Research Article

Gender Preferences in Writing Center Appointments: The Case for a Metadata-Driven Approach

Mark Pedretti, *Providence College*

Megan Swihart Jewell, *Case Western Reserve University*

Structured Abstract

- **Background:** Writing center studies has sought to move towards research methods that are replicable, aggregable, and data-supported (RAD) as a means to scholarly legitimacy. While a number of RAD research methods have been identified (surveys, qualitative analysis, observation, case studies, experimentation, discourse analysis, teacher research, action research, and ethnography), one important source of information has been largely overlooked: the scheduling metadata that writing centers routinely collect in the course of normal operations. The present research seeks to demonstrate the validity of metadata-driven research by interrogating an area of writing center scholarship that has been predominantly studied through theoretical or small-group means: the impact of gender on writing consultations. It investigates whether the gender of the writing consultant significantly affects a student's choice in scheduling appointments.
- **Literature Review:** Metadata has traditionally been relegated to the domain of assessment, and thus neglected as a site for research. However, theoretical interventions in literary studies and digital humanities suggest that metadata can offer an opportunity for *distant paratextual reading*: while the actual tutorial session may be best observed on an individual basis, the wealth of information surrounding it — student and consultant demographic data, intake forms, session reports, post-session surveys — can illuminate tutorial interactions at the scale of thousands of appointments, allowing researchers to

ask different but complementary questions. At the same time, while there is some dispute about whether gender plays a constitutive role in tutorial interactions, that finding has mostly been either the result of analysis of small numbers of sessions or derived from theory. Thus, this area of research is well suited to a data-driven intervention.

- **Research Questions:**
    1. Does writing center scheduling data suggest that gender is a significant criterion in students choosing which writing consultants to schedule appointments with?
    2. Do students select writing consultants who self-identify as the same or different gender with greater frequency than random selection?
- **Methodology:** A single question asking students and writing consultants to identify their gender was added to the registration form in the online scheduler WC Online. Data from registration forms was coordinated with appointment data for two years, producing a final operative dataset of 7,116 appointment records. The incidence of same- and opposite-gender selections was compared to a fair share analysis based on relative distribution of genders in each group. Data was initially analyzed in aggregate and then disaggregated to control for time and location.
- **Results:** While a modest student preference for writing consultants who identify as the same gender was evident in the aggregate data, this effect disappeared once other factors were controlled for. Preference for consultants of the same gender was inconsistently observed once the data was broken down by time of day and location.
- **Discussion:** The inconsistency of the gender preference effect suggests that gender is not a determinative factor in student decision-making, and that other factors of convenience played a more significant role. This does not mean that gender dynamics are not operative in the tutorial situation itself, but only that students are not consciously preparing for such an interaction in advance. We suggest that including information about preferred pronouns in both student and consultant profiles might help to increase awareness of gender as a structuring factor in tutorial sessions.
- **Conclusions:** This research demonstrates the validity of a metadata-driven approach to writing center studies, and offers writing center directors, often pressed for research time, a ready-to-hand way to mobilize existing institutional resources to ask substantive research questions that go beyond the domain of assessment and bureaucratic reporting. In the spirit of RAD

research, we invite other researchers to replicate our findings in order to facilitate cross-institutional comparison.

Keywords: appointment, gender, metadata, RAD research, scheduling, writing analytics, writing center

1.0 Background

The calls for evidence-based writing center research are by this point well known. From the insistence on replicable, aggregable, and data-supported (RAD) research (Driscoll & Perdue, 2012; Haswell, 2005) to recurring lamentations of its scarcity as a barrier to the field's scholarly legitimacy (North, 1984; Harris, 2000; Gillam, 2002; Lerner, 2009), writing center studies has long sought to move toward research methodologies grounded in the analysis of the different types of information gathered or gatherable in the regular course of our work. Evidence-based research has emerged as a response to the somewhat intractable problem of *localism* in writing center scholarship. That is, "practitioner inquiry" (North, 1987, p. 15 and *passim*) is often confined to the circumstances of a particular institutional site, unable to be generalized to other centers at other institutions, and thus producing what Paula Gillespie (2002) has famously termed "lore" (p. 39), or what Jeanette Harris (2001) calls "the familiar 'this-is-what-we-do-at my writing center' category" of research (p. 663): a focus on the microcosm of a single center, tutorial session, or small group of sessions. While lore-based scholarship is valuable in providing individual accounts of diverse centers while avoiding potentially harmful generalizations, it has rhetorically and epistemologically limited the growth of the field: the focus on the microcosm not only offers few practical takeaways for other consultants and administrators, but is also quite efficient in reproducing a culture of insularity that hinders its scholarly reception. Lore-based accounts, as we address later, ironically serve to reinforce writing centers' longstanding marginalization. Evidence-based research is meant to widen perspectives by making cross-institutional comparisons possible (as the "replicable" in RAD research suggests). Rebecca Babcock and Therese Thonus (2018) have suggested numerous forms of inquiry that would rise to the level of RAD research: quantitative survey analysis, qualitative analysis, observation, case studies, experimentation, discourse analysis, teacher research, action research, and ethnography (pp. 46-55).

We believe that one very important source of information has been overlooked in this evidentiary turn: the scheduling and appointment data that many centers routinely collect in the course of their operations in order to track usages, modify practices, and often argue for funding.[1] No matter its use, scheduling information constitutes the *metadata* of tutorial sessions,

[1] Babcock and Thonus (2018) devote only one page to "purely quantitative analysis" of the type we propose here, which they concede is "fairly rare in writing center studies" (p. 56). They cite Neal Lerner (1997, 2001) for the "methodological weaknesses" of such studies, but in both cases, Lerner was concerned with measuring the "effectiveness" (2001, p. 2) of writing tutorials, with perhaps a secondary concern with "reduc[ing] those complex

providing something akin to what Gérard Genette (1997) calls the "paratext" of literary interpretation: the "accompanying productions" of ancillary documentation "which surround [the literary text] and extend it, precisely in order to *present* it . . . to ensure the text's presence in the world, its 'reception' and consumption" (p. 1). Paratexts like prefaces, editor's introductions, illustrations, even dust jacket copy, illuminate interpretive activity; while not determinative, they offer complementary contexts that can enhance or complicate analysis of the primary object. It can certainly prove beneficial to a center's operations, for example, to determine from appointment data that engineering majors make most of their appointments in between their classes during daylight hours, that first-year students request faculty consultants over peer consultants, or that the majority of students who identify their first language as Chinese are primarily graduate students working on STEM dissertations. There are endless possible ways in which scheduling metadata can bear a similar relationship to the "text" of the tutorial session itself.

