support that’s involved. To help people really develop a tailored, personalized plan that they can have some

involvement in determining how to take their time.  
[A8/ Policy Administrator 1]

Discussing the strengths of the parental leave policy, this policy administrator notes the influence leave takers have in the process. Flexibility is built into the policy and leave takers have a voice in how the policy is applied in their situation. For example, this leave taker notes one complication that affected how she took parental leave:

**Participant:** I was teaching. I was you know -- cause what it was is the class I was team teaching with another instruction coordinator... and then I was supposed to be there to start teaching the second part of it. Actually I think I was -- I was there for the first week of the second 8 week session. That's when I had to go to the hospital.  
[A3/ Non-STEM / Professor / Female / User]

This leave taker experienced extreme physical complications near the end of her pregnancy and ended up being hospitalized for some time. Parental leave at the university can be connected to other leave types. In this case the leave taker started sick leave when she was hospitalized. The flexibility of the policies' options, such as taking intermittent leave and being able to link the parental leave with other benefit programs is geared toward allowing customized parental leave policies for leave takers. Thus the leave takers themselves also help shape the final form the leave taken.

Finally, the other major player in determining the contours of an individual's leave is the department the person is in. Concerning the department of the potential leave taker, A8 states:

**Interviewer:** Is there-- are there any other personnel that you refer to besides the business office? When-- or that you consult faculty-- that you advise faculty to consult with when they're taking a parental leave?

**Participant:** There are times in the paid parental leave where it becomes discretionary with the department to sort of work out how that time will be taken... For the intermittent time in particular. Because there is some ability for the department to work with them to help determine-- they have to be given the time, but how they're allowed to take that intermittent time could have some discretion by the department and some ability to work it out so that it meets everybody's needs. So there is a role for the supervisor or [department chair] or whatever, in combination with the business office when it comes down to that.

[A8/ Policy Administrator 1]

Options like intermittent time, as well as taking advantage of the policy in general are automatic once a person fills out the proper forms. However, how the policy and its options are actually put into place in a given case requires coordination with the chair of a department as well as the business office. For instance, such as in A3's case where she took sick leave, the business offices in departments keep track of employees sick days, how many are available, how many have used and so forth. Business offices also deal with outside funding agencies like NSF and NIH. As family-friendly policies are considered in some of these agencies, in particular NSF that has started to take a look at such policies, it is possible that business offices will have a stronger role

in coordinating university policies with those of outside funding agencies. And regardless if an outside agency has “family-friendly” policies or not, the agency will have an impact on leave takers. This is particularly significant for STEM fields, which rely heavily on funding from outside agencies like these. With family-friendly policies the agencies may coordinate with a university to temporarily relieve a faculty member of some grant responsibilities or in absence of such policies they may hold a faculty member to grant responsibilities despite leave use (as other studies have indicated happens).<sup>2</sup>

Returning to department chairs, as policy administrator 1 stated above, while the department has to give the person leave, there is some discretion on the part of the department, particularly the chair, in how to coordinate the leave takers time off. This discretion highlights some of the difficulties a department faces when a member may be temporarily unavailable for some departmental functions, but also be used to place an extra burden on a new parent, for instance by giving them more work to 'compensate' for their 'time off' (this was a theme that also emerged in other studies).<sup>2</sup>

Together these stakeholders comprise the *definition network* for the policy. Recall from earlier that networks are less centralized than are hierarchies.<sup>5</sup> Even though the policy was created by the university and is enforced by the university; it is also flexible and allows for input from numerous parties within the university. Being able to take advantage of the policy is hierarchically defined, but the contours of each person's leave are defined across a network of stakeholders including the leave taker, the policy administrators, the department chair and the business office, primarily.

