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Assessing Learning Outcomes for Undergraduate Teaching Assistants and Peer Mentors

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Abstract: This essay discusses an integrated process of assessing learning outcomes that can be adapted to a variety of undergraduate teaching assistant and peer mentor applications. The three-element regimen includes a programmatic statement of learning objectives, student-reflection in both initial work plans and final reflections, and targeted assessment rubrics. The assessment rubrics were designed for three of the most common modalities of engagement of undergraduate teaching assistants and peer mentors serving in the undergraduate classroom: leading/facilitating a whole-class activity or discussion, facilitating a small-group activity or discussion, and working with students one-on-one. In developing these three targeted assessment tools – as the last stage in the development of the integrated assessment regimen – we began with the statement of our program's learning objectives as foundation, and conducted an analysis of former UTAs' start-of-semester "work plans" and end-of-semester "final reflections." This analysis allowed us to better match the rubrics with students' own goals / motivations for serving as UTAs and perceptions of their own experiences as UTAs. We hope that these three assessment rubrics, and the larger process of on-going self-assessment and self-reflection in which they reside, can be productively adopted or adapted by other faculty mentors working with undergraduate teaching assistants or peer mentors in similar programs, as well as stimulate further discussion about appropriate learning objectives and assessment resources for such programs.

Keywords: undergraduate teaching assistants, peer mentors, learning objectives, learning outcomes, assessment, self-assessment, rubrics

Introduction and Literature Review

The Department of Focused Inquiry at Virginia Commonwealth University is the home of a three-semester course sequence, including a year-long seminar experience for first-year students (Univ 111 and Univ 112) and a second-year researched writing course (Univ 200). Together, these three courses form the foundation of Virginia Commonwealth University's core education requirements. The first-year courses are learner-centered and interdisciplinary, and they replaced a more traditional one-semester "freshman Composition" course as the requirement for incoming first-year students. Since its inception in 2007, the first-year Focused Inquiry sequence "has proven to be instrumental in enhancing the academic success of first-year students and in improving their retention" (Rankin, 2009).

Because so much of the pedagogical focus of these courses was on student engagement, it was perhaps inevitable that someone would propose the creation of an undergraduate teaching assistant (UTA) program, by which highly successful, motivated, and outgoing first-year students would be invited to return in their second year to assist a new class of students make the transition from high school to college. Peter Henry was the one to make such a proposal, and he piloted the use of UTAs in the two-course-sequence in the 2008-2009 academic year. The inaugural year of the full program followed in 2009-2010 with fifty-three students serving as UTAs for nine faculty mentors, and the program has grown to over one hundred UTAs working with twenty-three faculty mentors in 2019-2020.

In the original curriculum proposal for the UTA Program, it was argued that because Focused Inquiry is "a required first-year course and one that is very different from high school English classes, it is believed that utilizing second-year students in the role of undergraduate teaching assistants underscores the program's dedication to a learning-centered, student-driven environment" (Rankin, 2009). With the UTA program approved, selected students were able to enroll in a one-credit course (Univ 250), for which their primary role as a UTA has been to "facilitate student engagement by modeling successful intellectual practices and offering assistance to students with coursework" (Gordon, Henry, & Dempster, 2014, p. 104). The UTA program was expanded in Fall 2011 to include the third Focused Inquiry course (Univ 200), with a separate one-credit course (Univ 251) for UTAs serving in the researched writing course. [For more on the history and background of the Focused Inquiry courses and UTA program, see Henry & Gordon (2011); Gordon, Henry, & Dempster (2014); Murray (2014); Murray (2015); and Dempster & Dempster (2019).]

The UTA program has proven to be very effective in enhancing student engagement, student learning, and student success. Specifically, student engagement is impacted in two distinct ways. First, both the level of engagement and resources of academic support for students enrolled in Univ 111, Univ 112, and Univ 200 are increased by the presence of (most typically) second-year or third-year students in the classroom. These UTAs not only model proficiency in the core competencies / learning objectives of the courses on a daily basis, but they also – and perhaps more importantly – serve as role models and mentors, helping guide students through the often turbulent first-year experience. Second, for those students enrolled in the course as teaching assistants, they benefit from the opportunity to further develop the professional skills at the heart of these courses – most notably, written and spoken communication, critical thinking, information fluency, collaboration, and ethical reasoning – but also gain a much deeper understanding and appreciation of "the stewardship of learning" (Rankin, 2009).