Perhaps more importantly, metadata analysis offers a "big data" approach for writing center studies, making possible the analysis of thousands of sessions according to a matrix of consistent and customizable variables. We do not mean to suggest that metadata analysis can replace a close focus on the workings of tutorial sessions themselves, or that it is more valuable than narrative accounts, but we do suggest that it can address the deeply entrenched inductive fallacy that is risked every time we generalize from a handful of observed sessions. With its large aggregate scale and perspective, metadata analysis appears as a strategy for engaging in what Franco Moretti (2005) calls "'distant reading' . . . where distance is however not an obstacle, but *a specific form of knowledge:* fewer elements, hence a sharper sense of their overall interconnection. Shapes, relations, structures. Forms. Models" (p. 1). Metadata analysis does not necessarily seek to answer the same kinds of questions as interpretation of individual sessions; instead, it enables the asking of different kinds of questions altogether. Scheduling metadata offers a complementary perspective to lore-based accounts by integrating RAD practices in innovative ways that may be beneficial to a wider range of institutions. We consider this methodology to be an inclusive practice in its potential to establish newer forms of common ground between individual centers and their institutions, and between centers across institutions.

We sought to demonstrate the potential of a metadata-driven approach by asking a research question pertinent to a somewhat under-analyzed issue in writing center studies, and one that, at first glance, might seem to require a methodology based on individual accounts: Do students consider gender as a criterion for choosing writing consultants with whom to schedule appointments? Do self-identified male students select consultants who self-identify as male or female with greater frequency, and vice versa?[2] The impact of gender upon tutorial interactions

human beings who come to our writing centers down to manageable integers" (1997, p. 2). We believe that the method we propose here is susceptible to neither of these critiques.

[2] We recognize the potentially problematic nature of relying on a male/female gender binary. As we explain below, our reliance on this binary was in some sense a product of institutional necessity, as we sought to align our survey instrument with those used for the university's collection of demographic data on other forms, such as admissions

has been an occasional, if recurring, subject in the field (e.g., Gillispie & Olden, 2006; Nicolas, 2002; Rafoth et al., 1999; Tipper, 1999), but studied primarily in terms of intrasession dynamics between consultant and student. However, given that writing centers are perceived as "very feminized places" (Tipper, 1999, p. 33), given that writing centers tend to employ more women than men (Birnbaum, 1995), and given that men use writing centers at a disproportionately lower rate than women (Tipper, 1999), it would appear that writing center utilization is driven, at least in part, by the perception of gender affinity: women go to the writing center in order to work with female tutors, or at least to interact in a "feminized place," whereas men avoid it for the same reasons. Same-sex gender preferences have been observed in analogous one-on-one interactions like therapy (Landes et al., 2013) and medical appointments (Plunkett et al., 2002; Waseem & Ryan, 2005), but there is, as Samantha Resnick (2018) has recently observed, "an empirical gap in writing center studies regarding gender" (p. 32). While limited data suggests that students feel more comfortable working with consultants of the same gender (Hunzer, 1994), we wanted to see the extent to which that preference was operative in the initial appointment-making process. This research question was also easily investigated by making only a slight modification to the demographic information collected in our scheduler, in order to illustrate how much can be gleaned from a relatively simple dataset when subjected to robust analysis. This article, then, seeks both to make the case for metadata analysis in writing center studies in general *and* to contribute to the ongoing discussion about gender in tutorial sessions. Our findings complicate much of the anecdotal evidence or "theoretical inquiry" (Gillam, 2002, p. xxiii) that has organized that conversation, indicating how an investigation of metadata can create productive new strands in writing center scholarship.

2.0 Literature Review

2.1 Metadata as Evidence in Writing Center Studies

The neglect of scheduling data as evidence in writing center studies stems, one would suspect, from its close relationship with usage and assessment. After all, scheduling data tells us who is using our center, with what frequency, and from what parts of the university; it's the stuff we write up in annual reports to justify our budgets, new initiatives, and continued existence. It would seem to offer little more than a quantitative measure of utilization and return on investment. Given its utility for determining allocations, this would make scheduling data fall into the category of "assessment"—with all the pejorative connotations that entails (Hawthorne, 2006; Lerner, 2012;—and narrow the scope of inquiry to questions of effectiveness or efficacy. This strikes us as a limited view of its potential, as we will argue below. But even if we consider metadata as best suited to assessment tasks, the line between assessment and research is far from bright (Hopkins, 2016)—a view confirmed by a significant plurality of practitioners in the field (Driscoll & Perdue, 2014). While Babcock and Thonus (2018) attempt to delineate between the

applications. At that time, the institutional method for asking about gender identity was confined to male/female/other/decline to state.

two, they also acknowledge that "assessment tools and techniques can easily pave the way to research" (p. 6). We believe that the approach outlined below represents such an extension of assessment into research, because it begins by asking a deliberate research question and then designing the scheduling instrument to collect data to answer that question, with implications that extend beyond the local context to which most assessment applies (Gallagher, 2011).

