Snapshots, Surveys, and Infrastructures: An Institutional Case Study of Graduate Writing Courses

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Abstract: This chapter increases our understanding of graduate-level writing engagement by exploring survey responses across more than 48 departments at one large Midwestern research university. The survey methodology adapts questions from Golding and Mascaro's 1987 survey of graduate courses; however, it revises their methodology to include graduate students as participants and to allow multiple respondents from each graduate program at the selected institution. By allowing for this variation, the study offers a contextualized, institutional case study that highlights the ways that writing courses may be simultaneously visible and invisible to a range of stakeholders and points to the need to more fully explore rather than erase contradictions in the perspectives of stakeholders.

Keywords: Graduate Writing Survey, Writing Across the Curriculum, Writing Courses, Survey Methods, Infrastructure

Introduction: Snapshots of Graduate Writing

When researchers attempt to characterize trends or practices in writing pedagogy or programs, they often turn to surveys to create a "snapshot" that can momentarily stabilize the landscape, making it easier to analyze. In the case of graduate writing, two surveys provide notable snapshots from which we can draw characterizations of the role that graduate courses play within the landscape of graduate writing engagement.[1] Golding and Mascaro's (1987) survey of deans and faculty at over 200 universities across the U.S. remained, until recently, one of the most comprehensive surveys of graduate writing. Golding and Mascaro sought to understand "the extent and range of graduate writing courses nationwide and the rationale for offer-

1 To acknowledge the complex relationship between teaching and learning without emphasizing one over another, I employ the term "writing engagement." Although the term "engagement" is often used to discuss the relationship of universities to public initiatives (e.g., civic engagement), my use of this term does not imply an extra-university commitment. Instead, it highlights the activities, both teacher-, student-, and peer-initiated, that span or move between the narrower categories of teaching or learning.

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ing them" (p. 167). Of the 144 schools that responded to their survey, 51 schools reported 78 writing courses. Their survey of deans and faculty reported important information on writing courses in different kinds of graduate programs. But that survey grew outdated as years passed and the landscape of graduate education continued to evolve. More recently, Caplan and Cox's (2016) survey, which reports 270 responses from 22 different countries, provided a new starting point from which to identify possible trends in "systematic graduate communication support, support that moves beyond the individual initiative to the program level" (p. 23). Caplan and Cox surveyed members of the Consortium on Graduate Communication (CGC), who reported that "more than three-quarters of the universities in the survey (81.2 percent) offer some kind of writing course focused on graduate communication" (p. 28).

These surveys represent an important step in grounding the discussions of graduate writing courses in survey data on such courses. However, they also face challenges in representing graduate writing. First, these studies report data that are often offered by a single individual who is taken to be representative of an institution. Given the prevalence of program-specific requirements and resources at the graduate level, individuals may be able to represent their department or program but may have a difficult time representing the entirety of an institution. As Caplan and Cox (2016) note, participants often work in isolation, mistakenly believing they are the only ones on their campuses working on graduate writing. Second, these studies surveyed primarily administrators and faculty without engaging the graduate students for whom courses and other resources are designed. As such, they may describe a faculty perspective on existing infrastructures for graduate writing development, but they fall short in helping us better understand how the students, the users of such resources, identify and characterize them. Third, in the case of Caplan and Cox's survey, which aimed to report on resources available, the research design combined contradictory responses from participants at the same institution. They note: "Considerable confusion often existed about the services available"; therefore, "responses were combined" when it seemed two or more respondents knew of different services available on campus (p. 26). By combining responses, the results may offer an account that is accurate at an institutional level but may not accurately represent the access that all graduate students have or perceive to those reported resources.

This chapter reports on an institutional case study that responds to such limitations by providing survey data that can account for variance across an institution and can represent student experiences with writing courses in graduate programs. The case study was developed from 324 survey responses at Midwestern Research University (MRU).[2] The results highlight the kinds of infrastructure that make

2 Midwestern Research University is a pseudonym.

graduate writing courses most visible and the activities that support writers when courses are not available to them. Arguing for the importance of including student experience alongside faculty perception, this study takes contradictions in participant responses as an important site to be explored more fully rather than combined. In doing so, this chapter highlights the ways that our snapshots of graduate writing must be supported by a rich framework for understanding relevant infrastructures.

Method of Inquiry: Survey as Institutional Case Study

The IRB-approved survey designed for this study takes seriously Sullivan and Porter's (1997) notion that ethical research activities and methodologies must remain responsive to the rhetorical situatedness of the participants and, therefore, must also remain open to the possibility of messiness. The purpose of this case study was not to pin down an exact number of writing resources provided at the selected institution but rather to bring into focus participant-generated descriptions of the ways that graduate students developed their writing abilities and to allow for the possibility of contrast in various participants' experiences of their graduate program. Accordingly, the survey design was not intended to define specific writing infrastructures and ask participants to confirm their existence; rather, the design was intended to highlight the frameworks participants themselves used to describe writing activities, writing support, and writing courses. By foregrounding participants' own descriptions of writing development, the methodology is positioned as a set of "heuristic guidelines" rather than "a set of immutable principles" (Sullivan & Porter, 1997, p. 66).

