

Supporting Future Faculty in Developing their Teaching Practices: An Exploration of Communication Networks among Graduate Teaching Assistants

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Past research has shown that informal communications among Graduate Teaching Assistants (GTAs) are more influential in shaping their teaching practices than formal induction programs. Yet little is known about how these informal helping relationships evolve and how universities can help support their formation as part of the preparation of future faculty. In this study, the supportive teaching communications of two GTAs at a large research university were examined as qualitative case studies. Social network analysis was used as a theoretical lens to construct teaching communication network diagrams based on interview data from the GTAs and their communication partners. Results indicated the importance of relationships that were multi-stranded, reciprocal, and enduring; they also indicated that “information sharing” may have provided a foundation for other types of helping behaviors. Participants discussed improving teaching as a personal rather than professional interest and described socio-emotional support as playing an important role. Based on these findings, suggestions are made about how universities can use “catalyst” events to support informal teaching communications among future faculty.

Introduction

A series of reports over the last two decades has questioned the quality of undergraduate education (Dill, 2005; Kuh, 1999), ushered in a new era of accountability at the post-secondary level (Leveille, 2006; Massey, 2003), and incited quests for new means to reach teaching excellence (Cabrera, Colbeck, & Terenzini, 2001; Ramsden, 2003; Sorcinelli, Austin, Eddy, & Beach, 2006). The challenges to transforming college teaching practices are great. Research demonstrates that effective pedagogy focuses on supporting students as active learners, involves a high degree of interaction, and includes frequent feedback (Chickering & Gamson, 1987; Pascarella & Terenzini, 2005). These are all activities which demand much more of faculty (and students) than the traditional lecture model (Austin, 2002); no longer is subject-matter expertise alone considered sufficient grounding for effective teaching (Kane, Sandretto, & Heath, 2002; Shulman, 2004). At the same time, institutional incentives such as tenure and promotion criteria that focus on research achievement negatively impact faculty motivation to devote the necessary time and energy into ramping up their pedagogical skills (Booth, 2004).

One avenue of inquiry into improving college teaching has focused on the period when most faculty first develop their teaching practices: serving as Graduate Teaching Assistants (GTAs) while earning their doctorates (Fagen & Suedkamp Wells, 2004; Golde & Dore, 2004). Teaching responsibilities in these positions vary (and often build) from assisting in marking to having full responsibility for a class, and these early teaching experiences have a deep and lasting influence on future faculty throughout their professorial

careers (Smith, 2001; Staton & Darling, 1989). For this reason, Austin (2002) calls for considering graduate school as the first stage in an academic career and emphasizes the importance of studying this critical but largely unexamined phase of future faculty development (Wulff, Austin, Nyquist, & Sprague, 2004). From this perspective, the GTA experience can be thought of as the beginning of socialization into one facet (teaching) of the professoriate (Staton & Darling, 1989; Darling & Dewey, 1990). Thus support for graduate student teaching needs to be conceived of not simply as preparation to address immediate course issues, but also as creating the foundation for faculty to continue to consider the scholarship of teaching and learning throughout their careers (Boyer, 1990; Trask, Marotz-Baden, Settles, Gentry, & Berke, 2009).

Support for graduate student teaching generally comes in one of two forms: a structured program put in place specifically to help GTAs or unstructured interactions with professors or peers that occur around a teaching issue. Most university efforts to support GTAs have worked in the structured paradigm; however, evidence suggests that the impact of such programs is relatively small (Fagen & Suedkamp Wells, 2004; Prieto & Altmaier, 1994; Shannon, Twale, & Moore, 1998). In contrast, unstructured interactions around teaching have been shown to be important and influential in shaping GTAs' teaching practices (Austin, 2002; Myers, 1998; Wulff et al., 2004).

In light of these findings, it seems worthwhile to consider how universities could encourage unstructured interactions as an alternative approach to supporting GTA development. This is not to suggest that universities should attempt to formalize or “structure” desirable kinds of unstructured communication, but rather that they may be able to help create a fertile

environment in which these communications are more likely to occur. This is similar to the metaphor of “cultivation” used to describe design efforts that support the development of communities of practice (Wenger, McDermott, & Snyder, 2002).

While it is known that informal communications among GTAs are more influential in shaping their teaching practices than formal induction programs, the details of how these informal helping relationships occur are not well understood. Thus it is currently difficult for universities to attempt to support their formation. This study seeks to address this gap by exploring in depth the supportive teaching communications of two GTAs at a large research university.

The Lack of Impact of Structured Graduate Student Teaching Programs

Though programs designed to prepare GTAs have been around for over twenty years (Austin & Wulff, 2004), studies have shown that the level of support for graduate student teaching remains low across departments and schools with little improvement over time (Fagen & Suedkamp Wells, 2004; Golde, 1997; Monaghan, 1989). While GTAs are often formally told *what* to teach, they are given much less guidance in *how* to teach it (Jensen, Farrand, Redman, Varcoe, & Coleman, 2005), and though many GTAs have faculty members formally responsible for overseeing their teaching, in practice very little support or feedback is given (Prieto, 1999). The result is that almost half of all GTAs feel that they do not get appropriate preparation to teach or enough supervision to help them improve (Fagen & Suedkamp Wells, 2004; Golde, 1997;).

Many departments have no teaching training at all, and even when departments require preparation, these classes are often short and serve general orientation purposes as well (Salinas, Kozuh, & Seraphine, 1999). This may explain why, in one of the few direct empirical studies of the impact of GTA training on teaching effectiveness, Shannon et al. (1998) found that training was associated with higher student evaluations for only one out of nine teaching effectiveness factors (class assignments). Even more disturbingly, they found a *negative* correlation between the length of the training and student ratings on two other teaching effectiveness factors (group interaction and workload/difficulty). Prieto and Altmaier (1994) did find a positive correlation between prior training and GTAs’ self-reported feelings of teaching self-efficacy; however, the magnitude of the relationship was quite small ($r=.22$). In sum, formal GTA preparation does not appear to play a strong role in supporting graduate student teaching.