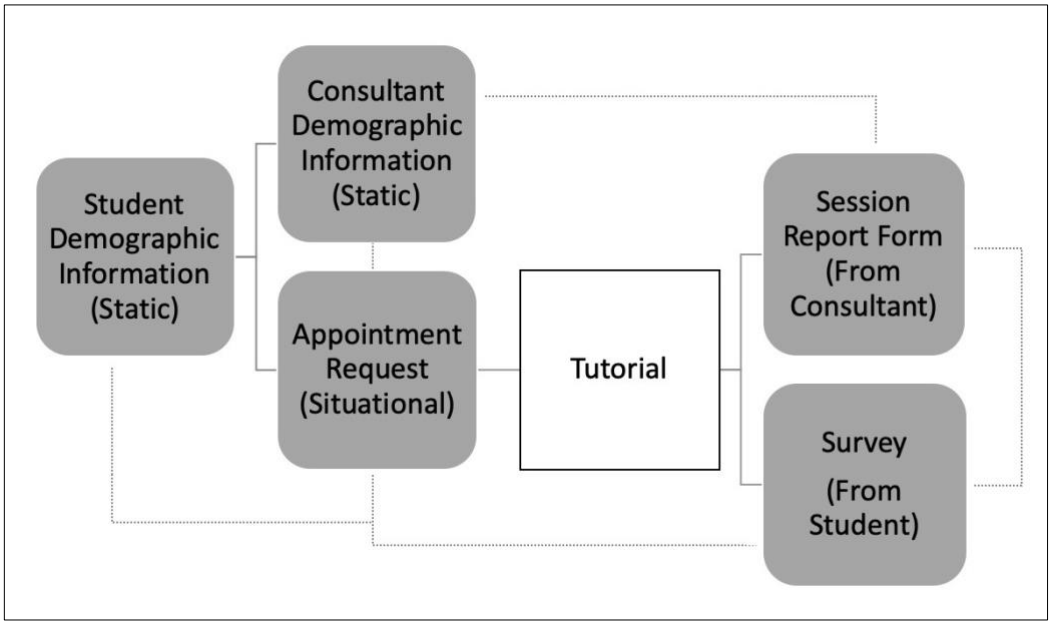

Figure 1

Metadata Sources in Writing Consultation Scheduling

As Figure 1 indicates, scheduling metadata offers a host of different sites for information gathering, with the potential for multiple interactions between them. The relatively static demographic information about users of the writing center comprises the material for usage reports, but can also tell us a great deal about populations that do and do not use the writing center (such arguments are prevalent in Salem, 2016 and Tipper, 1999). Appointment request information tells us about what kinds of assignments students come to the center for, where they are in the writing process, and what issues they wish to address in their sessions—all of which can speak to how composition curricula engage their learning objectives. After the session, both consultant and student fill out different kinds of synoptic narratives, giving a sense of whether the session worked to meet its goals. It is important to remember that all four of these collection sites are *fully customizable*;[3] the possibilities for gathering highly specialized forms of information are nearly endless. Even if the tutorial session itself remains a black box best investigated through close, individual interpretation, the paratextual information gathered before

[3] This statement is at least true when using the WC Online platform by 26LLC, one of the most commonly used schedulers in the field, and the one used in this study. While WC Online affords certain features that make data collection easier, we have no reason to doubt that data could be collected, *mutatis mutandis*, in other platforms like TutorTrac, Google Forms, or FileMaker Pro.

and after can tell us a great deal about what goes on across many sessions as a set. Moreover, comparing these different data sites offers more sophisticated insights: we can examine, for instance, what types of students make different kinds of appointments (in person, online, etc.) as an inquiry into different forms of literacy and learning, or compare students' and consultants' assessments of student papers to consider how writers represent tasks to themselves or judge them to be complete (McAlear & Pedretti, 2016), or we can compare students' and consultants' post-facto evaluations to study unspoken dynamics of power and authority that may be structuring the interaction (Carino, 2003), to name just a few possibilities. When intentionally designed, scheduling metadata can yield a great deal of knowledge about writing center pedagogy and practice.

Metadata analysis can also meet Haswell's (2005) criteria for RAD research through replicable design which yields datasets comparable across institutions. While it does seem that certain questions of pedagogy, practice, and even efficacy almost *must* be studied in local contexts, because there are simply too many variables (staffing, hours, location, length of sessions, learning outcomes, etc.) determined by the vicissitudes of particular institutional arrangements to replicate across different colleges and universities,[4] this reality should not preclude the search for common ground. Our perspective is that other, equally illuminating questions can be asked of scheduling metadata, and the instruments which collect that information can be configured similarly at different institutions, thus allowing for replication, complication, and verification of findings. Metadata analysis allows us to ask: What can we observe across 1,000, 5,000, or 10,000 tutorial sessions? Do our beliefs, assumptions, and best practices, often derived from the observation of a small number of sessions, maintain at larger scales? Andrew Piper (2016) has identified this discrepancy between the inductive study of particulars and the possibility of generalization that big data allows as "the evidence gap" (p. 3): the emphasis on local knowledge in writing center studies demonstrates the extent to which we are used to working only in particulars. But, Piper argues, "The temptation to generalize, to scale-up the nature of one's argument, is ever-present, and it should be added, entirely legitimate" (p. 4). This serves as both a warning and a promise. We are often guilty of the inductive fallacy, where we *do* take the study of particulars (i.e., individual tutoring sessions or the experiences of one writing center) as representative of larger and more pervasive phenomena, without the evidence to justify such a conclusion. Data analytics can rectify that deficit by providing confirming evidence of the scale, magnitude, and frequency of our local observations, and extend the impact of our arguments, as "generalization is one of the ways through our critiques assume greater social significance" (Piper, 2016, p. 4).

Moreover, just as Lerner (2012) contends that "qualitative and quantitative research need not be mutually exclusive (or hostile camps)" (p. 112), data analytics and local research can work together in complementary and mutually reinforcing ways. Together, they can provide a

[4] As Joyce Kinkead and Jeanette Harris (1993) remind us, "Writing centers also change from context to context—that, in fact, it is their environment, academic and otherwise, that most directly shapes them, giving them form and substance and the impetus to define themselves in certain ways" (p. xv).

description of a topic that is both phenomenologically rich (based on particular experiences) *and* demonstrably generalizable (based on quantitative data analysis). The paths of conveyance run both ways: an insight gleaned from a particular writing center encounter can be tested for its generalizability through analytical methods, or a trend observed in the data—and scheduling metadata is particularly ripe for this—can be further investigated through qualitative and localized means in order to develop a deeper understanding of the issue, beyond what the data suggest. Data analytics does not get its value from the testing of hypotheses, ultimately, but instead from the generation of new questions.

2.2 Gender in the Writing Center

The impact of gender on writing center pedagogy and practice has been a recurring subject of research, but most studies on the subject have drawn their conclusions from inductive methodologies derived from very small samples. On a theoretical level, the "feminization" of writing centers (Grimm, 1996; Woolbright, 1992) has been valued positively, as in Betty Garrison Shiffmann's (1995) compelling case for viewing writing centers as "underrated leaders" in "providing a liberatory environment for developing writers," which intersects "the highest goals of both composition and feminist pedagogy" (p. 5). And it has been valued negatively, as in Anis Bawarshi and Stephanie Pelkowski's (1999) critique of the rhetoric of "nourishing the student's ideas into the world" as "based on essentialist assumptions . . . that thought develops separately from writing" (p. 50), or Susan Miller's (2003) oft-cited description of the writing center as the "handmaiden" to literary study (p. 523). This perceived feminization of the writing center has been invoked to explain the suboptimal rate at which male students come to writing centers (Tipper, 1999) and to justify the active recruitment of male writing consultants to combat this stereotype (Birnbaum, 1995).

