How Am I Doing?
Formative Feedback for
Graduate Students Learning to Teach

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Abstract:

As in all learning, feedback plays a key role in the development and improvement of professional skills including teaching (Cohen, 1980; Piccinin, 2007; Sadler, 1998). For graduate students learning to teach, feedback plays a critical role in identifying what to improve. Our aim is to explore the complex nature and sources of feedback that are desired for graduate students learning to teach at the university level. Based on largely qualitative data from student surveys and interviews, we identify five characteristics of feedback for institutions to consider in supporting the needs and experiences of graduate student teachers. To conclude, we discuss how a self-regulatory approach (Nicol & Marfarlane-Dick, 2006) could address these five characteristics including helping to enhance a supportive culture of feedback at departmental and institutional levels.

Key Words:

Feedback, formative feedback, post-secondary learning, teaching development, graduate student teachers, teaching assistants (TA's), graduate student development, teaching assistant (TA) development.

Introduction

Feedback plays a critical role in enhancing and supporting the learning process (Black & William, 1998; Gibbs, 1999; Race, 2001; van Houten, 1980; Yorke, 2003). As Cross (1996; p.4) notes: "One of the basic principles of learning is that learners need feedback. They need to know what they are trying to accomplish, and then they need to know how close they are coming to the goal." Without feedback, it is challenging for students to assess how they are doing and frustrating when they struggle to achieve the standard they desire (Yorke, 2003); a challenge likely faced by graduate students learning to teach.

In professional and applied disciplines, novices apprentice alongside experienced professionals as part of required practicums or internships. Feedback in these settings is helpful when comparing current versus desired levels of performance and goals (Clynes & Raftery, 2008). Though it is less formalized, feedback from supervisors, mentors, or peers could similarly be useful for graduate students learning to teach. If structured in a format that promotes personalized goal setting and achievement, feedback could encourage novice teachers to become more self-sufficient in regulating their progress, and development (Nicol & Macfarlane-Dick, 2006).

In this paper, we explore the complex nature and sources of feedback that are desired for graduate students learning to teach at the university level. In this context, we use the terms "graduate student teacher," "teaching assistant (TA)," or "graduate student instructor" to encompass the variety of roles and responsibilities that masters or doctoral students might have in relation to teaching. For instance, this may include responsibilities such as coordinating labs, grading assignments, leading tutorial sessions, or in some cases, instructing a course as the sole instructor. We are particularly interested in formative feedback, which is feedback provided on an ongoing basis for the purpose of improving learning (Shute, 2008) or, in this situation, learning to teach.

Methods

This paper presents a primarily qualitative thematic analysis of one source of support (feedback) for graduate student teachers. The data is part of a larger mixed-methods research study (Hoessler, 2012) that provides a more comprehensive picture of sources of support for graduate student teachers. The data was gathered at one institution over 15 years and included exit survey data from 1996-2005, student services survey responses from 2007-2008, and interviews with graduate students in 2011-2012.

1. Exit surveys ($n = 1, 221$; 49.7% male and 48.6% female) of graduating master's (77.1%) and doctoral students (22.0%) administered between 1996-2005 across a range of programs. No quantitative questions asked about feedback, so only open-ended questions were analyzed. These questions asked, "in what ways do you think that the TA experience could be improved," and included suggestions on how departments and schools of graduate studies could be improved. For ethical considerations, exit survey responses were stored by the institution for at least 5 years prior to being released for analysis (including for reports back to departments) to protect the confidentiality of recent graduates.

2. A student services survey (*n* = 530; 54.7% female, 43.8% male, .5% other) of master's (59.1%) and doctoral (40.0%) students across 54 programs during the 2007-2008 academic year as part of an internal needs assessment of several centralized support units. Nearly all were full-time students (94.1%) and most were either under 25 years (40.4%) or 25-30 years (37.5%) old. Most had been teaching assistants (33.3%), instructors (1.4%), or both (7.9%). Open–ended questions asked students to describe how they received feedback on their work as TA's or instructors, how the department/teaching centre could better support their teaching development, and how their teaching experience contributed to their overall professional development. Analysis also included demographic checkboxes and the only quantitative question asking about feedback – a checklist of greatest challenges that included a "lack of feedback on my teaching."

3. Interviews with 13 graduate students (8 male, 5 female) from disciplines across the hard-soft, applied-pure spectrum (Biglan, 1973; Becher, 1989; Becher & Trowler, 2001) followed a semi-structured interview guide with open-ended questions that allowed for flexibility yet focused on existing and recommended supports for themselves, colleagues or graduate students in general. Participants were numbered (e.g., GS8). Graduate student teachers were asked to describe support for their teaching at the institution, with further questions asked about who was involved in providing the supports, how they sought support, available opportunities and resources, problems or challenges, desired supports that would help, and any other sources of support. The questions were framed to ask about "you" and about "your fellow graduate students."

4. Parallel interviews with 8 supportive faculty-staff (3 male, 5 female) about existing and recommended supports for graduate student teachers. The individuals were identified based on involvement in publicized graduate student teaching development programming, selected based on purposeful sampling (Patton, 2002) to represent a range of departments (*n* = 4) or centralized units (*n* = 4), recruited through individual email invitation, and given pseudonyms (e.g., James). Faculty and staff were asked parallel questions to those asked of graduate students with an additional question asking about "how you provide support."