This approach results in complex and sometimes contradictory data (i.e., multiple respondents from the same program might respond differently to the same question) that represent the often-overlooked variance in the perceptions of and access to writing resources at the graduate level. Additionally, this approach provided an important opportunity for writing across the curriculum specialists and writing program administrators to listen to and learn from the descriptions and vocabulary provided by students, faculty, and staff within graduate programs, aligning with Segal, Pare, Brent, and Vipond's (1998) argument that if writing researchers seek to contribute to the practices surrounding writing across the disciplines, they must first understand the discourse practices and rhetorical knowledge that may otherwise remain tacit: "Part of our ideology as rhetoricians and part of the rhetoric of our rhetoric is the assumption that language ought to be treated as opaque: something to look at. We pay attention to language qua language in order to amass information on how it works in context" (p. 76). Inviting participant-provided language is, by design, messier than providing a list of multiple-choice options, but understanding the language used in the context of different graduate programs offers an integral foundation for further work within the disciplines being examined.

Motivation and Literature Review

By 2012, when this survey was developed and distributed, numerous scholars had issued calls for the development of graduate writing courses, but very rarely did these calls rely on research about course availability and configuration. These calls for courses have persisted as writing specialists see courses as a promising and institutionally visible means of engagement for graduate writers. For example, Micciche and Carr (2011) argued "for an explicit commitment to graduate-level writing instruction in English studies that goes beyond incorporating drafts, peer reviews, and workshops into seminars and entails more than extracurricular writing workshops to supplement course work" (p. 478). Micciche and Carr argued that a "critical writing course," should fill the "glaringly empty spot" in English graduate programs (p. 480). Drawing from their experiences in a College of Education, Rose and McClafferty (2001) advocated for a course that allows students to "slow down a bit, reflect on what they're doing and why, and think about the language they are using to represent it" (p. 32). Dobrin (1993) described graduate writing courses that were developed in response to conversations with faculty who claimed that "graduate students were not producing writing that met professional standards" (p. 65). Delyser (2003) argued for the role that courses can play in dissertation writing, and several scholars suggested that courses can play a crucial role in the development of writing abilities for non-native English speakers or international students (Aranha, 2009; Fredericksen & Mangelsdorf, 2014; Frodesen, 1995; Norris & Tardy, 2006). These scholars and others (Fairbanks & Dias, 2016; Fredrick, Stravalli, May, & Brookman-Smith, this collection; Mallett, Haan, & Habib, 2016; Nolan & Rocco, 2009; Street & Stang, 2008) most often argue for the relevance of courses by describing writing courses at their own institutions, distinguishing such courses from extracurricular models,[3] and arguing that graduate writing courses should be developed because they are beneficial in ways that other models are not.

Research Questions

In response to the need for deeper, more contextualized research on the existence and role of graduate writing courses, the survey responses discussed here provide an institutional case study that aims to answer the following questions:

1. Does a respondent's position within a program affect their perception of the existence and availability of writing courses?

3 For further discussions of extra-curricular models see, for example, Gere (1987), Brooks-Gillies, Garcia, & Manthey (this collection), and Kim & Wolke (this collection) on writing groups; Gillespie (2007) and Phillips (2016) on graduate writing center consultations; and Adams et al. (this collection) on collaborative writing with faculty and graduate editorial positions with journals.

2. What are the characteristics of courses that are highly visible as a means of writing engagement in graduate programs?
3. When courses are not taken by students in a program, do respondents see a need for courses?
4. Do respondents within a program agree on whether or not students take courses?

Research Site

Midwestern Research University[4] was selected as an ideal site to study graduate writing due to its size and diversity of graduate programs. At the time the survey was conducted, MRU reported over 7,000 graduate students in 75 graduate programs that represent a variety of disciplines and was classified by the Carnegie Foundation as RU/VH (Research Universities-very high research activity) with a CompDoc/MedVet (comprehensive doctoral with medical/veterinary) graduate instructional profile. As a large institution with a variety of graduate programs at the master's and doctoral levels, MRU provided a relevant site to examine potential complexity and variance in the perceptions of graduate writing courses.

Participants

In order to recruit participants from various positions in graduate programs, the survey invitation was distributed via email to program representatives as well as sent to existing listservs. Snowball sampling was used to recruit additional participants from the programs. The initial recipients for the survey invitation were generated from the university website's list of 81 graduate programs, each with a program code and corresponding list of "Graduate Program Heads, Chairs, Directors, and Contacts." One survey invitation email was sent per program code, copying all contacts associated with that code and requesting that the survey invitation be forwarded to all faculty, staff, and students within their specific graduate program.

Program contacts who worked with multiple programs (i.e., who were listed under multiple program codes) received multiple emails, each listing a particular program in the request to forward the survey link. For example, the Graduate Contact for American Studies was also the Graduate Contact for Comparative Literature and for Linguistics, each of which have their own program code. Therefore, this person was a recipient of three different emails, each one listing one of these programs and asking them to forward the survey invitation to graduate faculty, staff, and students in that program. In addition to the initial invitations, which were sent to program contacts

4 The survey was also distributed nationally within selected disciplines; however, this chapter focuses only on the institutional data collected at MRU.

with a request to forward to members of their respective programs, a secondary invitation was sent to students through the university's graduate student government listserv.