These structural or ideological constructs, however, do not speak to the role that gender plays *during* actual writing consultations. Here, the limited published research has focused on the observed dynamics between consultant and student, not the student's agency in selecting which consultant they would like to work with. A small number of studies have found that gender differences represented an unavoidable factor to be contended with in the tutorial. Kathleen Hunzer (1994), for instance, found that male consultants were perceived as "dominant" and "directive," while females were perceived as "supportive" and "caring" (p. 12), leading her to conclude that "gender stereotypes permeate and can subsequently affect the outcome of the tutorial situation" (pp. 12-13). Similarly, Ben Rafoth and colleagues' (1999) "Sex in the Center: Gender Differences in Tutorial Interactions" starts from the premise that gender *does* matter in tutorial interactions; they then staged a series of tutoring scenarios illustrating gender stereotypes that, they admit, are "exaggerations" (p. 4). When they presented these scenarios to a conference audience, "an overwhelming majority agreed that gender influences tutoring sessions. Some felt that its effects were inescapable. Others felt that while gender does affect tutorials, these effects can be overcome with knowledge and awareness" (Rafoth et al., 1999, p. 4). More recently, Gillespie and Olden (2006), writing as consultants themselves, take for granted the difference in

tutorial styles between men and women in order to advise that "it's both necessary and beneficial for each gender to be aware and respectful of the typical habits of the other sex" (p. 15).

All of these articles, however, provide equivocal evidence at best, and demonstrate the limitations of small-group methodologies. Hunzer's (1994) interview subjects—seven students—generally expressed preferences for working with consultants of the same gender, but did not indicate whether this preference influenced their decision to make an appointment with a particular consultant (nor whether this was even possible); none indicated that the gender of the tutor prohibited them from having a productive session. Gillespie and Olden (2006) were not conducting empirical research, but simply speaking from personal experience. It may very well be the case that gender bias is an ineffable, hard-to-pinpoint feature of all social interaction (Martin, 2004), but from a methodological perspective Rafoth et al. (1999) have gone looking for what they knew they were going to find: they assumed gender plays a role in tutorial sessions and designed mock scenarios to illustrate that point (design bias and participant priming); after watching those scenarios, an audience of unknown and self-selecting composition scholars confirmed the researchers' initial premise (a suggestion effect; see Michael et al., 2012). In fact, when looking outside of their canned scenarios, Rafoth et al. (1999) found evidence to the contrary: "The tutor audience responded to the videos in ways that showed they felt that what the participants said or did as tutors was more important than the gender-based communication characteristics being displayed" (p. 5). In a subsequent survey, a majority of both tutors and students indicated that the gender of their tutor did not matter, even as about half conceded that the session would have been different with a tutor of the opposite gender.

On the other hand, a number of other studies have concluded that differences ascribed to gender are more often than not a function of power and authority within the tutorial. In a follow-up article, Hunzer (1997) revises her earlier finding by aligning students' gender expectations with the model of a "facilitative" tutor, with both male and female consultants fulfilling that expectation in different ways—but only to students of the same gender. Therese Thonus (1996) looked explicitly at the language used by male and female consultants across 20 observed sessions, expecting to find that males would assert dominance through more directive language, interruption, and absolutist formulations, but instead concludes that "the hypothesis of male dominance was generally not supported" (p. 21), and that female tutors interrupted their students more frequently than male tutors did. This finding has recently been corroborated by Resnick (2018), who analyzed turn-taking—yielding or assuming the right to talk in a session—in the observation of eight sessions, and found no significant difference in same- vs. opposite-gender sessions. Thonus (1996) concludes that "male and female language is probably more alike than it is different because of the institutional status of the tutor. In this framework, gender differences may play only a minor role" (p. 22). Perceived language of dominance was attributed to institutional authority rather than gender, a finding she later affirms in an article that also considers language proficiency as a variable (Thonus, 1999). These conclusions follow the larger scholarly turn from analyzing gendered communication practices according to traditional dichotomies (dominance/submission) to more context-specific analyses of gendered

communication styles based on specific power relations held by those of any gender at any given time; studies of the latter reveal that one's dominance, assertiveness, and aggression in communication style is based on one's position in society or work environment more than one's gender (Kimmel, 2011).

Even if the evidence for the effect of gender difference within the tutorial is mixed at best, existing research such as Rafoth et al. (1999) and Gillespie and Olden (2006) demonstrates that it is *perceived* to be an important factor in writing center tutorials. It thus seems plausible to examine the moment of students' initial selection of writing consultants, when that perception is more likely to influence decision-making. And the scarcity of RAD methodologies in previous research justifies our turn to metadata as a way of addressing the question. If writing center studies is moving "towards an evidence-based practice" (Babcock & Thonus, 2018), then gender seems an apt site for intervention. As we contended above, a metadata-driven approach can illuminate this topic in a distinct way, complicating, rather than refuting, an already complex picture. Additionally, none of these earlier studies asked whether the gender of the consultant influenced students' decisions to make appointments in the first place. Thus, our study contributes to an existing conversation by adding an important, missing dimension to it.

3.0 Research Questions

1. Does writing center scheduling data suggest that gender is a significant criterion in students choosing which writing consultants to schedule appointments with?
2. Do students select writing consultants who self-identify as the same or different gender with greater frequency than random selection?

4.0 Research Methodology

4.1 Data Collection and Processing

This study was conducted at a large midwestern research university, with a writing center serving undergraduates, graduate students, staff, and faculty. The writing center was staffed by a mixture of graduate student and postdoctoral writing consultants who identified as male and female in nearly equal proportions. The writing center maintained five locations of varying sizes, distributed across the campus, and also offered online appointments. Near the beginning of the academic year, the following question was added to the registration form for its online scheduling system, the popular WC Online platform offered by 26 LLC:

> How do you identify your gender?
>
> - Male
> - Female
> - Other (If Other, please indicate:)
> - Decline to state

The question was formulated according to the language used on the university's application for admission at the time. All students and writing consultants were subsequently required to update their registration profiles upon logging in. Over four semesters, 7,801 appointment records were collected. This study met the standards for exemption by the university's institutional review board.

A column was added to the appointment data to include the writing consultant's self-identified gender, as indicated in their registration profiles. Records where either the student or the consultant indicated their gender as "Other" or "Decline to state" were excluded from the data, as were a group of records where gender information was not properly collected due to the timing and implementation of the question.[5] The final operative dataset was comprised of 7,116 appointment records. The data was standardized for spelling and name consistency across semesters and then anonymized. Because the number and gender distribution of writing consultants varied from year to year, the data was further subdivided into the two separate academic years studied. In order for us to consider whether undergraduates would behave differently, this population was included in the overall analysis and also treated as a separate subset.