5. Ethics clearance was received for interviews as well as for reporting aggregated statistics from both surveys for this mixed-method (Creswell, 2009) study, with confidentiality maintained for any reported quoted statements through the removal of individual or unit names. The name of this medium-size medical-doctoral university with undergraduate, graduate and professional programs in Ontario, Canada was also concealed. Our article focuses on what these surveys and interviews say about the types and sources of feedback that were beneficial, experienced, and desired for graduate student teachers.

Written comments from the surveys and interviews (with original grammar and spelling neither corrected nor highlighted) were open-coded, categorized, and then distilled into themes, alongside a single quantitative student services question about feedback. The quotes reveal a clear articulation of the need for more feedback (and in

particular, formative feedback) as well as a culture that supports and enhances feedback in teaching. To describe these existing supports in a coherent way, a contextual social ecological framework (Bronfenbrenner, 1979) was used to characterize the support systems of graduate student teachers as having layers of interconnected sources of support, specifically sector, institutional, departmental, course, peer and faculty layers (<Author, 2012; Author & separate co-author, in preparation>). In our data, no sector-level supports specific to feedback were offered.

Results – Sources

Results from student-faculty-staff surveys and interviews indicate the majority of graduate students received at least some form of feedback with sources ranging from the individual level to feedback provided by peers (fellow TAs) and supervising faculty, as part of teacher training (courses), or even more broadly as institutional or departmental sources (Figure 1).
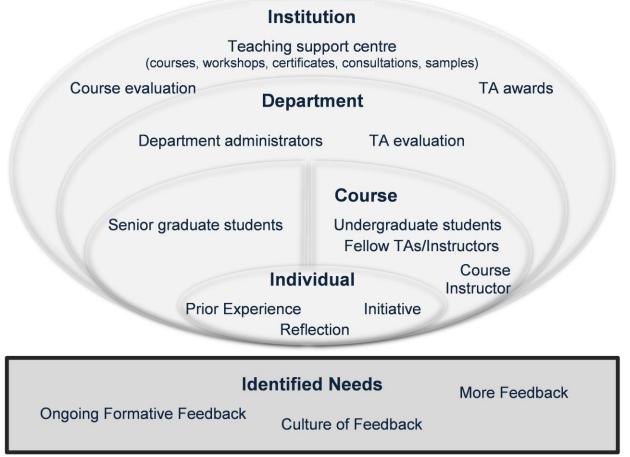

Figure 1: Existing sources of feedback and needs desired by graduate students learning to teach

These sources for feedback often complement and build upon one another, with thirty-eight (14.4%; student services survey respondents) describing as having accessed multiple sources of feedback. The most common combination was feedback

from both students and instructors (e.g., "student-filled feedback forms from verbal communications with professors of course").

Institutional Sources of Feedback

All graduate students in this study shared the same institutional supports (explored in detail below) including feedback obtained during or through teaching support centre programming, official course evaluation forms (not available for TAs), sample templates for teaching assistants, and TA awards that recognize (and indicate) teaching excellence. However, access and use of such supports varied. Respondents came from across the university and as such were located within a variety of contexts.

Teaching support centre programming and services. Programs, services, and resources that were likely to encompass feedback through the institution's teaching support centre showed low to moderate usage by graduate student teachers. A few graduate students indicated they attended workshops (12%), the two teaching courses (4.8% and 7.4%), or consultations (8.3%), the fall training day (41.6%) and certificate program (36.7%). However, the teaching and learning course was noted by GS1 as having a positive benefit as "that course because it was voluntary and because it wasn't for credit brought out a lot of students who were passionate about improving their teaching and learning."

Sources of feedback from the written comments included the institution-wide course on university teaching and learning, observations from <teaching support centre> staff (n =3) such as "in-class observation by consultant from <teaching support centre>; post-observation discussions with consultant from <teaching support centre>" (student services survey). The online sample evaluation form (GS9, GS11) provided by the teaching support centre was also used as a template ($n = 4$, student services survey) to get feedback from students, or as a basis for creating their own form. In addition, the teaching support centre had a certificate program where graduate students "get feedback in one of the certificates" (GS7). Still, this student thought the centre could do more. As GS7 noted in her interview, graduate students "would love to have...a professor or someone from the <teaching support centre> come in and...watch me do a tutorial...[however] I'd probably prepare a lot more...cause I know I'd be evaluated...at least given feedback...and...would...make me really nervous…wouldn't really be a good indication of what my teaching is...on a...normal tutorial."

University-wide course evaluations. When graduate students responsible for instructing courses were asked in the student services survey about the feedback they received, 18 of the 40 graduate student instructors had gained feedback through institution-wide student evaluation forms for each course, as did GS9 among the interviewees: these forms were the sole source of feedback for 10 of these 18.

Students expressed that institutional forms available to instructors were not always available to TA's, and institution-wide student evaluations could be standardized to include evaluations of TA's to minimize situations where graduate students had to arrange for their own feedback. Two master's students (student services survey) noted, "I initiated my own TA Evaluation form. I would really like to see a campus-wide TA Evaluation process (like <institution-wide course evaluation form>)" and "student

surveys...is also a poorly organized resource, as individual TAs must find and distribute questionnaires to the undergraduates."