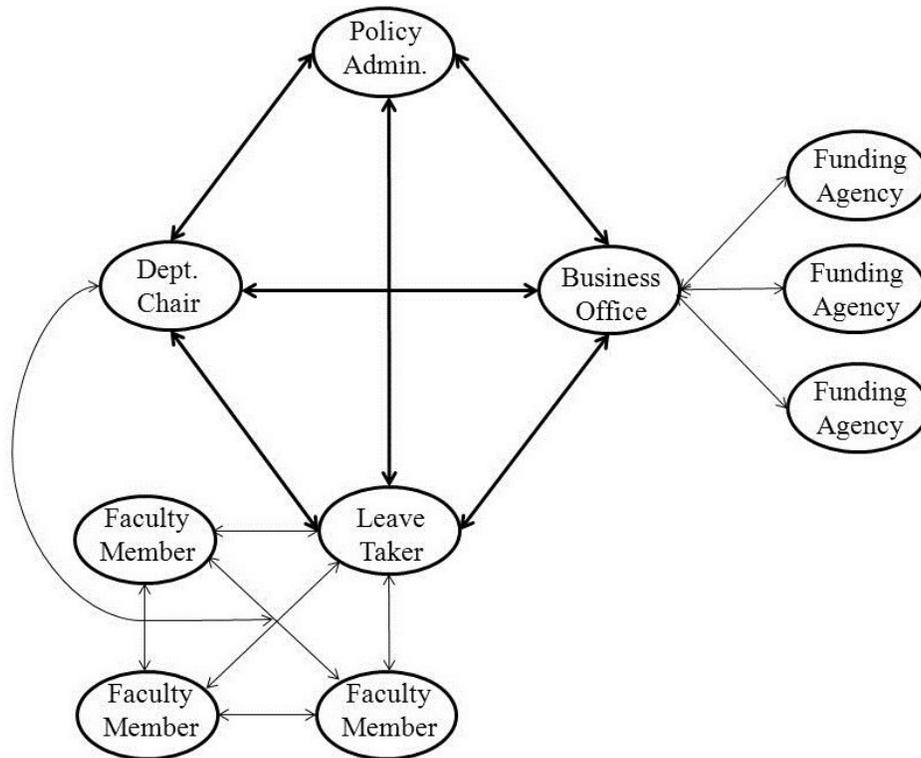


Figure 3: Definition Network

Figure 3 is the definition network. Unlike the access network, there are links between most members on this network. This is because all of the nodes on this network must interact and coordinate to define a given leave takers instance of policy use. The thin lines (indicative of weaker influence) include the interactions among faculty members themselves and also their interactions with the leave taker and department chair. These interactions can indirectly influence how the leave taker opts for parental leaves different options (e.g. faculty members who are supportive and encouraging of leave usage may influence what leave options the leave taker opts for) and/or how the department chairs represents the interests of the department when negotiating how leave is used. Other faculty members only have influence through proxies on the definition network, i.e. the department chair and leave taker. Additionally while funding agencies are external entities to an university, they can also have an impact on the definition network indirectly through how the business office coordinates some components of leave. Funding agencies were only mentioned briefly throughout the interviews, so we include some hypothetical, unnamed funding agencies (such as NSF or NIH) that work with business offices and may or may not espouse family friendly policies themselves. An example of indirect influence can be seen next, as one professor who took leave explains:

**Participant:** But, my relationship with this one faculty member was-- I felt was strained because I was hearing through the [department chair] that he felt that I was getting something extra that no other faculty member had received. And it felt like I was getting this pressure to teach this course in the springtime.

[A2/ Non-STEM / Professor / Female / User]

This other faculty member is the director of undergraduate studies in the leave takers department and had approached the leave taker about taking on an increased teaching load in a coming semester where her child was to be born. The leave taker explained her situation and declined to take on the extra teaching responsibility; however, later the director of undergraduate studies talked with the department chair who in turn pressured the leave taker. While other faculty members are only loosely linked to the definition network, they can still exert some influence on tightly connected network members.

The definition network answers the first part of our second research question: who contributes to the definition of leave. How are the actual affordances of leave negotiated remains to be answered. To begin to explore this question we bring the idea of role redefinition to the fore. Role redefinition is the temporary or permanent ascription of new role responsibilities—the obligations and expectations for someone in a particular position, like faculty member—that is recognized by others connected to that role position. An instance of successful role redefinition occurs when the parties involved in the definition network agree to a new set of responsibilities—in the case of leave, often temporarily—for the leave taker. It may be more important for some members of the definition network to recognize the role redefinition. Next is an example where it was important that the department chair and faculty to recognize this faculty member's role redefinition:

**Participant:** But again, that's kinda the handshake agreement with my boss. Is that I did my 12 weeks... but I can do what I need to do to make my life work.

**Interviewer:** Ok. So you-- that's kinda your informal means of flexibility. So now if something happens, and you needed to leave, you could do that?

**Participant:** Exactly. I tried this and there's that like-- if life is just too difficult with this commute, then I can take another day that I work from home and have the baby. As far as they are concerned, as long as I fulfill my obligations to my lab, to my appointment, to my teaching, to them, then they don't really care where I'm doing it.

[A1/ Science / Professor / Female / User]

In this instance, the redefining of the faculty member's role happened in regards to where the work was done. She had an agreement with her department chair that if role responsibilities as a parent or other factors complicated coming into work, she could do her work from home. The department chair and the loosely connected faculty members are more important to this section of redefinition as it is the department members who are most directly impacted and who may decide not to recognize the redefinition and put pressure on the professor, as was detailed in the example above. Numerous studies have noted the difficulty STEM female faculty members' face with colleagues through barriers like implicit bias and chilly climate mentioned earlier and it is these colleagues who have some impact on the definition of leave<sup>1</sup>. Given that parental leave is 'abnormal' compared to the traditional academic tenure track, these barriers may also arise for male faculty members who take leave.