Overall, the primary objectives of this essay are to share and to stimulate further discussion about some best practices for the assessment of learning outcomes of undergraduate peer mentors and teaching assistants. The essay begins with a discussion of our preliminary process: an informal review of both start-of-semester UTA "work plans" (in which students serving as UTAs discuss what they hope to get out of the program) and end-of-semester UTA "final reflections" (in which students serving as UTAs reflect on what they got out of the program), both of which were evaluated through the lens of the foundational document, "List of Learning Objectives and Modes of Engagement," that helps guide our UTA program. This review of work plans and final reflections provided important insight into the UTA program's learning objectives. With discussion of that review complete, the essay turns to a discussion of our secondary process: development of three targeted assessment rubrics that can be used by both the faculty mentor and by the UTAs themselves. These three rubrics focus on three of the most common and impactful modes of engagement that UTAs have with students in the three courses: leading/facilitating a whole-class activity or discussion, facilitating a small group activity or discussion, and working one-on-one with individual students. Taken together, (i) the foundational document, which articulates the primary learning objectives of the program for the UTAs themselves, (ii) the student-authored work plans and final reflections, and (iii) the three assessment rubrics constitute a coherent three-element assessment regimen in which the stated learning objectives, student self-reflection (in start-of-semester work plans and end-of-semester final reflections), and targeted student and faculty-mentor assessment inform and reinforce one another throughout the UTA program experience.

Before discussing that preliminary review and development of assessment rubrics in greater detail, we begin by acknowledging that the strategic use of undergraduate students as either peer mentors or teaching assistants for the enhancement of student engagement and student learning in the undergraduate classroom has become much more commonplace in the last decade. And there is a

growing body of literature concerning the effectiveness of undergraduate peer mentors and teaching assistants on the learning outcomes of the students they serve. For example, researchers have examined topics ranging from the values of experiential education (see Carver, 1996; Eyler, 2009), to the benefits of peer-to-peer mentoring (see Searight, Retzloff, & Narkiewicz, 2015), to various ways in which the presence of undergraduate teaching assistants enhance a learning-centered classroom. [Again, see Henry & Gordon (2011); Gordon, Henry, & Dempster (2014); Murray (2014); Murray (2015); and Dempster & Dempster (2019). For a more general discussion of the impact of undergraduate teaching assistants on student learning, see also Crowe, Cersola, and Silva (2014).]

The benefits of such initiatives for undergraduate students have been well established. Terrion & Leonard (2007) note that "peer mentoring, in which qualified students provide guidance and support to vulnerable students to enable them to navigate through their education . . . is regarded as an effective intervention to ensure these outcomes (Freedman, 1993; Johnson, 2002; Kram, 1983; McLean, 2004; Pagan & Edwards-Wilson, 2002; Topping, 1996)" and that "given this potential, many universities and colleges have implemented some form of peer mentoring, peer helping, or tutoring program as part of their student support services (Jacobi, 1991; Johnson, 2002; Tinto, 1998)" (p. 149). Snowden & Hardy (2013) note that "peer mentorship improves assessment performance for both mentee and mentor, reduces stress and anxiety, enhances participation and engagement in the academic community, and adds value to student outcomes" (p. 76).

Similarly, Collier (2017a) notes that "by tailoring their support efforts to the specific needs of distinct groups of students, peer-mentoring programs facilitate student academic and social success, and increase the likelihood of students' connecting with the larger university communities" (p. 5). Moreover, Collier (2017b) notes that "peer mentors and mentees are more likely than participants in hierarchical mentoring relationships to share a common perspective with regards to how they understand and enact the college student role. Differences in perspective impact the process of student identity acquisition, perceived mentor credibility, and the likelihood of mentees following their mentors' advice" (p. 9). [See additional articles in the Summer 2017 special issue (Volume 28 Number 3) of *Metropolitan Universities Journal* – titled "Peer Mentoring: A Tool for Serving the Diverse Needs of 21st Century College Students" – but especially Lewis (2017) and McWilliams (2017) for a more general introduction. Also see Collier (2015) for a much more exhaustive discussion of student peer mentoring programs.]

Examining more closely the nature of the peer mentoring role, Brack, Millard & Shah (2008) discuss how "especially for personal and potentially embarrassing issues, students prefer talking to peers rather than adult professionals and may share more information about their concerns" (p. 566). They note, however, that "this assertion is based on the supposition that peer educators are perceived as true peers" (p. 566), and they undertake to test that supposition. Brack, Millard & Shah (2008) begin by citing previous work in which they demonstrated that peer educators display "stronger leadership and greater peer-education-relevant knowledge" after a semester of peer-education training, and then used self-report surveys to evaluate personal qualities to find that while peer educators (prior to training) reported higher self-esteem and stronger leadership skills, they were markedly similar to students in terms of values and temperaments (pp. 566-7). They concluded that these similarities, between peer educators and students, suggest that peer educators are indeed "peers" and therefore potentially very successful role models (p. 568). [Note also relevant literature on the effective training of peer mentors (see, for example, Terrion, Philion, & Leonard, 2007) and on "the characteristics of mentors who are effective at forging satisfying, productive relationships with mentees" (Terrion & Leonard (2007).]