TA awards. For four master's students, TA awards were a source of feedback, including as the sole source of feedback for one who "never [had feedback], except that the students nominated me for an award" (student services survey). Receiving a TA award could confirm that a graduate student was progressing well in their teaching, but relying on awards alone for feedback was limiting. One master's student who won a University of Saskatchewan TA Award said, "If I had done a bad job I feel like I wouldn't have heard anything back" (student services survey). Another concern raised was that "these awards are often not participated in by undergrads because of the amount of work needed to vote for TA's (and during exam period) ... i feel that this process of feedback needs revision" (master's student, student services survey).

Departmental Sources of Feedback

In response to the student services survey question, "how could your department better support your teaching development?" graduate students indicated a need for more feedback on teaching (*n* = 27), particularly "more constructive feedback" (master's students). Master's students wanted departments to support teaching "by insisting that every TA for every cource receives feedback of some kind from the students," and for departments to "have better means for TA evaluation within courses" (student services survey). Doctoral students wanted "more feedback...from students and peers," "feedback on my TA-ship from the supervisor (course coordinato) and the students," and for the department to "collec[t] feedback from my students about my TAing work" (student services survey; [ ] indicates a revised verb tense).

Feedback planned and facilitated by departments was also greatly valued by graduate students: "We should really get feedback...just to know: Was I effective? Did...it not work? Why were people showing up? Why weren't they?" (GS8). Such feedback was possible, but not always accessible: "Like in my old school...TAs and everyone would get their own evaluation ... [with] the questions...determined by the department and the TAs got them back after the grades were all submitted" (GS8). While one department provided TA evaluation forms, as noted by one master's student on the student services survey, at least one doctoral student did not perceive such departmental support: "Professional development as a teacher is not emphasized in our department, and initiatives taken by some graduate students, such as self-administered evaluations mid-way through a full-year course, have been prohibited" (student services survey).

For at least one graduate student teacher, departmental administrators were a source of feedback through "Individual consultation with Departmental Chair of Undergraduate Studies" (student services survey). However, it was not constructive when "the undergraduate chair said...'I thought you would have done better' but at the same time...didn't have a conversation about...ideas of how you could have done better"; as such, stating an expectation without discussion of how to improve "certainly doesn't help me develop my teaching. So you have to dig a bit" (GS9). Having "a faculty member responsible for TA development [who]...should be going into classrooms where TAs are working, carry out an analysis of what they are seeing and give TAs feedback

in a confidential, non-threatening manner" (James) was recommended. The written report, as suggested in this interview, would be confidential and for the student alone in order for the feedback to be formative; it "is not 'an evaluation', it is something to assist them at improving" (James). In contrast, one doctoral student saw the purpose of formal TA evaluations as "ensur[ing] we receive student feedback and have information to include in our teaching portfolios. This would also provide the department with information about how the TAs are performing, if they should remain in that course, receive additional training, etc" (student services survey).

Course Sources of Feedback

Feedback from students in course. The most common source of feedback was undergraduate students ($n = 151$; student services survey). This feedback was particularly valuable as students experienced multiple instances of a graduate student's teaching, "because those are the people you interact with the most ... so it would be nice to see how you are doing" (GS8), and "because...they've seen me do tutorials for X number of weeks and can give me some feedback on that" (GS7). The most common, formal written surveys ($n = 101$) including "evaluation forms" and "TA evaluations" varied in format occurring in person, on paper, or online (student services survey, and James).

Students also provided informal feedback directly to graduate students ($n = 34$, student services survey), such as "Directly from students in class" (master's student) including by "verbal feedback from students" (doctoral student) and discussions. This included several master's students who "solicited informal feedback from students on the days I was responsible for teaching" and who "always ask them to comment and give me feedback and let me know if they want me to adjust my style to meet their needs." When requesting feedback graduate students highlighted the benefits for students too:

> I told my students at the very beginning: 'Look, any suggestions or issues or concerns you have, do not hesitate to bring them to me or to email me or come to my office hours 'cause I want this to be as good an experience...as it can be for you.' (GS6)

> What I always tell my students is:...If there's something that's working well or something isn't working, let me know immediately because then I can change that in the course while you're still here. It's no sense in you saying: "I don't like the way you do this" and then the next group gets the benefit of that you guys lose out. (GS12)

> I give students the time to...just sit down and tell me what's bothering them...today, I gave them about five, ten minutes...[after] they finished their assignment last Friday and I said just tell me what's bothering you...they told me some really good feedback. (GS11)

In addition, graduate students also received informal feedback through online learning platforms and emails ($n = 5$, student services survey). However, such informal feedback may arrive "Haphazardly, from students directly" (master's student, student services survey).

Similarly, most of the feedback graduate students received (student services survey) came from "course evaluations" (*n* = 3) and "student evaluation" (*n* = 6) or informal feedback (*n* = 6) "directly from students," from "informal mid-term feedback" or during the year as "actively elicited feedback from students ... what did you like most/least." Other suggested approaches for gaining feedback from students within a course included being videotaped then watching the "game tape," as well as holding focus groups with students (John).