The disappointing track record of formal GTA

training can be explained in several ways. First, in graduate school teaching preparation is typically given secondary importance to the primary training for research (Austin, 2002), impacting both the quantity and quality of programs offered. Second, graduate students are often already overburdened with classes and research responsibilities and given mixed messages about how much time and energy they should devote to teaching (Austin, 2002). Finally, even if a department offers and a GTA engages in a pedagogical learning experience, formal GTA preparation is generally conducted as up-front, one-shot workshops (Rushin et al., 1997) despite strong empirical evidence that a sustained experience is necessary for teacher learning and impact on practice (Banilower, Boyd, Pasley, & Weiss, 2006; Richardson & Placier, 2001).

The Influential Role of Unstructured Teaching Communications

In the vacuum left by formal training programs, communication in unstructured “helping relationships” with peers, faculty, friends and family has been found to be a powerful force in shaping the teaching practices of new GTAs (Austin, 2002; Myers, 1998; Wulff et al., 2004). From a socialization perspective, these communications help teachers learn the knowledge, skills, and values needed to successfully become part of the profession, and reduce their anxieties and uncertainties about teaching (Staton & Hunt, 1992; Staton-Spicer & Darling, 1986).

To consider how universities might nurture unstructured communications about teaching as a way to support GTAs, it is important to first understand how these helping relationships occur naturally. But most of what is currently known is based on aggregate data. For example, in terms of who they talk to, GTAs consistently report that they rely much more on their peers than on faculty members (Darling, 1987; Anderson & Swazey 1998; Austin, 2002), and most often with those in their own discipline (Wulff et al., 2004). In terms of the kinds of support given, Myers (1998) suggests that “GTA involvement in supportive communication relationships may be inextricably linked with [their] use of information-seeking strategies” (p 67). Similarly, Staton and Darling (1989) identified “obtaining information,” as well as three other dimensions of socialization supported by communication among GTAs: generating new ideas, adapting to rules and procedures, and social support. These categories resonate with the specific kinds of support Leitzman (1981) found in his detailed work looking at informal teaching communications among first-year faculty. In the extensive helping relationships he studied, Leitzman found that information sharing was the most common helping behavior, with

occasional collaboration and sharing of material resources occurring, but very little socio-emotional support given.

While these studies sketch a broad outline of the situation, they do not give us a rich and nuanced understanding of how individual GTAs make choices about what kinds of support to seek from which individuals in specific situations and why (Staton & Hunt, 1992; Staton-Spicer & Darling, 1986). More detailed information about the kinds of teaching communications GTAs engage in and the functions of the talk as it relates to their teaching is needed as a critical first step towards devising productive ways to create environments that support these kinds of communications.

The Current Study

This study was conducted to develop a detailed understanding of naturally occurring teaching communications and the ways in which they support GTAs. These teaching communications are complex social phenomena that have not been studied extensively. In such situations, a case study approach can be useful in generating a better understanding of the situation, as well as generating theory that may be a useful analytical tool in other situations (Yin, 2003). This research used a case-study methodology to examine the teaching communications of two GTAs at a large research university in the United States. Within the overarching case-study framework, Social Network Analysis was used as a further theoretical lens to structure research questions, data collection and analysis.

Social Network Analysis as Orienting Lens

The term Social Network Analysis (SNA) both implies a theoretical perspective on the structure of the social world and provides a set of methods for analyzing this structure (Knoke & Yang, 2008; Scott, 2000). Specifically, through the lens of SNA the social world is viewed as being made up of nodes (people or entities) connected by links (associations) that combine to form a network of relationships (Barnes, 1954). Associations in the network are established by and serve as conduits for the flow of information, resources, and services (Mitchell, 1969) and the collective characteristics of the network can be used to help explain the actions of the individuals within it (Nadel, 1957). A core principle of SNA is a focus on the linkages between people (rather than individuals' personal characteristics) as explanatory factors for human behavior (Wellman & Berkowitz, 1988). SNA also provides a collection of concepts useful in examining these relationships, for example

reciprocity, intensity, and durability (Mitchell, 1969).

Social networks can both be depicted graphically in a social network diagram (Moreno, 1934) and analyzed mathematically (White, 1963). While mathematical analysis becomes increasingly important as the group size grows, simple social network diagrams can still be useful as a conceptual tool to visualize patterns of interaction (Russo & Koesten, 2005), especially when the group size is relatively small. As discussed above, the goal of this exploratory case study was to conduct an in-depth investigation and characterization of two teaching communication networks; thus in this work SNA was employed in the latter sense, as a conceptual lens. Specifically, the research questions, data collection, and data analysis were focused on examining teaching communication linkages between GTAs in terms of type, reciprocity, and intensity.

Before a social network can be studied, it must be operationally defined. Following an egocentric approach as described by Bott (1957), in this study each case was centered around a GTA (the "ego") and everyone the GTA talks with about teaching (the "alters"). Within this framework, Leitzman's (1981) taxonomy of helping behaviors was used as an initial set of categories for the kinds of connections between people in the networks.

Research Questions

The driving question of this work was, "How do unstructured communications about teaching play a role in the GTA's process of learning to teach?" Within this overarching framework, two topical information questions (Stake, 1995) were used to guide and focus data collection:

- 1) With whom do the GTAs communicate about teaching, and what is the nature and intensity of the relationships?
- 2) What types of communication do the GTAs have about teaching, and in what direction(s) are they oriented?

Method

Context for the Study

This study involved two GTAs in a humanities department at a large research university in the United States and the people they communicated with about teaching. The department provided teaching support for its GTAs through a required course given by a "teaching focused" faculty member prior to their first year of graduate school. The

course was one week long, occurred before the graduate students had been in the classroom, and also included general new graduate student orientation issues. This study used extreme case sampling; the two GTAs in the study were chosen for their reputation in the department as being especially interested in teaching and thus presumably would have the richest teaching communication networks. Gender was not a factor in the selection process; however, because one central GTA was male and the other female, attention to potential gendered readings of the data is necessary.

Data Collection and Analysis

Data collection for this study occurred in three sequential rounds of interviews. The first round of interviews was conducted with the central GTAs who were asked with whom they communicated about teaching and the nature of these communications (see details below). The second round of interviews was conducted with the GTAs' alters identified in the first round and probed for the same categories of information. The third round of interviews was conducted after preliminary social network diagrams had been constructed. In this round the central GTAs were asked to review the diagrams, suggest revisions, fill in gaps, and share their interpretations.