4.2 Fair Share Formula

To provide a benchmark, a fair share analysis was conducted. Fair share analysis calculates the expected penetration of a commodity within a marketplace relative to its competitors (Farris et al., 2010; Walsh & Staley, 1993); in this case, it calculates the distribution of male and female students to appointments with male and female writing consultants based solely on the relative size of each group and assuming random choice. The fair share calculation thus produces four decimal values that represent the expected distribution of total appointments made according to students' and consultants' self-identified gender. A preference bias would be detected if the actual results of analysis differ significantly from the expected fair share distribution.

The fair share analysis also took into account the relative frequency differential with which male and female students make writing center appointments. Since male students tend to underutilize the writing center (Salem, 2016; Tipper, 1999), their average frequency of appointments as a group was added as a coefficient. An average number of appointments per student was determined for each gender by taking the total number of appointments divided by the number of students in each group; comparing the two averages produces the frequency differential between students of each gender. Because of male underutilization, the fair share

[5] Of the 685 excluded records, 410 were excluded for inaccurate or missing data collection, 20 (0.25% of the total dataset) were excluded for student responses of "Decline to state," and 34 (0.43%) were excluded for student responses of "Other." Based on the responses to the follow-up "If Other, please indicate" question, it appears that students did not understand or pay attention to the question, as all but two either left the question blank or answered with their first language (a question asked elsewhere on the registration form). Forty-one records (0.52%) were excluded because the writing consultant indicated "Other," and 180 (2.3%) were excluded because the writing consultant indicated "Decline to state."

thus needs to be adjusted for male students to take account of their reduced frequency in making appointments. The frequency differential *Freq* is given by the equation

$$Freq = \frac{A_{m/}S_m}{A_{f/}S_f}$$

in which *S* represents the number of students, subscripted *m* or *f* for male and female, and *A* represents the number of appointments made by male or female students, also subscripted *m* or *f*.

The fair share of appointments can subsequently be determined by multiplying the percentage of students of each gender by the number of appointments with consultants of each gender, and then dividing by the total number of appointments, adjusted for *Freq* in the case of the male student choices (and setting female student choices to 1). The fair share of appointments for female students, $Fair_f$, can thus be determined by the formula

$$Fair_{f\wedge(m\vee f)} = \frac{\left(\mathrm{S}_f/\mathrm{S}\right) \times \mathrm{C}_{(m\vee f)}}{\left(\mathrm{S}_f \times \left(\mathrm{C}_f + \mathrm{C}_m\right)\right) + \left(\mathrm{S}_m \times \left(\mathrm{C}_f + \mathrm{C}_m\right) \times Freq\right)}$$

where *C* is the number of appointments and the subscripted $m\vee f$ (*m* or *f*) indicates whether those appointments were with male or female consultants. The fair share for male students, $Fair_m$, is similar, but includes *Freq* in the numerator; it is given by the formula

$$Fair_{m\wedge(m\vee f)} = \frac{\left(\left(\mathrm{S}_f/\mathrm{S}\right) \times \mathrm{C}_{(m\vee f)}\right) \times Freq}{\left(\mathrm{S}_f \times \left(\mathrm{C}_f + \mathrm{C}_m\right)\right) + \left(\mathrm{S}_m \times \left(\mathrm{C}_f + \mathrm{C}_m\right) \times Freq\right)}$$

The four values derived from these equations ($Fair_{m\cap m}$, $Fair_{m\cap f}$, $Fair_{f\cap m}$, and $Fair_{f\cap f}$) will add up to 1 when taken as a sum. They are expressed in the results section as percentages.

The fair share was initially computed for each year's dataset as a whole and then separately for the undergraduate subset for each year.

4.3 Analysis

After the fair share distribution had been determined for each subgroup of data, the actual numbers of appointments were examined in order to see whether their distribution was significantly different than that expected by the fair share. Determining the percentage of appointments made by students of one gender with consultants of one or the other gender, *P*, is accomplished with the equation

$$P_{(m\vee f)\wedge(m\vee f)} = \frac{\mathrm{S}_{(m\vee f)\times}\mathrm{C}_{(m\vee f)}}{\mathrm{C}}$$

The four values yielded by the permutations of this equation will add up to 1 when taken as a sum. They are expressed in the results section as percentages.

The final stage in the analysis was to determine the index comparing the actual appointments against the fair share prediction. An index is the statistical measure of the difference of a value from a base number, in this case the fair share distribution; the fair share is assigned a value of 100, and the index of the actual value is expressed in relation to that (Dodge, 2008). If students made more appointments with consultants of one gender, then the index will indicate this with a value greater than 100; if less, then a value less than 100. The index, *I*, is given by the equation

$$I_{(m\vee f)\wedge(m\vee f)} = \frac{P_{(m\vee f)\wedge(m\vee f)}}{Fair_{(m\vee f)\wedge(m\vee f)}}$$

which is to say, we divide the actual number of appointments for each of the four quadrants by the expected fair share for the same quadrant.

4.4 Control for Time and Location

The first round of analysis considered the aggregate data for each academic year. In order to isolate gender preference as a determining variable, a second round of analysis was performed to control for other factors that might influence student choice, such as time or location. A column was added to the data in order to break appointment start time into four buckets: Morning (appointments starting at 9:00am to 10:30am), Midday (11:00am to 1:30pm), Afternoon (2:00pm to 4:30pm), and Evening (5:00pm to 9:00pm). The data was then further subdivided according to time of day and the five writing center locations, and then the fair share and analysis were calculated again for each subset. Gender preference could be said to be a significant determining factor if any effects perceived in the whole dataset remained consistent in the subsets.

5.0 Results

Table 1 presents the aggregate data for each year; a modest same-gender preference is observed, although the effect is more pronounced in Year 1 than in Year 2: in Year 1 male-male appointments had an index of 106.42 and female-female appointments an index of 102.96, while in Year 2, this was only 101.33 and 100.67, respectively. The preference holds true for both males and females, although the effect is more pronounced in male students making appointments with male writing consultants.