It should also be noted that the benefits of undergraduate peer mentoring and teaching assistant support programs can be variable, especially as such programs can be targeted at specific student populations. For example, Hall, Serafin, & Lundgren (2020) focus on the benefits of a peer

mentoring program that "targeted at-risk first-year students who were having difficulty making the transition to college" (p. 184). Numerous studies have examined the many benefits of such programs for the mentees (see, for example, Lorenzetti, et al., 2019, and Lorenzetti, et al., 2020).

Indeed, the majority of the focus in this growing body of literature has been on the benefits for students enrolled in the primary course; far less has been written about the learning outcomes of the peer mentors or teaching assistants themselves. Searight, Retzloff, and Narkiewicz (2015) supplement existing literature on the benefits of peer mentors to the students they serve by demonstrating a range of benefits to the peer mentors themselves, including "improved interpersonal and communication skills, development of leadership abilities, and a stronger knowledge base" as well as greater "self-awareness" (p. 15; see also Weiler, Haddock, Zimmerman, Krafchick, Henry, & Rudisill, 2013). Additionally, Searight, Retzloff, and Narkiewicz (2015) found that working as a peer mentor "increased their metacognitive skills" and that they "became 'deep learners'" (p. 15).

But there remains a relative paucity of attention on the specific learning outcomes of the mentors themselves. Indeed, Lane (2020) recently claimed that "although peer mentoring has been in existence for decades and there is increasing research on this topic, there are no reviews of the literature more recent than 2009" and conducted an "integrative literature review" to provide "an overview of current existing peer mentoring literature specific to its impact on stress and adjustment in the first year of college and retention outcomes in higher education" (p. 481).

More relevant to our goal of better assessing learning outcomes, Bunting, Dye, Pinnegar, & Robinson (2012) argued not long ago that "although there is a growing body of research on the effects of peer mentoring in higher education, the individual learning of mentors themselves is largely unexplored" (p. 61). Bunting, Dye, Pinnegar, & Robinson (2012) conducted a "narrative inquiry study" in which "peer mentors working with a first-year learning communities program shared and analyzed stories about their experiences" (p. 61), with the following result:

> Three themes emerged from this inquiry. First, peer mentors' stories revealed that they learned through observation and self-reflection and that this led to changes in their own practices as students. Second, mentors learned how to facilitate learning among first-year students by building community and attending to interpersonal relationships. Third, as mentors struggled to help their proteges transition into and through their first year, they discovered how personal responsibility and individual choice influence the learning process. (p. 61)

As will be seen below, our own less formal survey of student work plans and final reflections largely mirrored (and corroborated) these three themes.

Beltman & Schaeben (2012) similarly claimed that while "extensive research has shown the benefits of mentoring, including peer mentoring, for higher education students, especially in their first year. However, few studies have focused exclusively on the outcomes for the mentors themselves" (p. 33). After conducting a survey of 858 mentors, Beltman & Schaeben (2012), categorized results into four areas of benefit: altruistic ("enjoyment and satisfaction from helping people"), cognitive ("acquiring new skills or information"), social ("interacting with new students or developing friendships"), and personal growth ("developing confidence; gaining a sense of pride or responsibility; developing empathy") (pp. 36-39). Their article offers an extended discussion of all four categories with illustrative examples of survey responses from mentors. Here too, our own less formal survey largely mirrored (and corroborated) their findings.

Terrion & Leonard (2007) supplement the aforementioned studies by carefully distinguishing the (i) task-related / career function and (ii) psychosocial / emotional support function of peer mentors (pp. 149-150). This distinction is particularly relevant since our UTA program intertwines

these two functions, with our UTAs toggling back-and-forth between (or simultaneously juggling) these two functions, as they work with students both within and outside the classroom and work with students both in groups and individually. Indeed, although our program is named after the "teaching assistant" model, our UTAs perhaps more often function primarily as "peer mentors", especially because they are themselves typically second-year students – and therefore less expert on the courses' subject matter as would be the case for third-year or fourth-year (or graduate) teaching assistants – and also because a primary and explicit goal of our first-year seminar is to help students transition from high school to college. Moreover, a significant amount of literature on undergraduate teaching assistants concerns benefits to students in STEM courses (see Philipp, Tretter & Rich, 2016, for example) and in large enrollment courses (see Ruder, 202, for example) – by contrast, see Fingerson & Culley (2001) for a good general discussion of the benefits of undergraduate teaching assistants. In several regards, therefore, literature on "peer mentors" has proven more pertinent than literature on "teaching assistants", hence the more prominent focus on the former in this literature review.