First round of data collection. In the first round of data collection, semi-structured interviews were conducted with each of the two central GTAs. The GTAs were initially asked about their teaching experiences and overall orientation to teaching. They were then asked to list all people they communicated with about teaching and were specifically prompted to think about different categories of people (e.g. other GTAs inside and outside of the department, friends, faculty, family). Once this list was generated, the central GTAs were asked to describe their relationship with each of these people. Within the natural flow of conversation, prompts were used to probe for different dimensions of the relationships (see Table 1) based on a set of SNA categories drawn from the literature (Wellman & Berkowitz, 1988; Scott, 2000). Interesting aspects of communication that emerged during the interviews were pursued in more depth.

Second round of data collection. The second round of data collection consisted of a set of semi-structured interviews with the central GTA's alters using the same categories shown in Table 1. Ten individuals were contacted based on the information generated in the first interview; of these, eight agreed to participate in the study. An eleventh alter was identified by one of the central GTAs but could not be reached due to a lack of current contact information.

Table 1

Categories of Information Probed for in Interviews

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- Closeness, strength, and power hierarchy of the relationship
 - Logistical proximity of the alter to the ego
 - Typical setting for communication about teaching
 - Intensity of communication
 - Medium of communication
 - Initiation and reciprocity of communication
 - Topic of communication
 - Degree of trust with the alter
 - Usefulness of the communication
 - Durability of the communication
-

Creation of the social network diagrams. After the second round of data collection, researcher notes and audio recordings were used to summarize each interview into a narrative. Different interviews describing the same teaching relationship were then compared and used to create one meta-narrative about the teaching communications of each central GTA. When discrepancies between accounts occurred, both views were included in the narrative. The relationships between the GTA and each person in their network were then characterized by the presence or absence of each of Leitzman's (1981) types of communications (informational, socio-emotional, resource-sharing, or collaboration). If present, the intensity of each type of communication was labeled as infrequent / sporadic (twice a month or less), recurrent (once every week or two) or frequent (multiple times a week), and the reciprocity of the communication was labeled as unidirectional (help was given in solely one direction), bidirectional (help was given equally in both directions), or weighted directional (help was given in both directions, but in one direction more than the other). The data was examined for types of communication falling outside of the a priori categories taken from Leitzman; however, the categories were found to be sufficient for all communications described.

Labeled data was then used to construct teaching communication network diagrams according to the conventions shown in the diagram keys. Alters who the GTAs described as being part of a formal relationship related to teaching but with whom no actual communication occurred were included in the diagram without connecting lines. After the diagrams were created, visual inspection was used to create preliminary interpretations of the network structures. Durability (the degree to which each kind of communication was sustained over time) was not explicitly included in the diagrams, but was considered as a contextualizing factor for analysis.

Third round of data collection/member checks. In the third round of data collection, final interviews were conducted with each of the two

central GTAs to fill in any gaps that remained in the picture of their teaching communication network. In addition, member checks were conducted in which they reviewed and suggested revisions for their network diagrams and shared their own the interpretations of the diagrams.

Validity

In social network studies, the question of validity is primarily concerned with the degree to which the network structure that is observed corresponds to the actual one (Wasserman & Faust, 1994). To maximize the number of actual network members reported in the study, interviews were designed with an open-ended protocol in which participants were allowed to name as many teaching communication partners as they wanted, and they were specifically prompted to think about different categories of people with whom they could have communicated. With respect to characterizing the types, intensity and reciprocity of the connections with network members, participants were asked to report directly about overarching patterns (rather than describing particular examples of interactions). This was done to minimize instances of forgetting and false recall (Bernard, Killworth, & Sailer, 1981) which are much greater for reporting specific interactions than for describing long range social structure (Freeman, Romney & Freeman, 1987).

An important technique for enhancing validity in social network studies is to compare reports from more than one actor (White & Watkins, 2000). For this study information about each teaching communication relationship was gathered from two sources (the ego and the alter), in all but three cases. Discrepancies in accounts were included in the narratives and taken into account in crafting interpretations of the data. In addition, member checks were used to allow the central GTAs to review and revise the inferences made by the researchers in categorizing communications and creating and interpreting the social network diagrams. Finally, abbreviated versions of the original narratives for each alter are presented in the data section to give the reader the opportunity to evaluate the nature and context of each relationship themselves.

Results

This section begins with a brief overview of the departmental culture as described by participants. Each case narrative is then laid out, and its network diagram is presented and discussed. All references to participants use pseudonyms.

Overall Departmental Culture

The study was conducted in a humanities department at a research intensive university. One participant described the culture of research as being so strong that “even if graduate students come in with a different idea of what is important, they end up buying into [the priority of research] because it is what is expected.” Similarly, as one GTA put it, “for most graduate students, there is an attitude that [teaching] is not what we are here for.” Interestingly, while most interviewees described a lack of departmental importance placed on teaching, all except for one also described themselves and their peers as personally committed to it. As one interviewee put it, “[All the GTAs I know] take their teaching seriously and are concerned about being a good teacher.”

Sandra’s Case

Sandra is a 26-year-old GTA in her second year with a passion for teaching. She described it as an important part of her professional life; when she graduates, she plans to look for a job at a teaching college. Sandra listed six key people with whom she had communicated about teaching in her time as a GTA: Rebecca (the “teaching focused” professor in the department); Professor Sloan (the faculty member in charge of her first class as a GTA); Jessica (a more advanced graduate student who also served as a GTA for this class); Paula (a recently graduated GTA and one of Sandra’s closest friends); Bart (a GTA in a different humanities department), and Fred (Bart’s roommate and a GTA in Sandra’s department). Sandra noted that the course she was currently teaching had a faculty overseer, but they did not communicate about teaching.

Narrative of key alters in Sandra’s teaching communication network.