Table 1

Student-Consultant Gender Distributions, Aggregate

	Student | Consultant	Fair share distribution	Actual distribution	Index
Year 1	Male | Male	15.94%	16.96%	106.42
	Female | Male	32.53%	31.51%	96.85
	Male | Female	16.94%	15.92%	93.96
	Female | Female	34.59%	35.61%	102.96
Year 2	Male | Male	16.86%	17.08%	101.33
	Female | Male	32.57%	32.35%	99.31
	Male | Female	17.25%	17.02%	98.70
	Female | Female	33.32%	33.55%	100.67

Table 2 presents the undergraduate subset in aggregate for both years. The gender selection preference persists across both years, in roughly the same proportions as displayed in the population as a whole: in Year 1 male-male appointments had an index of 103.85 and female-female appointments an index of 102.60; in Year 2, this was 102.60 and 101.94, respectively.[6]

Table 2

Undergraduate Student-Consultant Gender Distributions, Aggregate

	Student | Consultant	Fair share distribution	Actual distribution	Index
Year 1	Male | Male	17.49%	18.17%	103.85
	Female | Male	31.86%	31.19%	97.89
	Male | Female	17.95%	17.28%	96.25
	Female | Female	32.69%	33.37%	102.06
Year 2	Male | Male	21.05%	21.60%	102.60
	Female | Male	32.14%	31.59%	98.29
	Male | Female	18.53%	17.98%	97.04
	Female | Female	28.29%	28.83%	101.94

In the second round of analysis, we attempted to control for time of day and location by creating data subsets for each. Table 3a presents the findings for Year 1, broken down by time of

[6] In the remainder of this section, the undergraduate data subgroup is not discussed, even though analysis was conducted on it for all procedures described in the methodology. Because Table 2 indicates that the undergraduate subpopulation did not display any distinctive characteristics from the overall dataset (and, indeed, because this was confirmed in the second-round analysis), the undergraduate data is simply included in the overall analysis.

day. Because of the complexity of the data, we have added a column to the table to show the difference between the overall gender preference effect (the Index from Table 1) and the effect for the given time of day.

Table 3a

Student-Consultant Gender Distributions, Time of Day, Year 1

	Student | Consultant	Fair share distribution	Actual distribution	Index	Diff. from agg. index
Morning	Male | Male	15.29%	16.34%	106.86	+0.44
	Female | Male	33.12%	32.07%	96.83	-0.02
	Male | Female	16.29%	15.24%	93.56	-0.40
	Female | Female	35.29%	36.34%	102.97	+0.01
Midday	Male | Male	15.34%	15.19%	99.00	-7.42
	Female | Male	31.19%	31.34%	100.49	+3.64
	Male | Female	17.63%	17.78%	100.87	+6.91
	Female | Female	35.84%	35.68%	99.57	-3.39
Afternoon	Male | Male	20.56%	21.93%	106.67	+0.25
	Female | Male	35.69%	34.32%	96.16	-0.69
	Male | Female	15.99%	14.62%	91.43	-2.53
	Female | Female	27.76%	29.13%	104.94	+1.98
Evening	Male | Male	10.01%	14.59%	145.74	+39.32
	Female | Male	28.29%	23.71%	83.81	-13.04
	Male | Female	16.13%	11.55%	71.61	-22.35
	Female | Female	45.57%	50.15%	110.05	+7.09

The same gender preference effect observed in Year 1 overall is apparent in the morning and afternoon data, in approximately the same proportion: male-male appointments had an index of 106.86 (+0.44 over aggregate) in the morning and 106.67 (+0.25) in the afternoon, while female-female appointments had an index of 102.97 (+0.01) in the morning and 104.94 (+1.98) in the afternoon. However, these trends were not observed in the midday or evening, where the indexes for same-gender appointments were below the aggregate, and indexes for opposite-gender appointments were well above. This could be explained by the availability of consultants; more writing consultants worked in the morning and afternoon, while fewer worked in the middle of the day, and significantly fewer still in the evening, when only one or two consultants were working, and often only for synchronous online appointments.

The data for Year 2 disaggregated by time of day, as presented in Table 3b, reveal slightly different trends.

Table 3b

Student-Consultant Gender Distributions, Time of Day, Year 2

	Student | Consultant	Fair share distribution	Actual distribution	Index	Diff. from agg. index
Morning	Male | Male	23.66%	22.40%	94.68	-6.65
	Female | Male	49.28%	50.54%	102.55	+3.24
	Male | Female	8.78%	10.04%	114.33	+15.63
	Female | Female	18.28%	17.03%	93.12	-7.55
Midday	Male | Male	16.81%	17.25%	102.63	+1.30
	Female | Male	29.86%	29.42%	98.52	-0.79
	Male | Female	19.21%	18.77%	97.70	-1.00
	Female | Female	34.12%	34.56%	101.30	+0.63
Afternoon	Male | Male	14.91%	16.22%	108.75	+7.42
	Female | Male	29.92%	28.62%	95.64	-3.67
	Male | Female	18.35%	17.05%	92.89	-5.81
	Female | Female	36.81%	38.12%	103.54	+2.87
Evening	Male | Male	9.13%	7.05%	77.24	-24.09
	Female | Male	23.23%	25.31%	108.94	+9.63
	Male | Female	19.08%	21.16%	110.89	+12.19
	Female | Female	48.55%	46.47%	95.72	-4.95

Here, the variations from the aggregate Year 2 data are more pronounced. Male-male appointments in the morning were below the index at 94.68 (-6.65), and female-female appointments during this time had an index of 93.12 (-7.55). Indexes for midday were very close to the aggregate (+1.30 for male-male and +0.63 for female-female). Even though afternoon indexes followed the trend of the aggregate, here the swings were significant, with male-male appointments at 108.75 (+7.42) and female-female at 103.54 (+2.87). Again, consultant availability seems to be the crucial factor; during periods when more consultants were working, the gender preference effect approaches the aggregate index; but when fewer consultants were working and students' options were more constrained, students seemed to select whomever was available, thus marking more pronounced deviations from the aggregate index. Looking at the data for both Years 1 and 2 together, only three of eight time-of-day groupings are trending within three points of the aggregate index.

When the data is disaggregated by location, similar variances from the overall trend are observed. Table 4a presents the findings for Year 1 according to the writing center's multiple locations. As in Tables 3a and 3b, the index for the specific location is compared to the aggregate index for the Year 1 data as a whole.