Four main challenges arose when relying on student feedback. The first challenge was response rate as "On line forms [were] filled out by some students" but not all students (doctoral student, student services survey). Similarly, "I asked them how I was doing…and they didn't seem to have any big complaints or...maybe they were just too scared" (GS8), even though this graduate student did not grade their work.

The second challenge was the lack of constructive responses, perhaps due to question design, including "questions about how I treated them on a personal level ... Completely useless to me since it was based on subjective feelings – on how the student was feeling on the day they filled out the form" (student services survey). Equally not useful, GS7 received "'Great job!' 'Best TA ever!'...And I know I'm not the best TA ever, so...more constructive criticism...they're good ego boost but not critical," while a master's student felt "most students don't actually care, and if they do, comments are along the 'we want better marks' line" (student services survey).

The third challenge occurred when the student feedback was inconsistently collected and conveyed by course instructors, such as "informal class surveys, which were not always passed along to the TA's" (master's student, student services survey), or when "The prof for...3 of the courses I TAed recieved evaluations for the cource and lab, but I didn't see them" (master's student, student services survey). One doctoral student was left "to compile the [student feedback form] results myself, and it is not discussed with the teacher" (student services survey), while a master's student noted "Students gave feedback through surveys arranged by the lab coordinator. Not standardized in any way. It would have been good if it was regular practice to go over feedback with the graduate coordinators" (student services survey). When seeking feedback from students, permission was sometimes needed from instructors and from fellow teaching assistants. For example, when a course had a "standardized...approach" to the tutorials, "to administer a [midterm] TA evaluation...I had to talk to the prof and then she said: 'If we're doing it, then everybody has to do it, so the other TAs have to be on board with that'" (GS11).

Once graduate student had received feedback, there remained the fourth challenge of interpreting that feedback. One "piece of advice would definitely be: Don't take it personally" (GS12). As this doctoral student explained:

the only feedback you'll hear is from people who really love you and people who really hated you and that's maybe like 10 percent of the class. The other 90 percent...they just want their grade and they want to get out...being cognizant of that is important 'cause I think it is human nature...even if you got 90 percent positive feedback and then one person said that you were awful, you will dwell on

that person who said you were a terrible TA and forget about all the other. (GS12)

However, negative comments were still useful as "Knowing what you do well can be as well, can be as useful – if not more useful – knowing what you do badly" (GS12). To draw out meaningful feedback from the mixture of students' responses, this graduate student recommended distilling the feedback down by considering "Is it something that I can fix" and identifying possible "themes emerging from your feedback where somebody says maybe you mumble, maybe you talk too fast, maybe you don't explain stuff clearly enough or you assume that they know way more than they do" (GS12). This student felt that once a teaching assistant identified a possible theme, he or she should check if other students shared that opinion based on "all of your feedback rather than like focusing on that one negative person who said that you should never teach 'cause you're too quiet" (GS12).

The final step of using student feedback to improve one's teaching was in reviewing the feedback and implementing changes to teaching practice that could feel like "definitely trial and error" (GS12): e.g., "The first time I taught I tried...to make jokes...my feedback...was: Stop making jokes. Which was really harsh but really good." At that point, the graduate student modified his approach and taught again: e.g., "the next time I taught that course...I was very serious. And the feedback was: It was great but you could have made it...a little lighter." Finally, the appropriate mix was reached: e.g., "I've now got to a point where...I can be serious but I can also make the occasional joke and it's still relaxed but formal" (GS12).

Feedback from course instructors and coordinators in course. Of the 70 (student services survey) master's and doctoral students who reported receiving feedback "from course instructor" (master's student), "from my professor" (master's student), and "from the course coordinator" (doctoral student), half ($n = 35$) received this feedback verbally.

Course instructors and coordinators provided direct feedback based on classroom observations. Eight graduate students (student services survey) reported having "the professor come and observe my teaching for review" (doctoral student) and "the course coordinator atten[d] my tutorials, and provid[e] feedback on the way in which I present material, manage the class, etc." (doctoral student). At least one doctoral student had feedback opportunities built into a "large first year course, well designed" teaching assistantship including being "observed in tutorials by the course coordinator (faculty member) or provided feedback and we got feedback from students on two dates (half way through the semester and at end) through surveys." However, other graduate students did not receive such feedback reporting "Almost none from course leaders" (master's student, student services survey) and the "professor did not really give much feedback. Verbal acknowledgment that my marking was ok" (doctoral student, student services survey).

The quality and quantity of feedback varied across courses and professors ($n = 11$, student services survey) with having "only...one or 2 evaluations over the 5 years here as a TA" (master's student) or receiving feedback only in the "Second term from student evaluations the professor conducted. Nothing first term" for a doctoral student (student

services survey). One master's student noted "Limited feedback from disinterested profs; extensive and valuable feedback from interested ones" (student services survey). Also acknowledging that quality feedback came from people who were "very interested in teaching and very interested at improving the teaching of others," James placed this challenge within the wider academic context where giving feedback for a TA was not a faculty member's only responsibility as:

> most profs if they have a TA working for them and they have a list of priorities from 1 to 10, the job the TA is doing for them is 10. It is probably the lowest priority of everything that they are doing and as a result the majority of them spend very very little time [giving feedback] ... Despite the fact that I think that if you are responsible for a course and teaching a course, you are obviously responsible for what the TA does in the course.