Rebecca. Rebecca is the “teaching focused” professor in the department and in charge of the required week-long course for all new GTAs. This position reflects her passion for teaching which she regards as her top professional priority. Sandra described her relationship with Rebecca during the initial training course as friendly, but somewhat formal. Since then Sandra reported that they have become closer, and she characterized their communications about teaching as “infrequent, but very fruitful.” These conversations have taken place both in person and over e-mail and generally involve Rebecca checking in to see how things are going or asking to see the syllabus or books Sandra is using for a semester. Sandra noted that these communications rarely evolved into substantive discussions. At the same time, Sandra mentioned sporadic more in-depth teaching

communications that she and Rebecca had over the past two years. For example, one semester she had her class videotaped and asked Rebecca to watch the tape with her. Sandra also took an elective semester-long pedagogy course that Rebecca offered one summer. Recently Rebecca invited Sandra to present with her at a campus wide conference on teaching practices. When asked about why their communications have not been more frequent, Sandra referred to overall departmental pressures: "This field is very competitive, and there is no formal mechanism for caring about teaching." She noted that even in applying for a position at a teaching institution, she expected to be evaluated more on her research than her teaching and that she felt she put more time into working on her teaching than she probably should. In line with this, while she valued her communication with Rebecca, she pointed out that "in the department, time working with her is seen more as personal rather than professional development."

Rebecca's description of her relationship with Sandra differed somewhat from Sandra's account. Rebecca told the story of an ongoing and deep professional and mentoring relationship with Sandra. Back when Sandra was still "getting a handle on teaching," Rebecca recalled her showing up at her office every so often with questions about the best way to teach a topic or an ideas she had for an assignment. She described their conversations as digging down into underlying topics such as cognition and how the mind works, something Rebecca said they both enjoyed. Rebecca characterized their current relationship as one of colleagues, noting that the conversations with Sandra are very useful for her and that she is one of her first choices of someone to share her pedagogy work with.

Professor Sloan. Sandra and Professor Sloan both described their teaching communications in similar terms. The relationship was formal and hierarchical; he knew what he wanted done and would give specific instructions to that effect on a weekly basis. His communications with Sandra (and Jessica, the other GTA for the class) were primarily procedural, telling them what content topics to focus on in their discussion sections and how to administer the weekly quizzes; there was no discussion of pedagogy involved. The only time that there was collaboration between Professor Sloan and the two GTAs in a group was in grading the final exams. Sandra did not describe these communications as very influential for her teaching.

Jessica. Sandra and Jessica had a more involved teaching communication relationship. Jessica was an experienced GTA, and while they were teaching the same course she and Sandra communicated once or twice a week about teaching, usually in person. Generally these communications involved Sandra asking Jessica specific questions about how she planned to run her section or grade a class assignment and

Jessica sharing the requested information. Sandra would also use Jessica as a "sounding board" for her ideas about how she was planning to lead her section and found this helpful as she was developing her confidence as a teacher. Jessica felt she learned a great deal from Sandra as well and also mentioned the socio-emotional aspects of talking through the teaching experiences they shared. Jessica described the socio-emotional communications as a lifeline of support for a challenging job: "Teaching can be very draining and frustrating – it is a baptism by fire."

Paula. Paula is another GTA in the department who recently graduated. She is one of Sandra's best friends, and their friendship actually grew out of the mutual importance they place on teaching. Sandra appreciated having someone to talk with who was as "excited and reflective about her teaching" as she is and with whom she has an implicit trust in ability and commitment. When Paula was teaching, Sandra and Paula communicated at least several times per week about teaching. The communications were generally informal and unplanned, for example, if they happened to be in the graduate lounge at the same time; occasionally they communicated and sent materials via e-mail. Sandra described sharing information with Paula on all aspects of teaching "from curriculum to pedagogy to how to handle student complaints"; however, Sandra said that actual collaboration was infrequent since they generally taught different classes.

Bart. Bart is a GTA in a different humanities department; Sandra met him in a seminar class. In contrast to the relationship with Paula in which friendship grew out of a shared interest in teaching, with Bart they became close friends, and their conversations about teaching have arisen from this friendship. These conversations are almost always informal: topics of teaching tend to emerge in their conversations as friends and range from theoretical ideas about as how people learn to how to deal with specific student situations and how to explain a certain kind of topic. At times, their conversations also involve Fred, Bart's roommate, or less frequently, Paula. Bart also described their conversations serving as a form of emotional support: "The teaching role is isolated and the teacher isn't going to chat about pedagogy with their students, so they need to do it elsewhere...friends act as an outlet."

Fred. Fred is Bart's roommate and a GTA in Sandra's department. Sandra and Bart both described Fred as someone who takes part in their conversations about teaching once in a while, but not as frequently as they themselves communicate about it. At times, the three of them engage in "venting" kinds of conversations, releasing the current frustrations they are having with teaching, while other times they simply share ideas for teaching a class.