By snowball sampling a range of stakeholders involved in graduate programs, I employed non-probability sampling techniques. This design contrasts many surveys that follow probability sampling protocols similar to Golding and Mascaro's (1987), recruiting specific administrators and faculty. While the benefits outweighed the drawbacks in this case, this choice to solicit responses from a wide range of stakeholders within graduate programs through snowball sampling complicates the typical discussion of response rates since it becomes difficult to effectively quantify the number of faculty, staff, students, postdocs, etc. involved in a graduate program. A narrower participant pool of only graduate deans, for example, makes a discussion of sample size much easier to quantify.

Accordingly, my investigation, concentrated at a single institution with its population crossing typical faculty/student/staff boundaries, was less focused on counting an exact number of courses offered and more interested in understanding when and how courses are visible for different participants in different programs. This method allowed for multiple respondents to discuss the same course and for multiple respondents to suggest opposing views about whether graduate students take writing courses. Alternate approaches that invite only a single representative from a program (often someone with authority over that program) can shed light on what we might consider to be institutional responses, giving an element of certainty to the results reported—if the Dean says there's a course, there must be a course. However, such an administrator- or faculty-focused investigation is unable to account for students' experience and perception of such courses and resources. While a student-inclusive approach cannot simply report the number of courses that are offered at MRU because stakeholders in the same department might contradict each other, it offers an important case study that exposes the ways various members of graduate programs take similar or opposing views of courses and their relevance to graduate study.

Data Collection and Analysis

To collect data for this case study, I adapted Golding and Mascaro's (1987) survey questions[5] and distributed the revised survey instrument to faculty, staff, and students across disciplines. The survey (See Appendix A for print version) was ad-

5 The graduate writing survey instrument was adapted from Golding and Mascaro's (1987) survey, a copy of which I received from Alan Golding in Fall of 2012. I adapted the survey questions through changes in wording that would accommodate a more diverse respondent population that included students and staff as well as the graduate deans and faculty who were the invited respondents to Golding and Mascaro's original survey. As noted above, this survey was developed and distributed before Caplan and Cox's 2016 survey had been published; therefore, it relied primarily on Golding and Mascaro as a point of comparison.

ministered online through Qualtrics, which allowed for skip logic that tailored the questions based on the respondents' previous answers. All participants received the initial questions requesting information about their graduate program, the common ways that students within the program develop their writing abilities, and whether students take any writing courses. For those who indicated that students in their program take writing courses, the survey asked additional questions about the course format and rationale. It also provided an option for participants to attach a syllabus or course description or to include a link to an online version of these documents. For those who indicated that students in their program did not take writing courses, the survey asked whether they thought such courses were needed.

Narrative responses were coded using grounded theory to develop an open coding schema (Miles, Huberman, & Saldana, 2013). An open coding schema allowed for the analysis to follow the participant-generated data in this study. The specific coding schemes, which varied according to question, are described in the corresponding sections that follow.

Overview of Responses: Breadth of Representation

Three hundred and twenty-four participants responded to the survey distributed at MRU.[6] Since this study aimed to explore various perspectives within graduate programs at MRU, two elements of representation were crucial to the cases examined in this exploration. First, the study must have a wide range of participants across the institution. That is, to explore the potential variance in experience, participants must come from different programs, different departments, and different colleges. The respondents came from 48 different departments across nine colleges.[7] In most cases, someone responded to the survey from a majority of the departments within each college.

The second necessity for exploring variance and perspective was that respondents must occupy different positions within graduate programs. If only faculty

6 This number excludes 54 responses. Of these excluded responses, 51 contained no input data, which may indicate that someone read the consent form and elected not to participate or opened the survey but did not enter any responses; 3 contained only data for the respondents' positions in their program but did not provide additional responses to other survey questions. All other responses were included in the data described in the following sections.

7 Although the term "program" was used by the graduate school to describe its graduate offerings (as in "more than 70 graduate programs at the [MRU] campus"), program turned out to be a less useful category than "department" since program titles provided by the respondents often differed from those that The Graduate School described. Thus, to use a category that was more consistently employed across responses, I grouped responses based on department. "No Department Listed" was used for any responses that were included in the survey results but did not have a department affiliation entered.

responded or if only students responded, there would be no way to compare their perceptions and experience. Of the 324 survey respondents, 108 indicated that they were faculty; 11 indicated that they were staff; 54 that they were master's students; 162 that they were doctoral students; and 8 that they held other positions. The other positions were described as one program head, one department head, three postdocs, two teaching assistants, and one former graduate student. The total number of responses (324) and the total number of position descriptions (343) differ due to a survey design that did not limit respondents to using only one designation to describe their position. For example, of the 108 respondents who indicated that they were faculty, six selected additional designations to describe their positions: one staff, one master's student, two doctoral students, and two other. Of the 11 respondents who indicated that they were staff, six selected additional designations: one faculty, three master's students, two doctoral students, and one other. Most importantly, in 34 of the 48 departments, the respondents came from multiple positions within the graduate program. (See Appendix B for the full distribution of positions within each set of departmental responses.) This allows for comparison of stakeholder perspectives in many programs.

Findings: Course Visibility and Corresponding Infrastructures

This section explores three relevant cases of graduate writing drawn primarily from participants' responses to the multiple choice question about whether or not students take writing courses in order to develop their writing abilities and the corresponding open-ended responses that ask participants to discuss the courses they identified or to discuss the reasons that students do not take courses. Before discussing these cases, which center on responses at the department/program level, I provide a brief analysis of the variation in overall responses as related to the participants' positions within the department/program.