Quality of the feedback also depended on the quality of the observation on which the feedback was based, according to one graduate student, who noted, "My advisor only stopped in to watch my class for ten minutes during the year. How can any advice be constructive when it is based on what they did in ten minutes of the whole year?" (student services survey). Similarly, a course instructor "only provided feedback once. He only came in once...sat in at the very end of one of the tutorials and saw me doing what I do. He was there for like 15 or 20 minutes"; during this observation, this instructor "caught a mistake I made told me and said otherwise, I was doing fine and then didn't come in anymore" (GS8). In short, they wanted "more in-class observation of teaching" (doctoral student, exit survey) with "More feedback (and not based on ten minutes of evaluation)" (doctoral student, student services survey).

The limited feedback might be due to the relationship between professors and their TAs, as a good relationship was necessary for feedback; "ensuring that the professor will actually attend [and provide] mentoring and feedback...depend[ed] on the relationship you have with the professor" (Elizabeth). Alternatively, the challenge might lie in the nature of graduate students' duties, as some responsibilities could present a challenge for receiving feedback.

In contexts such as laboratory teaching, distractions, including having faculty come in to observe TAs, need to be minimized for safety reasons (James). In this study's sole quantitative question about feedback, being a lab demonstrator (but not other roles, nor hours of training, $ps > .05$) significantly predicted concerns over lack of feedback ($\beta = .619$, *S.E.*$= .233$, $p = .008$). Those who indicated they were a lab demonstrator were more likely to check the box "lack of feedback on my teaching" when asked "what are your greatest challenges as a TA [or graduate student instructor]?" However, observational feedback for lab TAs was possible through "three lab coordinators [who]...also evaluate the TAs that work for them, assist them, help them develop presentation skills" (James).

Teaching assistants who only graded papers, assignments or exams had relatively few interactions with students, however course instructors could still answer questions (GS4) or provide more detailed formative feedback when learning to grade. For example, "when I first met with [professor], she showed me how she would mark a paper, then I would grade a paper, then we would grade one together", next "I graded

all the papers, I'd hand them to her, she would go over them and then I would get feedback" (GS5). Feedback received on research was beneficial: "Every time I want to go for a presentation,...my supervisor [says]: 'Ok, this is good. This is not good'…When I...submit a paper, they read it " (GS13). In contrast, equivalent feedback was not available on teaching material: "But for the TAing – never happens...when I finish my slide or handout whatever I have written, I expect the prof just to read it and give me feedback...It never happened" (GS13).

Feedback from fellow TAs in the course. Fellow teaching assistants were another potential source of feedback, including for two doctoral students reporting "feedback from other TAs" and "in class evaluation by profs and other grad students" (student services survey). These peers were also an indirect source for a master's student who heard "positive feedback from other TAs in the course who received positive feedback about me from my/their students" (student services survey). Such indirect feedback might be unprofessional, including "other TA's gossiping with students about myself" (doctoral student, student services survey), or non-existent when "we didn't really talk too much [just]…to maintain consistency in the marking…not really deep things just like oh yeah this student was asking a question about this, okay well here's what I'd tell them to do" (GS1). More planned feedback from fellow TAs was suggested as:

> it might be less nerve racking...if there was a system [of] TAs giving feedback to each other...more systematically – so that there's always two TAs in a tutorial...you'd go to their tutorials, they'd go to your tutorials and throughout the semester you can...help each other work through things...giving feedback on presentation style...[as] a silent observer in the room and...debriefing after each week or each tutorial. (GS7)

Fellow TAs could also provide feedback on grading when comparing marking. For GS3, "we were organized in to teams…We'd meet in small groups and discuss ideal answers and potential scores for possible… answers and so forth." Such feedback was needed as the expectations for GS3 were high "we had to have an agree… like we had to have mean scores for each question that were within a very very small margin of error, so there was a fair amount of stress involved."

Head TAs, who were peers in the graduate program or senior graduate students, could also provide feedback; however, the quality of the feedback might not be sufficient. One doctoral student reported a negative experience whereby "in the first course I received feedback from a head TA ([course]) – terrible experience – feedback with no initial guidance!" (student services survey).

Peer and Faculty Mentors Sources of Feedback

Graduate students received limited feedback on their teaching from peers who were not fellow TAs, just "peer support/review peer feedback" or "In-Class evaluation by profs and grad students" (student services survey). They wanted feedback from peers, such as a:

> system where...fellow students...in the same department who know...the material...and whether it's being explained well...could just go to a class..., sit at the back, make some notes...what's being done well, what isn't and then give

them feedback...People who want it can opt for it and get their feedback and then work with that for the rest of the semester. (GS12)

Still not all sources of peer support proved successful, as one student noted, "I made an unsuccessful attempt to get peer feedback through a Teaching Squares initiative that, unfortunately, never really got off the ground" (student services survey).