Table 4a

Student-Consultant Gender Distributions, Location, Year 1

	Student | Consultant	Fair share distribution	Actual distribution	Index	Diff. from agg. index
Location 1	Male | Male	11.47%	13.21%	115.18	+8.76
	Female | Male	24.05%	22.31%	92.76	-4.09
	Male | Female	20.82%	19.08%	91.64	-2.32
	Female | Female	43.66%	45.40%	103.99	+1.03
Location 2	Male | Male	17.78%	14.42%	81.09	-25.33
	Female | Male	38.00%	41.37%	108.85	+12.00
	Male | Female	14.09%	17.46%	123.86	+29.90
	Female | Female	30.12%	26.76%	88.83	-14.13
Location 3	Male | Male	27.38%	27.11%	99.02	-7.40
	Female | Male	41.60%	41.87%	100.64	+3.79
	Male | Female	12.31%	12.58%	102.17	+8.21
	Female | Female	18.71%	18.44%	98.57	-4.39
Location 4	Male | Male	31.06%	32.77%	105.50	-0.92
	Female | Male	47.25%	45.55%	96.38	-0.47
	Male | Female	8.60%	6.89%	80.13	-13.83
	Female | Female	13.08%	14.79%	113.06	+10.10
Location 5	Male | Male	9.10%	8.64%	94.91	-11.51
	Female | Male	23.06%	23.52%	102.01	+5.16
	Male | Female	19.20%	19.66%	102.41	+8.45
	Female | Female	48.65%	48.18%	99.05	-3.91
Online	Male | Male	3.13%	4.11%	131.33	+24.91
	Female | Male	12.62%	11.64%	92.23	-4.62
	Male | Female	16.73%	15.75%	94.14	+0.18
	Female | Female	67.51%	68.49%	101.45	-1.51

Gender selection preferences consistent with the aggregate data are observable in Location 1, with a male-male index of 115.18 (+8.76) and a female-female index of 103.99 (+1.03); and in Location 4, with a male-male index of 105.50 (-0.92) and a female-female index of 113.06 (+10.10). However, trends are reversed or nearly flat in the other three locations. Much like the evening data above, trends in the data for online appointments are skewed because of the limited options available for online consultation (indeed, online appointments were often offered only in

the evenings). This suggests that location seemed to be a more determinative feature of students' selection than the gender of the consultant they were selecting.

The data for Year 2 reveal similar trends when disaggregated by location, as presented in Table 4b. In Year 2, Location 5 had been eliminated from the writing center's operating sites, and so is absent from this table. The other four locations remain the same, as do online appointments. However, no male consultants offered online appointments, so data is confined to appointments with female consultants. When this happens, the normative fair share distribution will be the same as the actual distribution, because students can only select consultants of one gender. As in Year 1, the limited options in online appointments significantly reduce the analytical value of this data.

Table 4b

Student-Consultant Gender Distributions, Location, Year 2

	Student | Consultant	Fair share distribution	Actual distribution	Index	Diff. from agg. index
Location 1	Male | Male	16.76%	17.43%	103.98	+2.65
	Female | Male	30.06%	29.39%	97.78	-1.53
	Male | Female	19.04%	18.37%	96.50	-2.20
	Female | Female	34.14%	34.81%	101.95	+1.28
Location 2	Male | Male	24.83%	22.13%	89.10	-12.23
	Female | Male	64.95%	67.66%	104.17	+4.86
	Male | Female	2.82%	5.53%	195.83	+97.13
	Female | Female	7.39%	4.68%	63.36	-37.31
Location 3	Male | Male	25.81%	23.78%	92.12	-9.21
	Female | Male	54.06%	56.10%	103.76	+4.45
	Male | Female	6.50%	8.54%	131.28	+32.58
	Female | Female	13.62%	11.59%	85.07	-15.60
Location 4	Male | Male	15.18%	15.22%	100.32	-1.01
	Female | Male	29.81%	29.76%	99.84	+0.53
	Male | Female	18.56%	18.51%	99.74	+1.04
	Female | Female	36.46%	36.51%	100.13	-0.54
Online	Male | Male	0.00%	0.00%	N/A	N/A
	Female | Male	0.00%	0.00%	N/A	N/A
	Male | Female	32.31%	32.31%	100.00	+1.30
	Female | Female	67.69%	67.69%	100.00	-0.67

As in Year 1, an effect similar to the aggregate is observed in Location 1 (male-male index of 103.98 [+2.65] and female-female index of 101.95 [+1.28]), but the other three locations are reversed or flat when compared to the aggregate index. This also suggests that students made decisions about scheduling writing center appointments by considering factors like convenience and proximity to other events on campus before they considered the gender of the writing consultant with whom they were choosing to work. Of the ten locations considered across the two years studied, only two (Location 1 in both years) have indexes trending in the same direction as the aggregate.

6.0 Discussion

While a modest preference for same-gender consultants was detected in the aggregate data, it was only inconsistently observed when other variables like time and location were taken into account. As discussed above, indexes of the data disaggregated by time and location predominantly demonstrated wide swings, and often countervailing trends, from the aggregate indexes. That a same-gender preference is observable in only a minority of times of day and locations across this study suggests that these other factors are more strongly influencing student choice. Our data thus do not support our original hypothesis that a same-gender preference would be observed. Gender may have been taken into account, but only when students had the luxury to do so. This obliquely confirms the findings of Thonus (1996) and Rafoth et al. (1999) that the institutional power dynamics of the tutorial situation are more prevalent in structuring both students' and tutors' interactions. It also confirms the old chestnut, operative in this writing center at least, that "if you build it they will come": students will seek out available appointments based on the exigencies of their situation—assignment due date, level of confidence, etc.—before getting choosy about contingent factors like the gender of the consultant. Students were clearly willing to trudge across campus, often in the snow, for a writing center appointment, so discretionary aspects such as the tutor's gender do not seem to be high on their list of priorities.

Although our prediction of a same-gender preference was not observed, our results do complicate Tipper's (1999) claim that "real men don't do writing centers." It is the case that the aggregate data demonstrate a stronger same-gender preference for males than females (106.42 and 101.33 vs. 102.96 and 100.67), and it is true that female students made appointments at twice the rate as male students in our study (male n=2,384; female n=4,732), but the symmetry of the data between males and females bears closer examination. That is, males and females seem to choose time of day at roughly the same rates, as can be observed, for instance, in the data for midday of Year 1, when male-female appointments were +6.91 over index and female-male appointments were +3.64, or in morning appointments in Year 2, which were +15.63 for male-female appointments and +3.24 for female-male appointments. The same trend can be observed with location, as in Locations 3 and 5 during Year 1, for example. Given the male resistance to writing centers documented by Tipper (1999), among others, we might especially expect to see a more consistent gender preference among male students, out of a compensatory desire to feel comfortable in this "feminized" space. That we do not see that trend in the data,

and that instead we see male students making appointments apparently based on considerations of convenience, at roughly the same rate as women, suggests a higher degree of comfort with writing centers than previous studies have suggested.