Finding 1: Participants' Positions May Affect Perception of Course Infrastructures

When I began to develop this study of graduate writing courses, I talked with graduate students from a composition and rhetoric graduate program who noted that they didn't feel like they had courses that focused on writing. Even though they were taking composition/rhetorical theory courses and composition pedagogy courses, they didn't feel their writing was well-supported through meaningful instruction. However, when I talked to the faculty in this same program, they assured me that

they were teaching writing in their courses. Here, I saw variation in perspective: The faculty believed that they were teaching writing, but the students didn't believe that they were being taught to write. This experience left me wondering whether similar variance would exist in other programs: Would faculty believe that their courses were writing courses even though students could not identify them as such?

Table 1.1. Responses to the question of whether graduate students in their program take writing courses

	Yes	No	No Reply	Total	% Yes	% No	% No Reply
Faculty	34	62	12	108	31.5%	57.4%	11.1%
Staff	2	6	3	11	18.2%	54.5%	27.3%
Master's Student	7	38	9	54	13.0%	70.4%	16.7%
Doctoral Student	44	97	21	162	27.2%	59.9%	13.0%
Other (Program Head, Postdoc, Etc.)	2	4	2	8	25.0%	50.0%	25.0%

Note. This table compares responses to the question of whether or not graduate students take writing courses based on respondent's self-identified positions. Since respondents could select multiple position types, the number of position types reported here is larger than the number of overall respondents in each Yes/No/No Reply. For example, in the Yes column, the 89 position types shown represent 83 respondents who reported that their students take writing courses.

When asked if students in their graduate program take writing courses, 83 respondents said yes and 197 said no, which means that 30 percent of the total respondents stated that the graduate students in their department take writing courses. For this question about whether students take writing courses, the survey invited participants to use their own definitions of "writing course" rather than being offered a definition that might include or exclude activities they would associate with this term.[8] This participant-driven defining activity follows Jeffrey Bowker and Susan Leigh Star's (1999) pragmatic turn in their discussion of classification systems:

> We take a broad enough definition so that anything consistently called a classification system and treated as such can be included in the term . . . With a broad pragmatic definition we can look at the work that is involved in building and maintaining a family of entities that people call classification systems rather than attempt the Herculean, Sisyphian task of purifying the (un)stable systems in place. (p. 13)

8 This contrasts Golding and Mascaro's (1987) survey, which defined "graduate-level writing course" as "a course that focuses primarily on writing for an academic or professional field" (p. 170).

In the same way that Bowker and Star privilege an understanding of "the work that is involved in building and maintaining" over the need to pin those systems in place, this question design emphasizes the work that courses do conceptually and physically in engaging graduate writing over the need to pin the definition of writing course in place. In doing so, the survey focuses on the infrastructures that participants identified as courses and the ways that such configurations build and maintain writing engagement.

Doctoral students were slightly more likely than their faculty counterparts to report that students did not take graduate writing courses (see Table 1.1); however, the minor difference in percentages suggests that, contrary to my hypothesis about courses being more readily visible as writing courses to faculty than to graduate students, the identification of writing courses was not necessarily linked to faculty positioning within departments. Rather, the responses suggest that faculty and doctoral students at the institution were not significantly more or less likely to respond a certain way to the question of whether graduate students in their program take writing courses. That is, their responses seem more significantly influenced by their department/program than by their position.

As Table 1.1 indicates, however, master's students were much less likely to identify a writing course as an existing infrastructure for developing graduate writing abilities. Within this group, 16 percent responded yes to the question of courses and a corresponding 84 percent responded no. This difference in percentage may indicate that master's students, having been in a graduate program for less time than their doctoral student counterparts, are less likely to know about courses that do exist or less likely to know if students take writing courses that are offered. Or it may suggest that although we might expect master's-level programs to introduce new graduate students to writing conventions in their fields, these courses seem to be less visible, if they are offered at all at MRU.

Finding 2: Visible Writing Courses Were Disciplinarily-Specific

In 11 departments, respondents unanimously reported that their graduate students took writing courses (see Table 1.2). While most of these departments were represented by only one or two respondents, which does not provide the level of depth needed to examine the consistency of the responses, Botany and Plant Pathology and Nuclear Engineering, which had a total of five and seven responses, respectively, provide a generative site for examining the courses that were visible to a range of stakeholders. In both programs, all respondents agreed that students in these graduate programs take writing courses, indicating that the writing course(s) in these departments are highly visible to members within the graduate program.

In the case of Botany and Plant Pathology, all respondents (four faculty, one doctoral student) mentioned a writing course when initially asked the open-ended question, "How do students in your graduate program develop their writing abilities?" This question was the very first non-demographic question in the survey, and the consistency of responses that included a course suggests that the writing course is an infrastructure that is highly visible in the department and program—so visible that participants did not need to be further prompted to consider courses in order to name them. When later asked whether students take writing courses, all respondents said yes and all respondents named and described "Scientific Writing" as the course that their students take. Additionally, all respondents noted faculty support as another way that graduate students develop their writing abilities. These faculty support responses included discussion of meetings with faculty, writing with faculty, and working with a major professor. In this program, faculty support was described as working alongside the structured course model.