Similar to the relative emphasis in much of the literature on the benefits of such programs for students as opposed to the peer mentors or teaching assistants themselves, our focus at the beginning of the undergraduate teaching assistant program was (understandably) more on how students serving as UTAs would impact the engagement and learning of students in the Focused Inquiry courses – since that was the *raison d'etre* for the program – than on the specific learning outcomes of the UTAs themselves. But as the program took firmer root, and especially since the UTA program acquired a "service learning" designation in Spring 2015, there has been greater scrutiny paid to the learning outcomes for the UTAs themselves, as distinct from those of the course in which they serve.

In the afore-mentioned original curriculum proposal, a general statement about the educational benefits for students serving as UTAs asserted that they would "gain an understanding of the stewardship of learning as well as an ability to further develop the core competencies" and included a general description of their role as mentors (Rankin, 2009). But it fell short of articulating specific learning outcomes, such as what "further develop the core competencies" might look like. In other words, although it provided a clear foundation for the program, the initial proposal did not yet formulate precise and detailed learning objectives for the UTA program (i.e., for Univ 250 and Univ 251), as had been done for the Focused Inquiry courses (i.e., for Univ 111, Univ 112, and Univ 200) when their curricula were first created.

Over the years, the UTA program has slowly evolved and expanded into what is now an amalgamation of three distinct but overlapping elements: (i) teaching practicum, (ii) leadership seminar, and (iii) service learning experience (see Murray, 2015). Regarding the last element, although this program may not appear to qualify as service learning in the familiar sense of students serving a community need *outside the university*, the fundamental notion of service learning is not contingent on the group in need existing outside the university. The concept of service learning entails students enhancing their academic learning by serving an identifiable community and assisting (that community) in addressing an identifiable need. This definition of service learning was confirmed by (now former) UTA program co-coordinator Thad Fortney; according to Fortney (2015), at its heart "service learning is about providing service to a community identified as one in need." And sometimes this community of people in need exists within the university community itself (see also Tough, 2014, for example).

Regarding all three elements, what had been neglected was a vigorous analysis of the precise learning objectives of the program, particularly as it was merging learning objectives typically associated with each of those three elements. Murray (2015) conducted a preliminary analysis that sought to collate the observations and best practices of faculty who had been participating in the program, to wed those results with the "ABC" framework of experiential learning discussed by Carver

(1996), and to map specific learning objectives within that framework through a process of triangulation – please refer to the next section below.

Having established more clear learning objectives for students serving in the UTA program, several faculty members who participate in the UTA program as mentors sought to develop assessment tools that could assist all faculty mentors to more formally assess the performance of their UTAs, and to provide them with more targeted and beneficial feedback as measured against those learning objectives. This essay builds on the foundation of that project, which culminated in a presentation at the Conference on Higher Education Pedagogy (Murray, et al., 2019). From the beginning of the program, we had asked students serving as UTAs to complete a preliminary "work plan" in the first weeks of the semester and a "final reflection" at the end of the semester. What we had not yet done, however, was to explicitly connect the two ends of what was essentially a trajectory of dual-assessment (as those products were written by students and reviewed by faculty mentors as foundation for ongoing dialogue about individual students' goals and experiences) with intentionally designed assessment tools to be used during the semester. The goal, therefore, was not only to develop assessment tools that would be equally useful for assessment by faculty mentors and for self-assessment by the UTAs themselves, but to also integrate those assessment tools with the existing program learning objectives and existing work plans and final reflections. This essay reports on both the process and products of that endeavor.

By way of clarification – insofar as the methodology of this project was iterative – the regimen of assessing learning outcomes that is described in this essay *began* with student-authored work plans and final reflections, combined with informal assessment throughout the semester. The experiences and observations of faculty mentors in the first few years of the program *then* informed the generation of a more formalized and foundational statement of learning objectives – see below. *Subsequently,* in wanting to transform those informal assessments into more structured and intentional assessment rubrics, we analyzed a sample of work plans and final reflections in order to identify recurring themes with which to develop three assessment rubrics, with those rubrics now integrated with both the foundational document and the student self-reflections (in work plans and final reflections) – again, see Murray et al. (2019). The result is an expanded and enriched assessment regimen that begins with an individualized student work plan, proceeds through formalized self-assessment and faculty-mentor-assessment facilitated by the three rubrics, and concludes with an individualized student final reflection. And all stages of this assessment regimen work out of the same lexicon and framework regarding the student learning outcomes of undergraduate students serving as UTAs and peer mentors.