Beyond the department, role redefinition may happen between other members of the definition network. In the same interview, the science professor also states:

**Participant:** And the way that it got to link up with sick leave and all of that was really great.

[A1/ Science / Professor / Female / User]

This brief statement reflects an important coordination between the leave taker, the policy administrators who help facilitate linking programs like parental leave and sick leave, and the business office who tracks sick leave and other benefits. Again the professors role responsibilities are redefined, as “leave” itself is different than the normal expectations that an employee be at “work.” Redefinition between the business office, policy administrators and leave taker in this instance is more prescribed by the policy and practices of these members of the definition network, whereas the last instance discussed above involved more departmental discretion. There is still the potential for either recognition or lack of recognition of role redefinition here but instead of involving a “handshake agreement” the recognition comes from the appropriateness and accuracy of the policy's implementation.

There are also instances where role redefinition fails because some party does not recognize the redefinition. The ramifications of failed role redefinition are many, but at a minimum if one party does not recognize role redefinition then other parties may challenge whether the person is fulfilling their role obligations. In the example below, the faculty member was able to take leave; however the conditions of their leave were not recognized by other faculty members. Earlier in her interview this faculty member explained that physical presence in the office was highly valued in her department and expected for un-tenured faculty. After she started taking leave she notes changes in the department's climate:

**Participant:** But I -- the problem for me was like I was constantly being -- I was constantly out and they noticed that I was out... and it became an issue for just people within my [department] itself that... I wasn't there. Though obviously I had reasons, medical reasons and that was something that you know... and I did get that documented with [policy administrators] at the end and everything... but I'm still getting flack for being gone.

[A3/ Non-STEM / Professor / Female / User]

Leave for this faculty member was recognized by the policy administrators, but within the department once she started taking leave she started and continued to hear back from other people in the department. In essence, by holding her to the same standard of presence even when she was on leave, the members of her department were rejecting the role redefinition and imposing the pre-leave role responsibilities on the leave taker. Such failed redefinition can have deep ramifications, making the departmental environment hostile and affecting processes like tenure. Department members who did not recognize the leave taker's role redefinition may well not take the face of the leave into account when evaluating things like yearly contracts or tenure.

*Role conflict*, or claims that someone is not fulfilling the obligations of their role (which is what occurs when role redefinition is not recognized) also affect the definition of the policy directly.<sup>4</sup> For instance, in the quote earlier where the professor was feeling pressure from her department chair via the director of undergraduate studies to teach a class, the pressure the faculty member felt from the chair may have led to a redefinition of how the policy itself was applied in favor of

the undergraduate directors claims that the leave taker was getting special treatment. Members of the definition network have competing views (or complimentary, such as when all parties agree to some definition) that must be negotiated across the network. In some cases, these demands may be formalized in the policy, but in other cases, particularly at the departmental level there is a considerable degree of personal discretion for the members. Within this network, especially for un-tenured professors, there may be limited desire to challenge competing views a chair or professors in the department hold about leave, for fear of redefinition rejection, as the professor above experienced. And this is particularly problematic for female STEM faculty members who often find themselves in chilly climates or face implicit or explicit biases among tightly or loosely connected members of their definition network<sup>1</sup>.

## Recommendations

One clear recommendation that emerges out of our analysis is the need to address the present deficiencies in the formal presentation and dissemination of the parental leave policy. Not only can the website be unclear or difficult to understand, other formal avenues like training for department chair's and business office personnel—within the time constraints of the data we have available—are underdeveloped.

Formal access, however, will never be able to capture all the possible ways leave may be taken. The flexibility written into the policy means different parties including the leave taker and his or her needs or circumstances will, to some extent, shape the policy that is put into place for them. Formal dissemination of information about the policy may be able to capture some exemplars of how the policy has been put into place but not all the different varieties of forms it may take. Following this, the second recommendation is to encourage and promote informal information seeking or the access networks we talked about above. Knowledge of the particulars about how a policy was used in a department, and how the leave taker worked with the chair and the business office, are likely to coalesce within a department, not in a formal site or training. Likewise, the different experiences business office personnel and policy administrators had with potential leave takers may be more fully and accurately accessed informally, further facilitating understanding of the policy and how it may be flexibly applied. To be clear, we are not recommending that formal avenues of policy dissemination be abandoned; instead both formal and informal (access networks) should be created and encouraged, respectively, to compliment each other. Otherwise the flexibility of the policy is lost in the formality of its writing.