Table 1.2. Departments unanimously reporting that students take writing courses

Department	Total Number of Responses
Agronomy	1
Biochemistry	2
Botany and Plant Pathology	5
Computer and Information Technology	1
Food Science	2
History	1
Hospitality and Tourism Management	2
Industrial Technology	2
Nuclear Engineering	8
Pharmacy Practice	2
Youth Development and Agricultural Education	1

Note. This table provides responses for each department in which all respondents reported that students within their graduate program take writing courses.

In the case of Nuclear Engineering, eight members of the department (one faculty, two master's students, five doctoral students) responded to the survey. Of those eight, seven responded to the open-ended question, "How do students in your graduate program develop their writing abilities?" and six of these respondents mentioned a writing course that students take. They mentioned the course in the following ways:

- "Writing course"
- "We have a specific writing class for Nuclear Engineers, it is very helpful."
- "NUCL 597"
- "We have a mandatory writing class."
- "All incoming graduate students are required to take a writing course."
- "For graduate students in our department, a writing and communication class is required to take in the first semester"

For most respondents, the course was mentioned as the first comment in the response, and subsequent resources and infrastructures were listed "in addition" to the writing course, suggesting that the course was visible as the primary infrastructure for supporting graduate writers and that other infrastructures were less central to that support. The "Essential Communication Skills for Nuclear Engineers" course was later described in detail by several participants. The course entails instruction in technical and non-technical communication: from how to make an effective phone call to how to write the literature assessment that is part of the qualifying exams.

In both Botany and Plant Pathology and Nuclear Engineering, the respondents identified writing courses as an infrastructure for developing graduate writing abilities regardless of their position as faculty or student. The Botany and Plant Pathology respondents noted that the Scientific Writing course was taught by a different department, while the Nuclear Engineering respondents described a required, departmentally-taught course. This variation suggests that, at MRU, having a departmentally-offered writing course was not essential to its visibility.

In both cases, the course titles offer disciplinary connection—to "Science" for Botany and Plant Pathology and to "Nuclear Engineering" explicitly for that graduate program. They also offer a connection to writing/communication that is highly visible in the course title. These courses contrast models that, for example, embed writing in a disciplinary seminar course. Respondents from departments in which the participants did not agree that students take courses sometimes mentioned courses such as "Seminar in Global History" and "Insect Biology" as writing courses. These seminars, which may involve substantial writing engagement, may not be as visible as the courses in which writing/communication was featured more prominently in the course title.

Finding 3: When Courses Aren't Taken, Examining Existing Infrastructures Can Enhance Frameworks for Alternate Writing Support

In 18 departments, respondents unanimously reported that students did not take graduate writing courses. Mechanical Engineering had the highest number of respondents (18) who agreed that writing courses are not taken by their students. In

Mechanical Engineering, the 18 respondents identified themselves by the following positions: four faculty, seven master's students, and 10 doctoral students, with three of those respondents selecting both master's student and doctoral student.

Mechanical Engineering responses to the question of how students develop their writing abilities were coded first based on common models of writing engagement discussed in the literature including faculty/mentor, peers, and writing center. The literature suggests that curricular models may include activities such as a series of writing courses such as Radner's (1961) "Communications Sequence," a single writing course such as Rose and McClafferty's (2001) professional writing course for students across the disciplines in a Graduate School of Education and Information Technology, and even a writing process pedagogy such as Mullen's (2001) Writing Process and Feedback (WPF) model that can be integrated into existing courses. Commonly discussed extra-curricular models include the mentor model in which students are mentored by a faculty member (Mullen, 2003), the writing center model in which students receive feedback from writing consultants (Gillespie, 2007), the writing camp model in which students participate in intensive, often-daily programming (Busl, Donnelly, & Capdevielle, this collection), and the writing group model in which groups of students meet with or without faculty member supervision (Gere, 1987).

Then a second round of codes was generated from participant responses: Additional codes for practice, workshops, and reading were added. *Practice* was used to code responses that explicitly included the word "practice" or that mentioned "writing journal papers and theses" without a reference to a mentor with whom students might work. Responses that discussed "working with faculty" or writing papers under faculty guidance were coded as the *Faculty/Mentor*, and those that discussed working with fellow graduate students or peers were coded as *Peer*. *Workshops* was a term not only used in Mechanical Engineering responses but also in other programs. Most often it was used to describe events that took place in a single session rather than in a series of sessions across a semester. For example, the Graduate School at MRU offered workshops on "How to Write a Thesis" or "How to Conduct a Literature Review" and one program offered an annual weekend-long writing workshop. Occasionally, it was used in contrast to the idea of a course as in "I'm not sure if a course would be the best setting for that. A workshop might be fine." Additionally, one response that included "reading papers" as a way to develop writing abilities (and perhaps, using papers as models for writing manuscripts) was coded as "*Reading*." The prevalence of the codes was as follows:

Faculty/Mentor..... 14
Practice 3
Peers 2
Workshops 2
Reading 1
Writing Center 1

The open-ended comments make clear that the faculty/mentor model is most visible for the respondents and provides an important site for writing specialists and program administrators to conduct further research regarding the faculty and student satisfaction with this model. In this survey, the respondents were merely asked to explain how students develop their abilities but were not asked to rate the efficacy of the existing infrastructures.