Assessment Regimen, Element One: Statement of Primary Learning Objectives

Before discussing our review of work plans and final reflections, it may be helpful to elaborate on our initial starting point. As mentioned above, we undertook this project, and those reviews, based on the preliminary work of Murray (2015), which generated a list of the primary learning objectives and modes of engagement of UTAs serving in the program. From the start of the UTA program, it was decided that start-of-semester work plans and end-of-semester final reflections would be an important part of the students' experience in the program. So, we actually had element two (student self-reflection) of our eventual assessment regimen in place before element one (a statement of learning objectives) had been formally articulated.

In brief, an informal survey of faculty mentors was taken in order to identify both the most common learning outcomes and the most common modes of engagement in the classroom that our students were experiencing, as observed by their faculty mentors. In other words, our development of targeted assessment rubrics began with an internal assessment of whether the program was in fact

meeting our stated learning objectives. Students had been submitting work plans and final reflections from the very beginning of the full program in the 2009-2010 year, and since about 2015 we had in place the formalized list of learning objectives. The two next steps, then, were to verify that the work plans and final reflections were in fact consistent with our stated learning objectives (or bring them into better alignment), and to use that analysis to inform our development of our three desired assessment rubrics. The result of that survey was the document reproduced below, which in turn provided a foundation from which our subsequent review sought to gain additional insight, and either to confirm, revise, add, or delete items from the list.

List of Learning Objectives and Modes of Engagement

Confidence Building Skills
- dealing with uncertainty / anxiety / lack of confidence
- dealing with / learning from failure
- dealing with / building on success

Written Communication Skills
- providing feedback to student work—in writing (informal assessment)
- communicating effectively with students out of class—in writing (e.g. email)
- answering "technical" questions (re: assignments, course concepts, policies, etc.)

Oral Communication Skills
- providing feedback to student work—in conversation (informal assessment)
- communicating effectively with students in class—in conversation
- answering "technical" questions (re: assignments, course concepts, policies, etc.)

Mentoring Skills (motivating, coaching)
- meeting with students outside of class
- observing and diagnosing (classroom climate, struggling students, etc.)
- motivating / encouraging (struggling) students
- building social integration (e.g. international students)
- dealing with difficult / resistant students
- being patient / maintaining a professional demeanor

Facilitation and Leadership Skills
- working one-on-one with students in class
- facilitating small group discussion
- modeling student behavior and engagement
- facilitating / herding a class activity ("hovering", task-mastering)

Pedagogy / Metacognition Skills
- engaging in different classroom formats and modalities (comparative reflection)
- intentional lesson planning
- leading a class discussion or activity (implementing a lesson plan)
- including traditional teaching, formal presentations, etc.

Collaboration Skills
- co-planning or co-facilitating with course instructor = collaboration
- co-planning or co-facilitating with another UTA = collaboration

(Murray, 2015, p. 66-67)

Assessment Regimen, Element Two: Student Work Plans and Final Reflections

With the aforementioned list providing a conceptual baseline and shared vocabulary, our process for the subsequent project began with a review of two sets of documents, a sampling of work plans, which UTAs complete at the beginning of their service as UTAs, and a sampling of final reflections, which they complete at the end of their service as UTAs. In the work plans, students discuss what they expect to experience as UTAs and what they hope to learn – i.e., the skills they hope to develop through the teaching assistant and peer mentorship experience. These work plans are written in the first week or two of the semester, after UTAs have had a brief orientation in which they were assigned to read the "List of Learning Objectives and Modes of Engagement" along with a couple other foundational readings, and after UTAs have had a few staff meetings with their respective faculty mentor. UTAs are provided with a work plan template, with guiding questions, and there is a separate work plan for new UTAs and veteran/returning UTAs. Those work plans are reviewed by the UTAs faculty mentor and provide a starting point for on-going discussions about individual UTAs' goals and modes of engagement week-by-week in the classroom. In the final reflections, students discuss the experiences that they had, and the skills they feel they have strengthened. As with the work plans, these final reflections are reviewed by each UTAs' respective faculty mentor, and for UTAs returning for a second semester – typically either from serving as a UTA in Univ 111 to Univ 112, or to a second semester of Univ 200 – they help guide the subsequent work plan and conversations at the outset of the second-semester. All in all, the questions which we sought to explore can be grouped into the following two clusters:

1. What should be the intended learning outcomes for UTAs? What do UTAs actually do in the courses in which they serve? What skills are they seeking to develop? What skills does the program seek to impart?
2. How should those learning outcomes for UTAs be assessed? What methods are currently used for assessment? To what extent should assessment of UTAs be formative, to what extent summative? Should UTAs engage in self-assessment, and if so, how?