The flexibility of the policy stems in large part from the set of stakeholders who make up the definition network. By allowing how the policy is implemented in a case to be negotiated across this network, the policy itself becomes flexible to the needs, demands and circumstances of the different members of the network. In particular, there is a lot of flexibility at the leave taker and departmental level, where the policy allows for the influence of individuals' circumstances and gives the department some discretion on how leave is used (but not whether it can be used). A flexible leave policy is both a blessing and a curse for the department and the leave taker. It is a blessing because for the STEM faculty member because it allows for more balance between their family life and work obligations. It is a blessing for the department because it helps STEM faculty members, including under-represented populations like women, succeed in their academic work and thus increases the productivity of a department. It is also a curse, however,

as the faculty member is part of a department and there are departmental expectations for them being in that role that may be expressed as conflicting with faculty members use of leave.

Removing the flexibility would make the policy potentially more disconnected from the lived experiences of a faculty member, and therefore, is not a viable option.<sup>3,7</sup> The faculty member remains part of the department and on some level needs to contribute to the department, but the problem arises in defining what they should be contributing in context of a parental leave. Ultimately a balance needs to be brokered that allows the faculty member to take advantage of leave and be able to care for their new family member while still upholding their obligations for the department. The purpose of parental leave was to allow the faculty member some ability to balance their family life and work obligations, so overloading them with more work because of perceived “time off” runs counter to the intent of the policy. Such a balance may be hard to strike and may require different considerations for different departments, who may have different needs for faculty depending on their structure and practices. Our recommendation for flexibility in regards to the definition of leave is to have the departments themselves define some guidelines for how leave can balance these sometimes competing demands without unfairly overburdening the leave taker. Research on STEM faculty members, particularly under-represented groups’ experiences and barriers should be used to help form these guidelines.<sup>1</sup> Such guidelines should not be hard and fast rules as this would limit the flexibility of the policy, but guidelines built up from past uses of parental leave that help coordinate the needs of the leave taker and the department on a department by department basis.

These recommendations are for the parental leave policy at the university studied: however they are also general enough that they could apply to other instances of parental leave policy. In particular for other parental leave policies we recommend adopting flexibility that allow for input from a variety of stakeholders, especially the leave taker. Policies like this decrease the disjuncture between the written policy and lived experiences of those using the policy by using input from the leave taker and others to shape how it is implemented. In this way it will be more effective at meeting the needs and circumstances of the faculty, wherever the policy is applied. By allowing for more flexibility it is also necessary to encourage informal information pathways like the access networks talked about here. For instance, department chairs can encourage faculty members to talk with other people who have taken leave or know others who have taken leave, to learn more about individual applications of the policy.

## Conclusion

Policies like paid parental leave can be leveraged proactively by university's to address the ongoing under-representation of women in academic STEM positions by removing barriers that unevenly affect them. Implementing policies to address long-standing challenges like the under-representation of women in STEM academic positions is not a one shot affair. Such policies require review and some level of maintenance to ensure they are meeting the challenges they were formed to address. Institutional ethnography offers one powerful way to explore potential disconnects between a policy and the everyday lived experiences of people affected by the policy. Just as the American Society of Engineering Education Phase One report *Creating a Culture for Scholarly and Systematic Innovation in Engineering Education* argues for engineering education research to be deeply integrated with engineering education practice and

vice versa, so too can engineering education help shape and be shaped by policies to address ongoing engineering and STEM challenges<sup>10</sup>.

In this paper we explored how faculty members accessed and understood the parental leave policy as well how those affordances were negotiated, both critical topics for gauging the success of a given policy. Our recommendations are to 1) further encourage and promote more informal discussions about the policy and the different ways people have used it. And 2) to balance the needs, demands and circumstances of policy users and departments on a department by department level, building up best practices that suit the context and structure of the department and context and needs of the policy user. Furthermore, to avoid reinforcing barriers for under-represented populations within a STEM field, research on STEM under-represented populations should be leveraged to help guide the development of departmental practices. These recommendations offer new revisions for how the parental leave policy at the university studied can be changed to increase its effectiveness at assisting under-represented STEM academic populations. Flexibility is critical for such policies as it allows for customization according to under-represented STEM faculty members experiences and needs within STEM fields. These experiences are captured informally and thus informal pathways offer a way for STEM faculty members to learn about the variety of ways a policy may be implemented. Both of these are broader recommendations that can be applied to other existing parental leave policies or the creation of new parental leave policies at other universities or organizations. We put forth access and definition networks in this paper to explain the phenomena of access and definition, but we believe this approach also holds potential for analyzing the dynamics of parental leave or other STEM policy use at other research institutions. The issues of access and definition are core not only to our general recommendations beyond the site studied here, they are critical processes influencing the effectiveness of many policies aimed to address ongoing STEM under-representation challenges.

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