Figure 1
Sandra's Teaching Communication Network

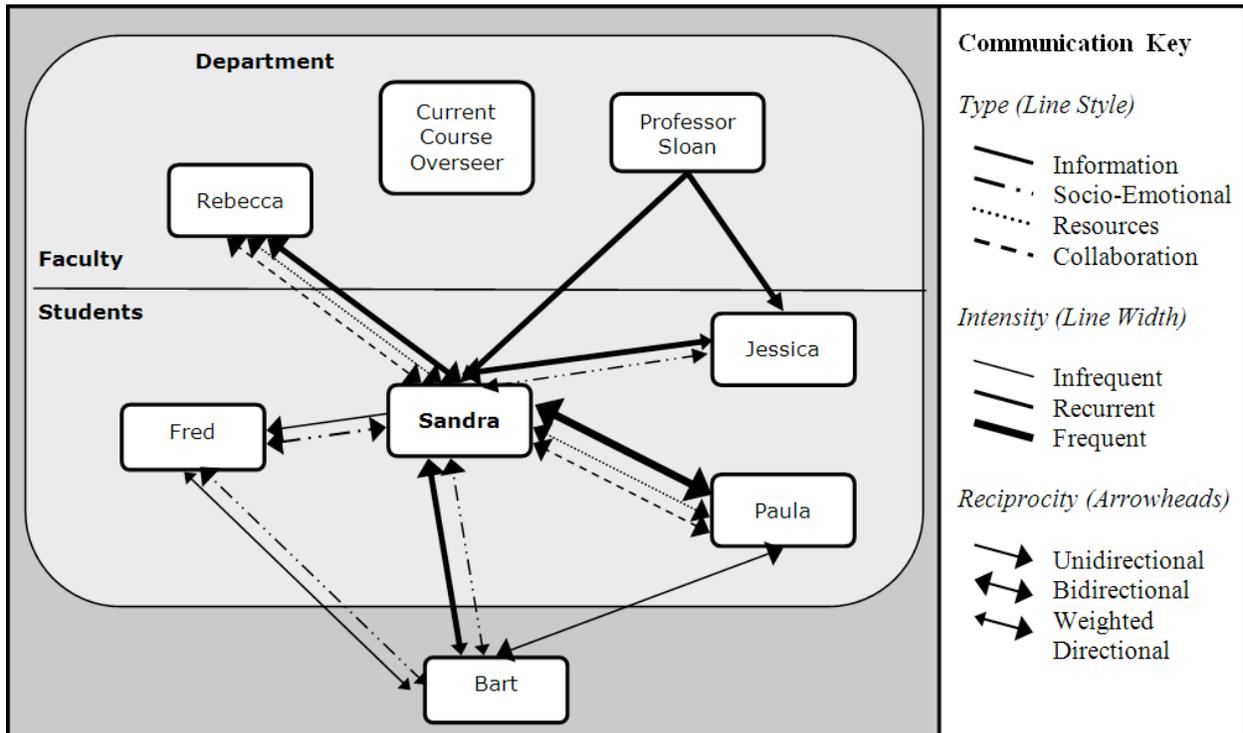
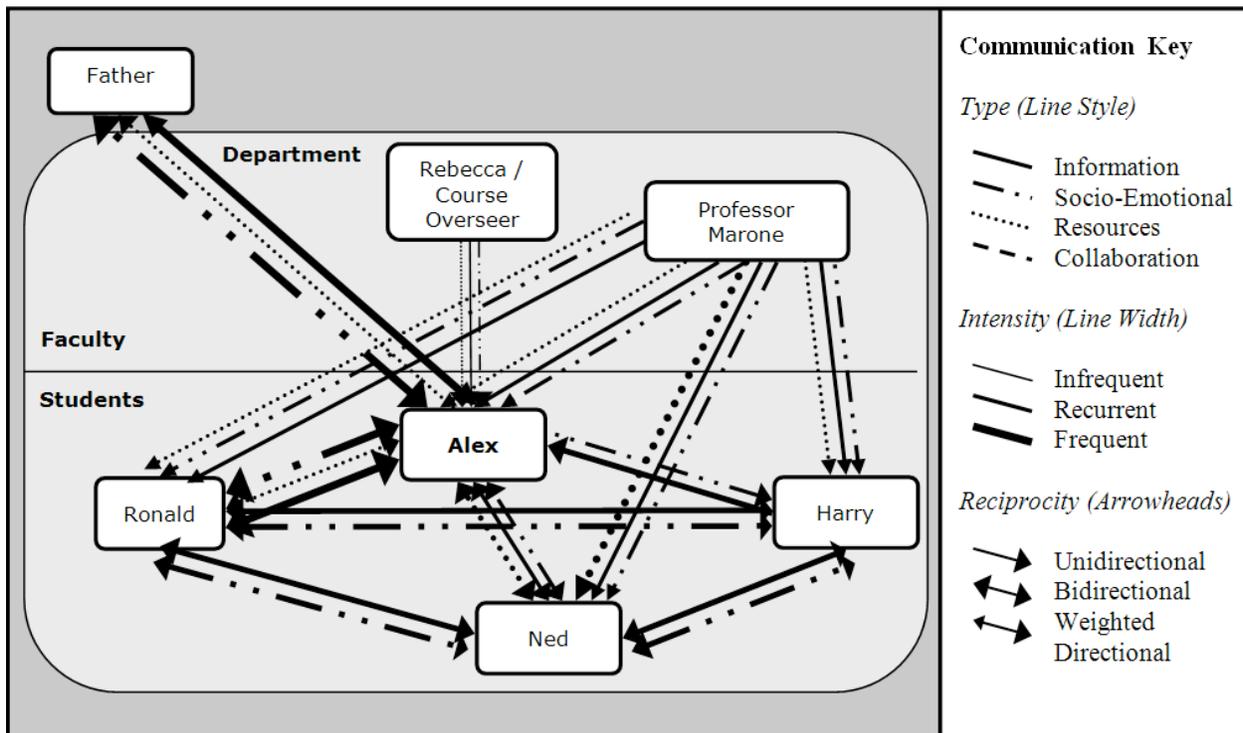


Figure 2
Alex's Teaching Communication Network



Sandra's teaching communication network. As the network diagram in Figure 1 illustrates, Sandra's overall teaching communication density is relatively sparse for someone who values teaching so highly, though some of her relationships involved intense (frequent) communication during specific periods of time. In addition, the diagram shows somewhat of a hub-and-spoke structure, reflecting how her relationships with each of the people in her network are primarily defined individually. Even in the few cases where the diagram shows relationship "triangles," the actual communication occurred mostly in a series of one-on-one encounters, indicating a type of compartmentalization of communication.

Sharing information is the dominant type of communication in Sandra's network, with material resources, collaboration and socio-emotional support all playing secondary roles. Interestingly, while sharing information is present in all relationships, the socio-emotional support present with Bart, Fred, and Jessica is isolated from the relationships with Paula and Rebecca that involve sharing material resources and occasional collaboration. This indicates a second form of compartmentalization. In viewing the network diagram, Sandra observed a third kind of compartmentalization in how many overall connections between her alters were missing, noting, "I think if you had the formal connections in place (between Rebecca, the Department Chair and the Course Overseer as well as each of these with the other Department GTAs) then you would have a lot stronger network of communication between the GTAs as well."

Alex's Case

Alex is a 31-year-old graduate student in the same department as Sandra in his third year as a GTA. Alex had three years of previous teaching experience at the college level when he came to the program; he described a love for the material and a desire to share his enthusiasm with students. Alex listed six key people with whom he had communicated about teaching in his time as a GTA: his father; Rebecca; Ronald, Harry and Ned (the three other GTAs in Alex's department in the same subject matter area); and Professor Marone (a professor in this subject matter area). Alex also discussed a collective role of the other GTAs in the department.