Table 1.3. Mechanical Engineering responses to the question of how students develop their writing abilities

Response	Position
Individual mentoring with faculty members.	Faculty
Individually with faculty by practice.	Faculty
Thesis students work closely with their advisors. Non-thesis MS students do not take writing courses.	Faculty
Working on conference and journal papers closely with faculty advisors.	Faculty
Working with faculty if they have time and are willing to give feedback. Some get help from fellow students.	Master's
Use the [writing center].	Master's
Meet with faculty members on an individual basis; discuss with peers.	Master's
Writing workshops, meeting with faculty members, writing courses.	Master's
Meet individually with faculty.	Master's & Doctoral
Usually students improve their writing by working with their advisers on publications.	Master's & Doctoral
Baptism by fire, merciless revisions, and practice.	Master's & Doctoral
Meet individually with faculty member, read papers.	Doctoral
We write reports over projects we do in class. We also write journal papers and theses. I have not taken a writing class or workshop since I was an undergrad.	Doctoral
Meet with faculty members / advisor.	Doctoral
The students that I'm familiar with developed their writing skills prior to joining the graduate program at [MRU]. Except for those for whom English is a second language, I don't think any of them do anything to develop their writing skills any further.	Doctoral
There are workshops available. I develop my writing by working on papers, reports, and proposals with input from my advisors.	Doctoral
In my research group, we meet individually with our adviser for editing and suggestions. Practice and experience are a good way to develop writing abilities too.	Doctoral
Working directly with their own adviser.	Doctoral

Note. This table provides the full responses of Mechanical Engineering respondents who replied to the question of how graduate students develop their writing abilities. To allow for comparison across respondent positions, the respondent's position (as identified by the respondent) is provided in the second column.

Not all respondents' open-ended replies elicited codes for developing writing abilities in graduate school because, as one respondent explained, students already had abilities prior to graduate school: "The students that I'm familiar with developed their writing skills prior to joining the graduate program at [MRU]. Except for those for whom English is a second language, I don't think any of them do anything to develop their writing skills any further." The respondent notes their belief that multilingual writers may continue to develop their writing abilities but does not offer any explanation of the strategies for such writers or the resources available to them.

In their subsequent responses to the question about why students did not take courses and whether they see a need for such courses, nine responses were coded as seeing a need for graduate writing courses. These responses included explicit positive comments about the use or helpfulness of such courses. For example, one respondent explained: "I think such writing courses could be very useful in that a more integrated and intense way of developing writing skills could save graduate students more time and efforts than learning those skills by oneself."

Four Mechanical Engineering respondents saw no need for graduate writing courses. These respondents noted, for example, that the program was already full and courses had not proven useful to them in the past. An additional four respondents offered a reply to the open-ended question but could not be coded as affirming or denying the need for courses. Responses such as, "There are no graduate level writing courses. Personally, I took a technical writing course as an undergraduate that was very useful," sometimes made declarative statements about the existence of courses and about past experience but did not relate that experience to the current program under discussion.

Many of the Mechanical Engineering respondents addressed the constraint of time, whether they foresaw a need for courses or not. One respondent stated:

> So many other courses are needed to graduate, there usually isn't time for a writing course. Also, professors do not tend to suggest taking a writing course as a part of a plan of study. I think that a writing course would be good since there are usually seminars on how to write a thesis, but none that discuss writing for journal articles (that I am aware of).

They also suggested that courses were not likely to be taken or could not fit into the existing curriculum unless they were credit-bearing with credit counting toward the degree earned:

> While a formal writing course would certainly be useful, there is generally insufficient time to complete a course. Making such a course count for graduate credit would likely increase enrollment significantly.

This connection between writing courses and program requirements was highlighted by respondents from programs beyond Mechanical Engineering. Some students noted the struggle to balance their desire to develop writing abilities and their advisor's admonitions about how their time and energy ought to be spent. One student respondent explained, "In my personal case I wanted to take a technical writing c[o]urse at the beginning of my second year but my advisor oppose to it saying that it won't help me and it will be time consuming." Several respondents framed this lack of time for courses in comments about the ways that courses don't count toward a degree. This particular framework indicates that writing courses are not seen as curricular in relationship to a student's stated degree program. One student wrote, "I do not take writing courses because they do not count toward my degree"; another explained, ["Courses are] not required. It would probably benefit all graduate students to take such a course."

Finding 4: Variance in Visibility Highlights Relationships Among Infrastructures

In an additional 18 departments, participant responses conflicted with each other, indicating that some members of the department thought that graduate students in their program took writing courses while others did not. Responses from Veterinary and Clinical Sciences (VCS) provide a generative site for examining the infrastructures recognized by respondents and the potential reasons for contradictory responses at MRU. In the case of VCS, responses to the question of how students develop their writing abilities were coded first based on common models of writing engagement discussed in the literature, with a second round of codes generated from participant responses. The responses were coded in the following frequency:

Workshop 7
Faculty/Mentor 6
Coursework 2
Reading 1
Publishing 1
Writing Course 1

In addition to the codes discussed in the Mechanical Engineering case, we see an additional "*Publishing*" code, which was used to code responses that mentioned students being encouraged to publish as a way to develop their writing abilities, and a "*Coursework*" code, which is used when respondents noted that core courses contained writing instruction on specific techniques or strategies or that assignments in courses helped develop writing abilities. Additionally, in this program, the code "*Reading*" was used to refer to a "Journal Club" in which members of the program read and discussed journal articles.