Faculty advisors ($n = 4$) and supervisors ($n = 11$ master's students and 8 doctoral students) were an additional source of feedback (student services survey). The feedback received from faculty supervisors ranged from brief comments to more in-depth discussions. Brief feedback included the "Supervisor said I was doing well but no written feedback or feedback from students" (doctoral student, student services survey) and "My supervisor visited once and wrote me a quick couple of encouraging sentences on a post-it note" (master's student, student services survey). One graduate student experienced more in-depth discussion when "My supervisor talked to me after tutorials to go over the class" (student services survey).

Research supervisors also provided opportunities for graduate students to guest lecture, be observed, and receive feedback. For example, when GS9 taught a class for his advisor who sat in to observe, he asked "what did you think of that?" as they were walking back to the department. His advisor gave mixed feedback verbally and later forwarded positive comments that students had emailed about the guest lecture. Most of the feedback graduate students reported receiving came from verbal discussion with supervisors ($n = 10$), with some observations ($n = 2$), collaborative teaching ($n = 2$), and evaluations ($n = 2$). GS7 wished for a faculty member that would be a "teaching mentor...whose teaching style I wanted to align myself with or who I would like to model myself after...[and] had teaching experience...in a number of different classes,...different years" (GS7). However, she noted such mentorship might not be "possible for all TAs just because there's so many TAs and there's only so many professors and there's only so much time." She did benefit from drawing on a faculty member at her previous university, however, "she's not familiar with the practices of this university" (GS7).

Individual Sources of Feedback

Individual initiative. Graduate students, particularly those with limited access, often sought feedback on their own. Twenty-one of them (student services survey) explicitly reported self-initiated sources of feedback, including those who "put together my own evaluations for students to fill out" or "took the initiative to compile survey items from the <teaching support centre> to build my own evaluation, which the students submitted to the prof. I've had to 'chase' feedback; none is provided by default."

Graduate students sought a mix of formal and informal feedback "from my supervising teachers; I asked that questions specific to my TA role be included on the <institution-wide course evaluation form>; I solicited informal feedback from students on the days I was responsible for teaching" (student services survey). Masters students sought informal feedback when they "conducted informal formative feedback with students. What did you like most/least type of thing" and "asking students in person for their feedback" (student services survey). A doctoral student similarly asked for

formative "feedback from the students as the term progress. I do my own inquiries about my teaching skills" (student services survey).

Results – Needs

*Once you get in the classroom, there's nobody watching...it is hard to see
what mistakes you're making and if you're not getting feedback from students
regularly and interpreting that to change how you teach, it's hard to improve
sometimes (Barbara).*

More (Or Any) Feedback

Despite potential opportunities, the lack of feedback was the greatest concern for 22.3% of graduate students serving as TAs (exit survey). Illustratively, one doctoral student TA stated he "never had one comment or feedback in 5 years, no idea if i am a good teacher or a poor one" (exit survey). Even serving as a teaching fellow did not guarantee feedback, as one student indicated, "I have not received any feedback" and feedback on teaching (14.9%) tied with marking for graduate teaching fellows' most common concerns (student services survey). Of the 283 TAs who responded to the open-ended question on feedback, 14.5% received no feedback ($n = 41$) with comments such as "Have never received any feedback on my work as a TA" (doctoral student).

An additional 22 reported very little feedback, or just "scuttlebutt "(Lovitts, 2004, p. 123), such as "hearing positive feedback from other TAs in the course who received positive feedback about me from my/their students." Limited feedback was reported in several student services survey comments ($n = 10$) including "I have received no feedback on my work as a TA, other than a few students who thanked me at the end of the last lab" (doctoral student), and "I haven't yet, but I presume I'll speak directly with the classes prof" (master's student). A further seven graduate students reported in the student services survey having received "Very little feedback if any" or equivalent. Such limited feedback was viewed positively by a doctoral student who presumed that no feedback was good feedback: "We do not receive feedback as TAs in our department. I suppose if one was a bad TA we would most likely hear about it."

Graduate students expressed disappointment in not receiving feedback. One doctoral student (student services survey) was surprised to learn no feedback was collected at the studied institution because, at her undergraduate institution, institution-wide course evaluation forms "were filled out by students for BOTH the professor AND the T.A.'s. By the time I finished TAing, I realized they didn't have those forms here, and so I never got any feedback" as a TA. Another doctoral student similarly expressed regret as he "didn't receive any during my three semesters job, and would have wished to receive it."

A Culture of Feedback

Feedback offers another, more explicit perspective that helps graduate students to assess how they are doing: "getting this frame of reference...is perhaps helpful because now I can say: 'Well, I thought it went well' and...try to see it from [another's] perspective" (GS9). However, one potential barrier to feedback was the institutional culture on teaching:

mentorship and peer assessment are ... really crucial to people strengthening their teaching capacity. And I was just speaking with somebody [who]… was a faculty member in another institution before coming here and he was like: "This is such a strange culture...people seem to take great offense at the idea that anybody would come into your classroom and evaluate your teaching...people take great pains to keep people out and teaching is seen as this really...autonomous activity...Whereas where I was before...it was certainly very acceptable to have peers work with you to help you and offer you suggestions"...there is the sense that people are in it on their own and I don't think that there could be anything more damaging...to a person's efforts than to feel like [they're] on their own and there's nothing available to help them...if we were able to...re-frame teaching relationships and give them the permission to look to each other for support, I think the feeling of graduate teachers would improve and...teaching would probably improve as well. (Linda)