Narrative of key alters in Alex's teaching communication network.

Alex's Father. Over the years, the person with whom Alex has communicated the most about teaching is his father, a professor in Alex's field at another university. Alex's father is a great source of inspiration to him, and his father and he have a very close relationship. Their relationship with respect to teaching

began when Alex served as a visiting professor at his father's college. In this context, Alex's father helped him get his start, sharing his knowledge of the course content and techniques for explaining these ideas and getting students involved. As Alex described it: "He was my primary resource when I was first learning to teach, and I base a lot on his model." While Alex said he has looked over his father's course materials, he generally has not used them in his own classes. Over time their relationship has evolved, and their conversations about teaching have become less frequent. When they do occur, his father commented, "He helps me as much as I help him and [now] he shares his ideas and course notes with me!"

Rebecca. Because of his prior teaching experience, Alex did not take the one week teaching course that Rebecca runs; however, he has had some communication with her since she is in charge of overseeing the courses taught in Alex's specialty area. The main communications that Alex described occurred the summer before Alex joined the department when they met for several hours to talk about how he planned to teach his course. In this conversation she offered suggestions about what materials would be appropriate for the course and information about pace and difficulty level. Since then, Alex's communications with her have been infrequent and he commented that most of what he has learned about teaching has come from more experienced students. Rebecca described having had more frequent communication with Alex when he was just starting to teach his own course, noting that he would send her e-mails about specific questions he had, but that he was less interested in the theory behind the teaching, so mostly she "served to boost his self confidence in what he was doing."

Currently, Alex submits his syllabus to Rebecca each semester, but the communication ends there. Officially, she is supposed to observe his classes once a term so that she would be able to write a recommendation letter, but since he does not plan to ask her for one, this has not generally happened. Alex mentioned that this is often the case, explaining that "her lack of stature in the field (because she doesn't publish) doesn't affect our respect for her opinion on matters of teaching, because they are different kinds of questions. When it comes to applying for jobs, however, it is important to get letters from people whose names carry some weight."

Ronald. Ronald is a GTA in the same year as Alex and a close friend. They also share an office and have taught the same course at several times in their graduate careers. Despite their close proximity, Alex said that they talk about teaching only about once a week, though Ronald thought that the conversations happened more often than that. Most of the time, they have one-on-one communications that are informal, unplanned

and can happen anywhere, including over lunch or at the gym, though most often they occur in their shared office. Alex described their teaching communications as usually specific, directed, and related to the course content, though “pedagogy does come up occasionally.” Ronald added that when they talk about general approaches to running a class, they are usually discussed in the context of a specific problem they are facing. Ronald noted that they not only share ideas but also actual materials such as lecture notes and handouts. He also noted that he sees the “post-class debrief” as an important form of communication between himself and Alex. While such a discussion can involve reflection on teaching practice, Ronald views its function as primarily socio-emotional “after a class, sometimes you just need to decompress...people don’t realize how draining it is.”

Harry. Harry is a few years ahead of Alex in his program, and has been teaching for many years. He described his relationship with Alex as starting off as one of a big brother: “He was a GTA [under me] for a semester in his second year and I tried to share my experiences with him.” Harry felt that Alex helped him out a lot as well, “I learned from him how to say no to students when I needed to...He [also] gave me emotional support when I made a content mistake in teaching.” During that first semester, their teaching conversations were mainly one-on-one and face to face as they walked from the offices to the classroom or over lunch. Since then their contact has been less frequent and less directed; it generally occurs at departmental parties where they compare what course pack readings or textbook they are using.

Ned. Ned is another graduate student in the department who is several years ahead of Alex and just finished his studies. Alex taught with him as the junior GTA in one of his early courses, and during that semester they had a great deal of contact related to teaching. Generally these conversations would occur a few times a week in a one-on-one situation in the office or department lounge while getting ready for class. For example Ned and Alex shared ideas about group activities and how they could make them useful for the students. Though they taught together and shared materials, Alex said that Ned and he did not really collaborate per se “It was more like a one-two punch. Ned would do stuff in his way and then I would do it in mine.” Due to their shared content area, Ned, Harry, and Ronald also had conversations with each other about teaching; these conversations involved sharing information and socio-emotional support.

Professor Marone. Professor Marone is a professor in Alex’s specific subject area, and Alex describes him as being very influential for him despite never having formally worked with him as a GTA. He, Ronald, Harry and Ned have all used Professor Marone’s course

readings pack and gone out with him for drinks and “venting sessions.” Alex likes to bounce ideas for teaching off of him and says that he has a view of the subject matter very much in line with his own. Alex describes his communications with Professor Marone as frequent but primarily unidirectional with him receiving advice; he also described Professor Marone playing a similar for Harry, Ronald, and Ned, which they confirmed.

Other Departmental GTAs. In addition to the specific individuals described above, Alex discussed the collective role of the other GTAs in the department. Because this discussion was general in nature and did not indicate relationships with specific individuals, the data did not inform the creation of Alex’s social network diagram. His comments did speak, however, to questions of what kinds of support GTAs need and want, and thus are presented here.

Alex described the graduate student population in the department as closely connected and noted that they got together socially on a frequent basis. While at these social functions, conversations about teaching usually begin with a simple “How’d your classes go?” Alex then described that “when the answer is positive, the conversation usually ends there, but when someone has had a negative experience, they usually are looking for a chance to vent.” For Alex, this “venting” function is a much more necessary support for GTAs than any formal teaching program could be: “It is essential for people to have an outlet to vent in – a social setting with people in similar situations who can commiserate....When you teach, you put such an emotional effort into being successful that sometimes you just need to let it out.”

Alex’s teaching communication network. As shown in Figure 2, Alex has a more integrated network of teaching communication relationships than Sandra does; however, the actual communication that occurred within these relationships was still primarily characterized as occurring individually in one-on-one settings. Similarly, while the diagram shows many relationships with frequent communication, the intensity of communication in a particular relationship was often confined to a distinct period of time. Alex’s network also includes more communications of the socio-emotional support type than seen in Sandra’s network; this may be a product of the importance he places in on this kind of communication in learning to teach. In addition, Alex’s network includes a greater amount of sharing of material resources; this is possibly due to the fact that most of the people in Alex’s network are also in his specialty area, and thus there is great overlap in the courses they teach and the materials they use. Despite this, Alex’s network shows little actual collaboration.