Responses demonstrate that the workshop was a visible model of writing engagement. In this case, the respondents discussed an annual event in which graduate students and residents were invited to attend a weekend session on scientific writing. Additionally, the faculty/mentor model was a highly visible means of support articulated by graduate students and faculty.

Table 1.4. Departments represented by conflicting responses to the question of whether graduate students take writing courses to develop their writing abilities

Department	Yes	No	Total	% Yes	% No
Animal Sciences	3	1	4	75.00%	25.00%
Anthropology	1	5	6	16.67%	83.33%
Civil Engineering	1	14	15	6.67%	93.33%
Communication	1	14	15	6.67%	93.33%
Computer Graphics Technology	1	4	5	20.00%	80.00%
Consumer Sciences and Retailing	1	1	2	50.00%	50.00%
Curriculum & Instruction	1	13	14	7.14%	92.86%
Engineering Education	3	8	11	27.27%	72.73%
English	14	22	36	38.89%	61.11%
Entomology	2	2	4	50.00%	50.00%
Forestry and Natural Resources	1	6	7	14.29%	85.71%
Interdisciplinary Comparative Literature	2	2	4	50.00%	50.00%
Nutrition Science	4	3	7	57.14%	42.86%
Psychological Sciences	13	3	16	81.25%	18.75%
Speech Language and Hearing Sciences	3	3	6	50.00%	50.00%
Technology Leadership & Innovation	2	5	7	28.57%	71.43%
Veterinary Clinical Sciences	3	4	7	42.86%	57.14%
Visual and Performing Arts	1	1	2	50.00%	50.00%

Note. This table reports all departments in which participants gave contradictory responses to the question of whether graduate students in their program take writing courses. The replies (yes or no) are reported along with the total number of respondents. The last two columns offer percentages for yes and no replies

While only one respondent mentioned a writing course in their initial discussion of the ways that graduate students develop their writing abilities, three respondents later indicated that graduate students in their program take writing courses; these respondents listed a required grant writing course alongside the previously-discussed scientific writing workshop. This participant-generated discussion of

both credit-bearing courses and workshops as meaningful writing courses breaks typical curricular and extra-curricular boundaries, suggesting that in Veterinary and Clinical Sciences, writing might be scaffolded throughout a student's curricular and extra-curricular experience. Lee Nickoson (this collection) notes that the extra-curricular moves beyond "coursework and visible, required/expected sites of academic performance" (in Adams et al., "Crossing Divides").

Yet, as graduate education is often understood not only as a credentialing process that grants degrees but also a process that professionalizes or "disciplines" future colleagues, the required curriculum can be blurry at best. Some requirements, such as numbers of courses, may be very explicit while others, such as publication or participation expectations, can be felt as part of the hidden curriculum composed of the "messages that students read 'between the lines'" even when they are not stated (Strong, 2003). Carr, Rule, and Taylor (2013) reiterate the challenges graduate students face in navigating such hidden curriculum, noting that graduate students are often "piecing together through time a sense of how to 'do' reading, writing, collaborating, and professionalizing." Blurring these traditional curricular/extracurricular boundaries, Boquet et al. (2015) articulate a nascent programmatic approach in their concluding discussions of the ways that [extra-curricular] orientation workshops might introduce concepts to be reinforced in required [curricular] coursework.

Future Directions: Inclusive Frameworks for Understanding Engagement

While this case study uses courses as a lens, it serves to shed light on the relationships among various participants in the infrastructures for graduate writing engagement. In doing so, the responses to the survey of graduate writing demonstrate the complex curricular space in which courses operate. While calls for courses (Micciche & Carr, 2011; Rose & McClafferty, 2001; etc.) suggest, based on faculty or student experience, that courses will be a uniquely effective model of engagement for graduate writers, these calls often argue for the benefits of courses without acknowledging the constraints of time and credit that the respondents to this survey highlight. This time constraint, as described by respondents in this study, may lead to a consistent emphasis on the mentor/advisor as instructor model in departments that don't have identifiable writing courses. Such interplay between these various models suggests that the graduate education landscape is particularly ripe for innovative models that occupy spaces within and between the commonly adopted mentor/advisor model and the course model.

An important element of this data that might be further explored is the way that attitudes and perceptions also serve as part of an infrastructure for writing. In

particular, further analysis of the narrative survey responses could not only describe how and where courses emerge in particular departments and disciplines, but also which configurations of activities emerge as a course for the program participants. Such data pertaining to a particular institution could be used to connect those on the same campus who are interested in further developing writing initiatives within their programs. Further, similar data would allow for future research on how effective different types of engagement are in supporting graduate writers. This might be paired with interviews such as those conducted by Henderson and Cook (this collection) to further explore students' experiences with the available models. Additionally, this method of investigation opens discussions of writing across the curriculum to find out what students and faculty believe to be the common ways that writing abilities are developed within their program or within their institution and where these perceptions align and diverge.

While similarities are important to note and explore, the contradictions and complexities of the data reported here suggest that to develop a comprehensive understanding of writing engagement, we need not just more survey data but also richer frameworks for understanding the infrastructures of graduate writing engagement. Such frameworks can help us include students as participants in our surveys in order to, for example, understand whether the configurations deemed by faculty or administrators to be explicit writing courses are experienced as such for students. Additionally, a more comprehensive framework will recognize that survey methods that don't account for the variation of experience at the graduate level may mask the everyday realities for many graduate students who may not have particular kinds of access to the courses that faculty and administrators designate as explicitly dedicated to writing development. Thus, we need a commitment to developing analytical frameworks for understanding ever-developing instructional models at the graduate level and for contextualizing our research about them.