The first cluster of questions are the more preliminary. While we thought we had answers to these questions, based on the "List of Learning Objectives and Modes of Engagement" above, we did not want to forge ahead without a more careful interrogation, based on our own experiences working with UTAs and, more importantly, the experiences of former UTAs.

In other words, we wanted to go beyond our own experiences and observations to also take into account the experiences of our UTAs. Consequently, we undertook to examine a random sampling of forty UTA work plans and final reflections (selected from the previous five years) to see how their experiences matched up with our own expectations, and to use the resulting insights to inform our creation of assessment rubrics. The primary goal of this thematic analysis was to ensure that those rubrics would be reflective of both the learning objectives and modes of engagement most often and most vividly reported by UTAs. The summary and analysis of those two reviews, as well as the quotations from work plans and final reflections, as provided below, are derived from our previous work (Murray, et al., 2019).

UTA Work Plans

Basically, the work plans that UTAs complete at the beginning of each semester – a "novice" work plan for first-time UTAs and a slightly different "veteran" work plan for returning UTAs – function as a way to initiate a dialogue between the UTAs and their faculty mentors about their specific goals

for participating in the program. While those goals are often very similar, largely because most UTAs took the course with a UTA and therefore have clear expectations for what they will be doing, differences do exist between individual UTAs, and so these work plans and the conversations that they foster help faculty mentors tailor the activities of the UTAs to their specific learning objectives. Moreover, while the work plans do not greatly influence the shared programmatic requirements of the UTA program, they do illuminate the personal motives and goals of individual students who decide to serve as UTAs, and in that capacity were informative in our effort to develop appropriate instruments for assessing UTAs. Indeed, our examination of work plans was perhaps most helpful in designing the self-assessment elements of the rubrics, in terms of reflecting those personal motives and goals.

Our examination of work plans revealed six primary areas of emphasis. While these do reflect the seven areas that we tentatively outlined in the "List of Learning Objectives and Modes of Engagement" above, two prominent differences can be noted. First, UTAs did not make many comments in their work plans about "collaboration skills." This may be because many UTAs serve alone – UTAs who took the course with two (or more) UTAs and who would be serving with another UTA in the same section might be more likely to have both observed and expected collaboration between multiple UTAs. Or it may be because UTAs do not initially see their interactions with students in the class as "collaboration" similar to the group work they had done as students in the class. Finally, it may also be that developing their collaboration skills was simply not one of the primary goals for most UTAs. Second, while we had "confidence building skills" on our foundational "List," that language tends not to appear in student work plans. UTAs do often write in terms of "leadership" and "initiative," however, so this may reflect more of a semantic difference than a conceptual one between how UTAs and faculty mentors think about the primary goals of the UTA experience.

Perhaps receiving the most attention were "written communication skills" and "public speaking skills," with students typically using the same language as in the course (and in our "List" above). Students talked about wanting to "reinforce writing skills I learned last year," and expecting that "by participating in assignments, I will improve my writing." Students often made comments in their work plans about wanting to "brush up on public speaking skills," to "learn to humble my opinion in public speaking," and to build "more confidence in speaking in front of the class."

The language of "leadership" and "initiative" were also commonly reflected as being very important personal goals in UTA work plans. UTAs talked about wanting more experience to be able to "lead a really good lesson" and to "lead a debate," and occasionally talking about specific vocational motives, such as "want to get involved with politics, and this will help my leadership." Interest in developing greater initiative was perhaps even more common, with UTAs talking about wanting to "reach out more," "speak more to students that fade in the background," and "speak equally to all students." They also made comments like wanting to "be more assertive when approaching students rather than passively waiting for them to approach me" and to generally "take more initiative and be more intentional." We were not sure to what extent such comments were influenced by observing the level of engagement of UTAs in their own classes, but we suspect that in many cases, prospective UTAs were motivated to become more outgoing and engaging, as they had observed the UTAs in their own classes.

Lastly, UTA work plans talked about "teaching skills" and "mentorship," with UTAs showing an interest in learning how to "create lesson plans" and "figure out how to keep the class' attention." Indeed, a significant proportion of UTAs are students planning to become teachers – so such comments as well as interest in serving as a UTA are unsurprising. In terms of "mentorship," UTAs are often able to verbalize their role as mentors in the classroom, particularly when that sort of role was modeled by their own UTAs. Some telling comments in work plans were UTAs expressing their desire to be "more active in helping students select topics and revise papers," to "be a helpful resource

to the students," and to "help students think through questions without giving them the answers." The final comment here is perhaps the strongest tribute to the sophistication of many first-time UTAs, who have been able to internalize the overarching pedagogy of both the Focused Inquiry courses and the UTA program.