Several additional points can be taken from Figure

2. First, Alex's communications with departmental professors (Professor Marone, Rebecca) were primarily unidirectional while his communications with his peers and father were often bidirectional. Second, Alex's network shows a great deal of integration of multiple types of communication within each relationship. Third, in examining the network, Alex noted the predominance of relationships that developed informally (peers, Professor Marone) over those that were formally assigned (Rebecca as Course Overseer). Finally, with the exception of Rebecca, all of Alex's communications were with other males.

Assertions and Discussion

Addressing Research Question 1: With Whom Do the GTAs Communicate About Teaching and What is the Nature and Intensity of the Relationships?

Assertion 1: Teaching improvement is pursued, but it is done so primarily as a personal rather than professional interest. Sandra and Alex were selected for this study because of their interest in and commitment to teaching and the data supports the claim that teaching is something they both value highly. Despite this, they both indicated that they did not perceive the act of working to improve their teaching as a valued professional pursuit in their field. This is reflected in comments such as Sandra's observation that time working with Rebecca is seen as "personal development" and Alex's remark that Rebecca's focus on pedagogy versus research means that her name does not carry much weight in the field. Despite this, Sandra and Alex each described talking about and working on their teaching as something that was important to them personally, both in terms of helping their students learn and in terms of developing their own confidence and sense of competence as teachers.

The finding that improving teaching is pursued as a personal interest contradicts the common claim that improving teaching is undervalued and not pursued by instructors in university environments (Tierney & Bensimon, 1996). Unquestionably, long term change recognizing, rewarding, and respecting teaching and teaching improvement within departmental cultures is needed (Boyer, 1990; Shulman, 1993); however, if GTAs are working to improve their teaching, even in informal and personal ways, then there is an opportunity for universities to support and enhance this activity.

Effectively supporting informal teaching communications which occur as needed on an impromptu basis in private settings requires a different set of tools and strategies than universities have used in traditional GTA preparation programs. To support and enhance these kinds of communications, universities

must reframe events that they organize not as ends unto themselves—these will not be the occasions when the bulk of teaching communications happen. Instead, these events can be conceptualized as "catalysts" that provide the opportunity for some initial communication, but equally importantly lay a foundation for future informal GTA-driven conversations to occur. Recommendations for structuring events to effectively serve this purpose can be drawn from the remaining findings about the nature of GTA teaching communications.

Assertion 2: There is a predominance of "convenient" teaching communications, but enduring one-on-one multi-stranded relationships are most important and influential for the GTAs. The majority of the communications described by Sandra and Alex were individual communications. This was true regardless of whether they were with a professor or a fellow student, and even when three-way relationships existed, the communications themselves tended to occur one-on-one. For the most part the early relationships came out of formal teaching situations in which Alex and Sandra taught with a professor or other graduate student. By nature, these "convenient" relationships were often intense, with frequent communication during a specific time period, but they were not very durable, lasting only for the semester of the teaching assignment. Convenient teaching communication relationships also emerged from the proximity of sharing an office, an arrangement that usually lasted a year. Despite changing circumstances, over time in their teaching careers, both Sandra and Alex developed at least one enduring teaching communication relationship with someone who was, or became, a good friend, and they described these relationships as highly important and influential for them in their teaching. These relationships can be characterized as "multistranded" (Mitchell, 1969) as the individuals involved were connected via multiple kinds of linkages, in this case both teaching communications and friendship ties.

This finding suggests that GTA teaching communications may be most effective in the context of close relationships maintained over time. Following from this, university support for teaching communications should focus on fostering the formation of enduring multistranded one-on-one relationships. Some scholars argue that the logical way to attempt this is by formally appointing experienced GTAs to mentor new ones (Silva, Macián & Mejía-Gómez, 2006). While this is one viable approach, such assigned mentorship relationships are often not as useful as those that develop naturally (Cawyer, Simonds & Davis, 2002). Thus universities should also consider approaches such as catalyst events that support GTAs in forming their own teaching communication relationships. In doing so, this finding indicates that the

events should provide low-risk opportunities for individual GTAs to talk with multiple other GTAs about teaching. Importantly, these communications should not be designed as group conversations (a common format for teaching discussions) but rather as a series of one-on-one conversations with rotating partners. This can serve both to encourage teaching-related conversations among existing friends and to provide opportunities for GTAs to form new relationships with others in which teaching communications play a role. Again, while these conversations themselves can be valuable, the overriding goal is to sow the seeds for the development of enduring teaching communication *relationships*.

Assertion 3: There may be a gendered dimension to whom GTAs choose to communicate with about their teaching. While neither central GTA explicitly mentioned gender as a factor influencing their teaching communication, several differences in Sandra and Alex's networks suggest that a gendered reading of the data is available. First, Sandra's network is balanced between male and female communication partners while, except for a limited number of interactions with Rebecca, Alex chose to discuss his teaching exclusively with other males. In addition, while both Sandra and Alex characterized Rebecca's status in the department in a similar way, Sandra chose to engage with Rebecca more frequently and deeply than Alex. Dismissing Rebecca's value for his career, Alex claimed to respect her opinion on teaching matters, but did not actively solicit it.

While Alex's behaviors can be characterized in a gendered way that might indicate broader issues of power dynamics in the social space of his department, he is just a single individual. His choice of conversation partners may be affected by a variety of other personal, cultural, socioeconomic, or religious influences not studied here. It may also be related to particularities of the discipline or his specialty area within the discipline. Future studies of teaching communications can follow up on these observations with a larger and more diverse sample of male participants to determine if gender is an important dimension influencing the choice of teaching communication partners. If males are found to seek or value help primarily only from other males, then special attention may need to be paid in the catalyst events to supporting male-female conversations that respect and engage both participants' experiences and expertise.

Addressing Research Question 2: What Types of Communication Do the GTAs Have About Teaching and In What Direction(s) Are They Oriented?