Lack of colleague observation and feedback was separately raised by another supportive individual, who noted that, in this institution's environment, "you can teach for 30 years. Doing the same thing...never having a single person [do] an evaluation" (James). To improve this environment, "it would be great if profs started to say to somebody why don't you come in and watch me teach and give me some kind of confidential, non-threatening feedback to help me improve" (James). Barbara similarly called for teaching development to be seen as "not a failure or anything, but it's got to be a learning continuum.". This formative approach was encouraged by one supportive individual who "send[s]...doctoral students...to watch a colleague teach and write a little note to them...to start to see their job as making others better and learn how to be constructive...What was working well...what can be improved?" (John). Even prior to grading, GS10 anticipated needing feedback "'cause you're always worried: Am I marking too hard? Am I not marking hard enough? How am I comparing?"

Ongoing (Formative) Feedback throughout the Term and One's Teaching

Graduate students reported "end-of-term" feedback (or equivalent wording, $n = 16$) and "course evaluations" (or equivalent wording, $n = 6$, student services survey). Fewer graduate students reported mid-term feedback ($n = 2$; student services survey) including a doctoral student where "at midterm a feedback sheet was handed out during lecture." Some students had both mid- and end-of-term feedback ($n = 2$; student services survey) such as the doctoral student who "got feedback from students on two dates (half way through the semester and at end) through surveys." Mid-term feedback provided an opportunity to improve during the semester while still teaching the same students; "I want to administer a TA evaluation at this time because I want to figure out how can I improve at this point instead of after the course is already done" (GS11). Delayed feedback left graduate students unsure of how well they were teaching and relied on student actions for feedback: after being "worried at the beginning of the term...the fact that they were willing to correspond [and]...come get help from me; I felt that I was doing something right" (GS6).

In particular, formative feedback was seen by graduate students as necessary for teaching development: "Learning to teach is progressive...there's a whole lot...at the

beginning and people won't be good at some...how do they measure what they are doing? Get feedback ... and improve through time" (Barbara). Ongoing feedback based on observations of opportunities to teach was recommended, as graduate students needed "certainly much more than a one-term course on teaching ... by the time [they] teach their first undergraduate course...they should have taught at least 10 days of classes or 10 times with...feedback every single time" (John). The feedback should be ongoing through mechanisms such as "a TA mentor [who is] a fellow TA, but...it would need to be sort of a prolonged relationship" (GS7) because initial "feedback is helpful but if you don't get more feedback on how you integrated the first round of feedback then...it doesn't really go any further to improving your teaching. It just kind of hangs there in the air" (GS7).

Summary

Overall, graduate students received some feedback from a variety of sources, including undergraduate students, peers (fellow TA's), supervising faculty, and course instructors. Graduate student instructors valued institution-wide course evaluations; an equivalent system for teaching assistant evaluations was desired. Received feedback was valued and more was desired, particularly formative feedback or feedback related to the review of teaching/grading materials. Actual sources of feedback varied widely with some graduate students able to receive feedback through self-initiative or by other means, while others received very little feedback, if any. Efforts for graduate students to seek out feedback on their own were either facilitated or hindered by factors such as having access to sample templates or when course or departmental policies were perceived to prevent informal or formal evaluation.

Based on what we learned from this study, we identified five characteristics of feedback that could help to support the complex nature and needs as desired by graduate students. It's important to restate at this point that feedback should never be broadly structured as a "one-size fits all approach" (Meyers, 2001). Graduate students who are new to teaching will benefit most from a structured approach, while more experienced TA's tend to benefit from independent self-regulated learning (Ambrose, Bridges, DiPietro, Lovett, & Norman, 2010; Meyers, 2001; Nicol & Macfarlane-Dick, 2006).

Five Characteristics of Feedback to Support Graduate Student Teachers

1. **Communicative**: This requirement includes explicit communication about supports available, such as providing online resources or sample templates (e.g. Angelo & Cross, 1993; Weimer, Parrett, & Kerns, 1988). Graduate students should also be encouraged to communicate their reflections on practice to others through teaching portfolios (Border, 2005-2006).

2. **Supportive**: A supportive culture may be strongly tied to whether or not graduate students solicit feedback (Sadler, 1998). Piccinin (2007) & Astin (1993) suggest that role models, such as professors play a significant role in this process. A supportive climate in which professors regularly assess and learn from their teaching can also help to influence how formative feedback is perceived across campus. Teaching centres could nurture this climate by highlighting positive

stories of teachers who regularly engage in soliciting formative feedback on their teaching.

3. **Scaffolded:** As Ambrose and colleagues (2010) note, novices require more explicit organization, guidance, connections, and monitoring as they develop their conceptual understandings. Extended to teaching, novice educators might need more skill development and guidance with reflection and implementation (Theall & Franklin, 2010).

4. **Ongoing**: Formative feedback delivered over a period of time may strengthen connections between teacher-student or mentor-mentee (Piccinin, 2007). Ongoing feedback provides multiple opportunities to assess progress, review feedback, and implement necessary changes to practice.