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Appendix A: Survey Instrument

The following is a 15-minute survey intended to gather information on the existence of graduate-level writing courses and their role in graduate programs. Please respond to the questions below as they pertain to your current graduate program.

Your university:_ _____

Your department: _____

Your graduate program: _____

Your position in the program: (Check all that apply)
_____ Faculty _____ Staff _____ Master's student _____Doctoral student
_____Other (Please specify: _____)

1. What are the common ways that graduate students in your program develop their writing abilities?
2. Do students in your graduate program take any writing courses?
   _____ Yes (If yes, survey proceeds to #2) No (If, no or no reply, survey skips to #7.)
3. Please list the titles of any writing courses that graduate students in your program take.
4. Have you taught or taken any of the above listed courses? _____ Yes _____ No
5. Based on your knowledge or experience, what role do writing courses play in your program?
6. Questions A-M (below) populated the online survey in response to each course that was named by participants in Question #2. For example, if a participant listed "Science Writing" in response to Question #2, that participant would have received course-specific instructions: "Please answer the following questions in relationship to the 'Science Writing' course." If the participant did not list any course titles in response to Question #2, questions A-M would not have populated their survey.

A. What type of students is the course designed for?
_____ master's _____ doctoral _____postdoctoral _____combination

B. Is the course required, recommended, or optional?
_____ required _____ recommended _____ optional

C. What type of writing is emphasized? (Check all that apply.)
_____ Writing for Publication
_____ Writing Theses or Dissertations
_____Writing Grants or other Proposals
_____ Other (Please describe:_____)

D. What is the primary course format?
_____ Lectures/Discussion of Writing
_____ Peer Reviews of Document Drafts
_____ Both Reviews and Lectures/Discussion Equally
_____ Other (Please describe: _____)

E. Do students receive feedback on their writing?
_____ Y _____ N

If yes, what type(s) of feedback do students receive? (Check all that apply)
_____ Instructor Comments Verbal
_____ Instructor Comments Written
_____ Peer Comments Verbal
_____ Peer Comments Written
_____ Other (Please describe: _____)

F.. Who offers the course?
_____ A university-wide writing program
_____ Your home department
_____ Another department (Please indicate, which one: _____)
_____ A Professional Development Program
_____ Other (Please describe: _____)

G. Who teaches the course?
_____ Instructor from your home department
_____ Instructor from another department
_____ Other (Please describe:_____)

H. Number of students per course _____

I. Number of hours per session _____

J. Number of sessions per week _____

K. Number of weeks per course _____

L. Number of times the course is offered per year _____

M. Number of years the course has been offered _____

Please attach or provide a link for a sample syllabus or course description.

7. If students in your program do **not** participate in writing courses, please indicate the reasons they don't and whether you foresee a need for such courses. (This question was only given to those who responded to question #2 with "no" or no reply.)
8. If you would like to provide any additional information about writing in your graduate program, please do so here:

Appendix B: Departmental Responses by Respondent Position

	Faculty	Staff	Master's	Doctoral	Other	Total
Agronomy		1	1	1	1	4
Animal Sciences	2		1	1		4
Anthropology	6			3	1	10
Aviation Technology	1			1		2
Biochemistry	2					2
Biomedical Engineering				1		1
Botany and Plant Pathology	4			1		5
Chemical Engineering	2			11	1	14
Chemistry	7	1		7		15
Civil Engineering	4	1	8	5		18
Communication	3		3	11		17
Computer and Information Technology	1					1
Computer Graphics Technology	2		3			5
Computer Science	1					1
Consumer Sciences and Retailing	3			1		4
Curriculum & Instruction	3		1	10		14
Educational Studies	1		1	6		8
Engineering Education	3		1	9		13
English	17	5	20	3		45
Entomology	3		1	1		5
Food Science				3		3
Forestry and Natural Resources	1	4	3	5	1	14

	Faculty	Staff	Master's	Doctoral	Other	Total
History	1					1
Hospitality and Tourism Management			1	1		2
Human Development and Family Studies	4			4		8
Industrial Engineering	3			1		4
Industrial Technology	1	1		1		3
Interdisciplinary American Studies				2		2
Interdisciplinary Comparative Literature	1			3		4
Interdisciplinary Life Science				1		1
Interdisciplinary Linguistics				3		3
Interdisciplinary Philosophy and Literature		1		2		3
Materials Engineering				3		3
Mechanical Engineering	4	1	8	10		23
No Department Listed				1		1
Nuclear Engineering	1		2	5		8
Nutrition Science	1		1	7		9
Pharmacy Practice	1			1		2
Philosophy			1	3		4
Physics	1					1
Psychological Sciences	5			13		18
Sociology	2					2
Speech Language and Hearing Sciences	3		2	1		6
Statistics	2		7	2		11
Sustainability, Technology, and Innovation			1			1
Technology Leadership & Innovation	5	1	2			8
Veterinary Clinical Sciences	4	1	1	2		8
Visual and Performing Arts	1		1		1	3
Youth Development and Agricultural Education	1					1
						345