Assertion 4: Sharing Information may provide a foundation for other types of communication. Similar to Leitzman's (1981) findings with first-year faculty, in this study sharing information was the most common type of communication, occurring in every relationship where teaching communications were described. In some cases it was found alone; however, in many it was accompanied by one or more other communication types. This pattern suggests that sharing information may be a way to begin to build a teaching communication relationship. While sharing one's personal teaching resources, providing socio-emotional support and collaborating all involve a degree of trust in the other person, sharing information can be relatively risk-free. Thus it may be the type of communication the GTAs used to "test the waters." This is a proposition that needs to be tested in a study looking at the evolution of teaching communication relationships over time. If sharing information does indeed provide a foundation for other types of helping behaviors, then this should be the initial kind of communication encouraged in catalyst events. As GTAs find others with whom sharing information is fruitful and develop a base level of trust, other forms of teaching communications with these individuals can begin to emerge.

Assertion 5: Socio-Emotional Support in the form of confidence checks and venting plays an important role in GTA communications about teaching. While Leitzman (1981) found very little communication involving socio-emotional support in his work with faculty, this study found this type of communication to be quite common and important for GTAs. Two major kinds of socio-emotional support were found; the first was doing a confidence check on one's ideas. For example Sandra described using Jessica as a "sounding board" for ideas as she was developing her confidence as a teacher and Rebecca described playing a similar role in responding to questions Alex sent her over e-mail. More commonly, the socio-emotional communications reported were venting about problems or frustrations with teaching. For example Ronald and Alex would engage in post-class debriefs "to decompress," and Sandra would talk with Bart and Fred to get out frustrations she was having with teaching. Besides Sandra and Alex, several other participants described these venting conversations as an important release for the emotional energy they put into their teaching. Venting and confidence checks are quite similar to the cathartic and affirming kinds of communications observed by Staton-Spicer and Darling (1986) among pre-service K-12 teachers during their teaching internships. They report that these affective components seemed to be an important part of the socialization process for teachers in terms of relieving the frustrations and uncertainties associated with a new role.

This finding suggests that another element of the catalyst events that can help provide a foundation for relationship building is to provide a safe forum for bringing up the socio-emotional aspects of teaching. Thus, in addition to sharing information, the one-on-one conversations discussed earlier could specifically provide opportunities for asking confidence check kinds of questions. For example, a conversation prompt could ask GTAs to share one thing they are doing in their teaching they think could be useful for their partner and ask one question about something on which they would like input. Similarly, GTAs could be given a forum to talk productively about the challenging aspects of teaching by focusing a part of the conversation specifically on teaching experiences that they have found difficult or frustrating.

Assertion 6: Enduring helping relationships were, or evolved to be, reciprocal in nature. While this study did not focus on a longitudinal examination of teaching communication relationships, it can be seen in the diagrams that with the exception of Professor Marone, all of the relationships the central GTAs described as important to them can be characterized as reciprocal. In some cases the relationship was described as an exchange between equals from the start, while in others the relationship began asymmetrically with the direction of support becoming more balanced over time. The general importance of reciprocity in interpersonal relationships is well established (for example see Buunk & Schaufeli, 1999); in the context of GTAs learning to teach, it may be a key factor for building and maintaining enduring helping relationships. For the GTA catalyst events, one way to promote reciprocity is by giving all participants equal status rather than labeling specific GTAs as “mentors” or “mentees.” In addition, the one-on-one conversations should be structured such that both GTAs (regardless of experience level) are given symmetrical roles and asked to respond to each other’s comments and questions. Of course GTAs will know (or quickly find out) each other’s experience levels, but removing an explicit hierarchical dimension from the conversation can provide more opportunities for reciprocity to occur.

Conclusions

Past research has shown that informal teaching communications are important and influential to GTAs in their process of learning to teach (Austin, 2002; Myers, 1998; Wulff et al., 2004). The purpose of this study was to push beyond this general finding and develop a detailed understanding of the teaching communications of two GTAs in order to inform efforts by universities to create environments that foster such

communication. The results suggest that a promising approach to support teaching communication networks among future faculty is for universities to organize “catalyst” events in which GTAs have a series of one-on-one, reciprocal conversations that focus on sharing information and engaging the socio-emotional aspects of teaching.

While this study added depth to our understanding of GTA teaching communications, the findings are based on a sample of only two GTAs from the same area of the humanities at a single university. Similar results may not be found for GTAs from other disciplines or universities, or for different GTAs in the particular department studied here. Future studies are needed to build on this initial foundation by probing larger groups of GTAs in multiple subject areas about the different dimensions of their teaching communication relationships. From a process perspective, this study has also demonstrated the usefulness of Social Network Analysis in generating insight into the nature of the teaching communication relationships in which GTAs engage. Similar studies could be conducted in different departments to help evaluate various collocations of GTAs and determine potentially beneficial arrangements; this is a new and seemingly fruitful area for research. Future work is also needed to focus in more depth on the specific content of GTA teaching communications and to examine potential gendered dimensions of teaching communication choices.

Finally, it is important to situate any discussion about support for GTA teaching communications in the larger academic culture within which they occur. In this study it was found that even a graduate student aiming for a career at a teaching institution did not see improving teaching as something that would help her achieve her professional goals. This dramatically underscores the need for systemic change in hiring and tenure policies and practices if universities are serious about improving teaching. Future (and current) faculty cannot be expected to place a high value on developing their teaching as a professional pursuit when career determining decisions do not (Kerr, 1995). Institutional criteria that focus primarily on research achievement and cultures that value research over teaching in terms of prestige (Fairweather, 1997; Gray, Diamond & Adam, 1996; Sutton & Bergerson, 2001) as well as the lack of robust measures used to evaluate teaching quality (Atwood, Taylor, & Hutchings, 2000; Colbeck, 1992) are all factors that contribute to this problem. The issues involved in addressing the situation are complex, and the (lack of) progress over the last twenty years indicates that any wide-scale institutional change will be a slow and lengthy process. Supporting the informal teaching communications of future faculty during the time period in which they are first shaping their

teaching practices can help build lasting habits that contribute to good practice and may in the long run help contribute to the larger cultural changes around teaching that are needed in universities.

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