5. **Multidimensional**: Graduate student teachers need to have access to multiple formats (e.g., online surveys, observations or focus groups) and sources (such as students, peers or faculty) of feedback focused on multiple aspects (including teaching materials) including, for example, measures of student performance, peer observations, student focus groups (Angelo & Cross, 1993; Theall & Franklin, 2010; Weimer, Parrett, & Kerns, 1988). Each form of feedback (whether formal or informal) is combined with, influenced by and placed in context through the other lens.

Discussion

Emerging from this study was the desire for more and different sources of formative feedback. As seen in this study and in others (Wulff, Austin, Nyquist, & Sprague, 2004), a lack of systemic feedback is a major barrier in learning to teach. The consequences are significant as a lack of feedback can also lead to negative effects on motivation and self-esteem (Baron, 1998; Baron, 1999; Piccinin, 2007; Shute, 2008). When novice teachers are unable to compare their performance to peers and mentors in appropriate ways, their confidence or self-esteem may become overly inflated or reduced (Clynes & Raftery, 2008). On a large scale, a lack of feedback may also lead to a de-motivating learning environment (Piccinin, 2007). Lastly, an absence of feedback means that some graduate students are not being adequately prepared for their professional responsibilities as teachers.

One way to address some of these issues is by focusing on the development of self-regulatory skills (Nicol & Macfarlane-Dick, 2006). This approach uses guided practice to help graduate students learn how to reflect and monitor their teaching skills. Self-regulatory learning can begin with the development of learning goals and might be followed with several opportunities to give and receive feedback, ideally from a variety of sources. In later stages, the approach becomes increasingly learning-centred as graduate students become more nuanced in their teaching and mentoring skills.

Nicol & Macfarlane-Dick (2006) suggest seven principles of good feedback practice for self-regulated learning (p.205):

1. Helps clarify what good performance is (goals, criteria, expected standards)

2. Facilitates the development of self-assessment (reflection) in learning

3. Delivers high quality information to students about their learning

4. Encourages teacher and peer dialogue around learning

5. Encourages positive motivational beliefs and self-esteem

6. Provides opportunities to close the gap between current and desired levels of performance

7. Provides information to teachers that can be used to help shape teaching

A Self-Regulatory Approach at the University of Saskatchewan

At the University of Saskatchewan, one program is currently being used to enhance a supportive culture of feedback on teaching and to help develop the self-regulatory skills of graduate student teachers. This program has also been structured with an aim to model the five characteristics of feedback (communicative, supportive, scaffolded, ongoing, and multidimensional) presented earlier.

Each year, up to 20 Ph.D. students are funded as Teacher Scholar Doctoral Fellows, whereby they are partnered with a faculty mentor, enroll in GSR 982: Mentored Teaching (Term 1,) and teach a course to undergraduate students in their discipline under the supervision of their faculty mentor (Term 2). The program is cohort-based to encourage dialogue and support for learning amongst classmates who are undergoing the same developmental journey throughout the year.

Embedded throughout the program are clearly communicated opportunities for graduate students to receive ongoing feedback on their teaching particularly at the institutional and departmental levels (faculty mentor, peers, classmates, course instructors, undergraduate students). In Term 1, students learn about course design and develop their ideas of what good performance and teaching is. They also complete several assignments to self-monitor their teaching through reflection and dialogue on the feedback they have received. The purpose of this feedback is to provide detailed information to students about their learning, so they can compare current versus desired teaching performance or goals and use the information to help shape their future teaching. In Term 2, a greater emphasis is placed on dialogue amongst classmates (who continue to meet biweekly), feedback received from undergraduate students, and classroom visits from faculty mentors (at least once in January and then again in February). Multiple sources of ongoing feedback throughout Term 2 helps to encourage positive motivational beliefs and self-esteem related to teaching as instructors adapt to the feedback received from several different sources. Students are guided and scaffolded through the process of learning to reflect and self-regulate their learning through the development of a teaching portfolio that documents their entire learning experience in the program.

Future Research

The challenge remains that although feedback is highly valued by graduate students, ten to twenty-five percent still do not receive sufficient feedback. Based on the complex nature and sources of feedback that were desired from graduate students, and the larger results from the complete study (see Hoessler, 2013), future work on the

systems and supports for feedback on teaching is needed that includes informal alongside formal supports, examines the interconnectedness of supports within a single program or across an institution, builds a connected community so neither graduate students nor the supporters are unaware of resources or feel alone, and pursues formative feedback throughout graduate students' teaching experiences.

Biographies

Dr. Carolyn Hoessler's research encompasses contextual, interpersonal, and motivational influences shaping educational and professional development experiences in higher education. She draws on her experience as a mixed-method researcher, co-teacher of graduate courses on teaching and Program and Curriculum Development Specialist at The Gwenna Moss Centre for Teaching Effectiveness of the University of Saskatchewan.

Dr. Kim West is an educational developer and teacher working with faculty, staff, and graduate students at The Gwenna Moss Centre for Teaching Effectiveness and Professional Affiliate within the Department of Geography & Planning at the University of Saskatchewan. Her interests involve exploring new and creative approaches to teaching, educational development and qualitative research, incorporating methods such as arts-based learning practices (montage), collaborative inquiry, and poetic transcription.

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