UTA Final Reflections

As the name suggests, final reflections are written by UTAs at the end of each semester, primarily as a mechanism by which they can reflect on the experiences they have had with respect to both the program's stated learning objectives and their own personal goals. In contrast to the work plans, these final reflections are generally considerably more specific and more sophisticated in terms of the UTAs' understanding of the nature of pedagogy in general and of the particular roles that they play in the classroom in contributing to student learning and student success.

Our analysis of a sample of final reflections revealed UTAs' comments clustering in the same general categories as in their work plans. This is not surprising because (1) UTAs typically refer back to their work plans as part of these final reflections, (2) many UTAs had observed these same roles in their own UTAs when they took the course, and (3) these general categories are reaffirmed throughout their tenure of service as UTAs, particularly at weekly staff meetings with their faculty mentors. Yet a few general observations can be made. First, some mention of "collaboration skills," almost entirely absent in work plans, now appears in many reflections, most often as part of a more general reflection on the development of "mentorship skills." Also, it can be noted that the language of "initiative" is far less common. This change from expectations (at the start of the semester) to reflections (at the end of the semester) may be due primarily to the fact that the UTA program is intentionally designed and strategically structured to provide multiple opportunities for the UTAs to actively engage with students in the course, largely negating the need for UTAs to demonstrate initiative in the sense of creating opportunities. In addition, the typically high-achieving students that become UTAs often do not see their creativity and hard work in response to an existing opportunity as "initiative." Finally, UTAs' final reflections often acknowledge the importance of building students' confidence; of motivating, encouraging, and inspiring students; and of acting as a "bridge/liaison" between students and the course instructor. These crucial roles of UTAs were perhaps under-anticipated in their initial work plans because they are generally not needs for high-achieving students, so one thing that UTAs come to appreciate is the set of needs and insecurities that many of their peers have, and which they can help them to meet and overcome.

In terms of "written communication skills," UTAs' final reflections often mention their own improvement in aspects of the course itself, such as "writing papers" and "citing sources" – mostly due to their essentially taking (qua auditing) the course a second time, but also in terms of their duties as UTAs with things like "writing emails/texting with students." Because of the time limitations of having students give presentations in a course, UTAs typically get a lot more practice – time on task, if nothing else – with "public communication skills." And so, it is not surprising that their final reflections discuss "honing presentation skills;" "helping to overcome shyness" and developing "less anxiety speaking to people;" "building confidence" and "becoming more comfortable speaking in front of an audience;" and "understanding the importance of preparation." But they also mention the centrality of seemingly mundane but essential tasks, such as simply "speaking to students," "helping during workshops," and "using office hours outside of class to talk to and help students."

Although "initiative" was less prevalent in final reflections than in work plans, "leadership" was just as prominent. Moreover, because (especially "novice") work plans are far more tentative insofar as UTAs have only just begun their service as UTAs for the semester, final reflections offer a more specific and sophisticated understanding of what "leadership" means in the particular context

of serving as a peer mentor to first-year and second-year students. In practice, leadership was seen by UTAs to reside in "pulling students out of their shells," "supervising small group workshops," "inspiring students to do well," "developing awareness that students depended on me," and "learning to become a model for students."

Finally, "teaching skills" and "mentoring skills" were as prevalent in final reflections as in work plans, but like comments on "leadership," they were generally more focused and contextualized. In terms of teaching skills, UTAs were most often meta-cognitive about their experience, noticing that it helped them to "understand the professor's job more," "understand [course] material better," and "understand the process of the course better." Moreover, UTAs were often able to clearly recognize and appreciate their fundamental role, expressed, for example, as "being a bridge/liaison between students and instructor" and "becoming more integrated in student learning." They also mentioned more vocational aspects of the experience, with things like "planning lessons." Perhaps most impressive, though, was UTAs' heightened understanding of what "mentorship" means, summarizing their experience as a UTA by noting the centrality of "working collaboratively" and "encouraging students." They also noted how it helped them in "refining [their] role as student leader," the importance for effective mentorship of closely "monitoring class activities to get students back on task," and the importance for effective mentoring and teaching in general of "developing an understanding that different students learn differently."