While the model we have provided above is replicable elsewhere, limitations of this study arise out of the institutional particularity of this writing center. For instance, the presence of multiple writing center locations distributed across a large urban campus created additional variables that would not be prevalent in a centralized writing center on a more enclosed campus (e.g., safety). Furthermore, in the scheduling instrument for this writing center, students did have access to a brief biographical statement of each consultant that indicated their areas of expertise; students who chose to "shop" for a consultant might have used that information in their decision-making process instead of gender.

7.0 Conclusions

Our findings also confirm Lori Salem's (2016) claim that "choice" is "vexed concept" when it comes to writing center appointments (p. 150). Certainly, this study has assumed a rational choice model (Hechter & Kanazawa, 1997), in which students weigh a host of relevant and competing factors to optimize their satisfaction—which Salem (2016) claims is the normative model of "choice" implicitly used in most writing center scholarship (p. 152). But, as she goes on to explain, even "micro" decisions like visiting the writing center are "influenced in a complicated way by the environments in which we live" (p. 148). When a significant number of writing center appointments are made at the behest of an instructor for remedial purposes, how much student choice is actually involved? Under such circumstances, is visiting the writing center more like going to the dentist, to be dispatched with as quickly and painlessly as possible, at which point all of the familiar medical metaphors about the writing center (e.g., Boquet, 2002) apply? In Salem's (2016) analysis, causal factors for visiting the writing center include scholastic achievement and membership in historically underserved groups. Salem does not address the factors that go into any individual appointment decision, but she does suggest that a host of other, deep-seeded cultural and educational variables play a more significant role in getting students "in the door" in the first place. At which point, following the conclusions of Thonus (1996) and Rafoth et al. (1999), the gender of the writing consultant is a secondary or tertiary consideration at best.

Furthermore, our findings do not refute so much as complicate those of the previous studies we have mentioned. Rafoth et al.'s (1999) claim that many students and tutors alike believe that gender is subtly operative in the tutorial session should not be entirely discounted; as discussed above, it may simply be difficult to locate in particular behaviors, discourses, or other measurable phenomena. If we accept the latent but invidious functions that gender stereotypes can play in the tutorial, then our finding that they do not appear to figure into students' appointment-making practices makes the situation all the more pernicious. That is, if students do not *anticipate* gender stereotyping—their own or their writing consultant's—as a significant facet of their tutorial interaction, then they may be all the more surprised when a session

suddenly takes on valences of stereotypical gender roles. Were students to make self-conscious choices about the gender of their writing tutors as many people do with doctors (Plunkett et al., 2002; Waseem & Ryan, 2005), they would be better prepared for the gendered interactions to come. That students approach tutorial sessions unaware of the implicit gender dynamics involved might increase their vulnerability to the potentially harmful effects of such interactions. One way to mitigate this concern would be to include preferred pronoun information in various places on appointment mechanisms for students and consultants alike in order to provide cues to gender self-identification.

8.0 Directions for Further Research

Results from this study offer several avenues for further examination of the role of gender in writing center appointment scheduling. In keeping with the complementarity of small-sample quantitative research with data analytics suggested above, this metadata analysis could form the basis for focus groups or interviews to hear from students about the factors that influenced their appointment-making decisions. Indeed, because of the configurability of the scheduling instrument, it would be possible to add ranked-choice survey questions to either the appointment form or the post-session survey asking about the reasons a student selected that particular consultant at that particular time and location, and thus collect this information for every appointment. Moreover, we did not consider the impact of repeat visits and the working relationships often cultivated between consultants and students. While it is beyond the scope of this study, existing data could be further analyzed to examine whether and how frequently students made appointments with the same consultants, and the extent to which same- or opposite-gender preferences were evident in those ongoing collaborations.

Outside of our particular research questions, we hope that this study validates the metadata-driven approach we have been advocating. A vast treasure-trove of data that writing centers routinely collect has gone largely unnoticed and underutilized in the scholarship; a thoughtful and deliberate configuration of data-collecting instruments can yield new insights about perennial questions in writing center studies. Our study demonstrates how relatively simple modifications to the scheduling software we routinely use can yield productive sites for RAD research. The writing center director's frequent lament of limited time for research (e.g., Kail, 2000; Marshall, 2001) might be assuaged by the ability to collect meaningful data in the ordinary course of operations, parallel to the assessment projects for which such data are routinely leveraged. Whereas Babcock and Thonus (2018) implicitly position assessment and research as opposing forces in the writing center director's calculus (e.g., pp. 3-6), we hope to show how the two can complement one another, and how questions of usage can be repurposed for more insightful scholarly ends. As our model in Figure 1 illustrates, the potential interactions between various data collection sites are extensive; all they require is mobilization by a purposive research question.

Finally, in the spirit of the "replicable" in RAD research, we invite our colleagues at other institutions to repeat our study, using the same question and formulas provided here. We have

suggested throughout that this study is by no means a refutation of the localist tendency in writing center research; our results are certainly influenced by the positioning of this writing center across multiple campus locations—an institutional particularity that is not necessarily reproduced elsewhere. It would be illuminating to see how an institution with a centralized and highly visible writing center approached this same research question: would eliminating location as a meaningful variable significantly influence the results? (To wit, since the time of this study, the writing center at this university has largely centralized, so even a follow-up study at the same location might yield new insights.) We have provided all of the tools necessary to replicate our study, and we welcome complicating, contradictory, and confirming observations. Not only would such studies contribute to an ongoing discussion about the role of gender in the writing center, but they would make possible cross-institutional comparison—the agglomeration of data from different institutions, the *telos* of RAD research—to finally broaden the local scope of writing center studies.

Author Biographies

Mark Pedretti is an Assistant Professor of English and Writing Specialist at Providence College. He has previously published in *Composition Studies* and *Studies in the Novel.* He is currently at work on a book manuscript about multimodal composition and instrumental reason.

Megan Swihart Jewell is a Senior Instructor of English at Case Western Reserve University. She has previously published in *Praxis* and *Writing Lab Newsletter*, and she is co-editor of the forthcoming collection *Re-Defining Roles: The Professional, Faculty, and Graduate Consultant's Guide to Writing Centers*. Her current research interests include innovative women's poetics, and writing practices and wellbeing.

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