Concluding Thoughts Regarding Work Plans and Final Reflections

In conclusion, our thematic analysis of a sampling of UTA work plans and final reflections revealed several trends that informed the generation of three assessment rubrics, one each for three typical and recurring roles that UTAs have in the undergraduate classroom: leading/facilitating a whole-class activity or discussion, facilitating a small-group activity or discussion, and working one-on-one with individual students. Primarily, our analysis confirmed the utility of our foundational "List of Learning Objectives and Modalities of Engagement" insofar as both UTA work plans and final reflections clearly reflected five areas of development: writing skills, public speaking skills, leadership skills, teaching skills, and mentorship skills – as well as many comments categorized generically as "communication skills." The exceptions, as already noted, were "confidence building skills" and "collaboration skills," which were present but not as prevalent as these five. Beyond that overall reaffirmation of the general categories were several particular ways of talking about these skills, such as their role as a liaison between students and instructor and the importance of motivating and encouraging students, all of which influenced our construction of assessment tools.

Assessment Regimen, Element Three: Targeted Rubrics for Assessing Learning Outcomes

We can now shift attention to the second cluster of guiding questions concerning assessment, as noted above. Based on our own experiences working with UTAs, we felt very strongly that (1) assessment of UTAs should be much more formative than summative, given the nature of the UTA program as a mentorship experience rather than a more traditional content-driven course, and that (2) it would be vital to develop both instructor-assessment instruments and student-self-assessment instruments in order to best foster on-going metacognition by the UTAs and on-going dialogue between the UTAs and their faculty mentors. Ideally, we would be able to develop one instrument that could be used by both faculty mentors and UTAs – though it should be noted that if we were unable to develop such dual-purpose rubrics, we would have worked to develop parallel instruments to facilitate both types of assessment and dialogue between faculty mentors and UTAs. Indeed, having an instrument (or

instruments) for both instructor-assessment and student-self-assessment was seen as necessary to "close the loop" between faculty mentor and UTA.

Additionally, we decided to focus on three predominant modes of UTA engagement in the classroom: leading/facilitating a whole-class activity or discussion, facilitating a small group activity or discussion, and working one-on-one with individual students – refer to Table 1, Table 2, and Table 3 on the following pages. As with the work plans and final reflections, this present discussion of assessment rubrics, and of the three rubrics themselves, is derived from our previous work (Murray, et al., 2019). While these three modalities of engagement are exhaustive of neither the range nor the variety of ways in which UTAs interact with students, course content, and course administration, they do represent a range of modalities (from whole class to one-on-one) while also encompassing the seeming majority of UTAs' daily interactions. It should also be noted that these three modalities each contain within them a range of possible interactions – i.e., UTAs might deliver a whole-class lecture or lead a whole-class discussion or facilitate a whole-class activity, just as UTAs might work one-on-one with students during a classroom workshop or outside of class during "office hours" or via an extended email exchange. Finally, because the UTA work plans and final reflections – as well as our own initial observations (recall the "List of Learning Objectives and Modes of Engagement" above) – represented a wide range of individual goals and concerns, we determined that it would be valuable to include room on each rubric for a UTA-specific category.

Important to note here is that the rubrics are offered here less as a final product to be adopted and more as a model to be adapted. It is perhaps not surprising, given our initial learning outcomes (stated above), that the resulting rubrics are not shockingly unique or innovative in themselves. Indeed, we consulted with several existing rubrics in shaping our own – we did so, naturally, to suit our program and our particular needs, taking into account factors such as first-year student demographics, the typical strengths and weaknesses of our UTAs, and so on. Moreover, what is more important than the rubrics themselves are the way they are informed by and integrated with our stated learning objectives and the experiences and self-reflections of our students. In other words, and in that spirit, the rubrics are hopefully illustrative of our simultaneous commitments to assuring that our assessment tools: (1) are consistent with and reflect the stated learning objectives of our program, (2) are integrated with, reaffirm, and reinforce the student work plans and final reflections, and (3) resonate meaningfully with the actual reported experiences of students serving in the program. Our intention and hope, therefore, is that instructors working with undergraduate teaching assistants or peer mentors will be able to not simply deploy these rubrics into their own mentoring, but to use them as both inspiration and a model with which to develop their own assessment tools that meet the three commitments enumerated above – i.e., that they be consistent with stated learning objectives, integrated with other assessments and self-reflections, and resonant with students' experiences.

Table 1. UTA Assessment Rubric – Facilitating a Whole Class.

UTA Assessment / Self-Assessment Rubric – Leading / Facilitating a Whole-Class Activity or Discussion

BOTH the faculty mentor AND the UTA should complete this rubric to assess / self-assess the UTA's performance.
To facilitate open and direct feedback, the faculty mentor and UTA should review and discuss the completed rubric together.

	Developing	Emerging	Proficient	Excellent	Exceptional
Preparation and Presentation of Information *(i.e. the formal presentation / lecture portion)*	UTA did not appear adequately prepared and/or did not demonstrate adequate mastery of material presented.	UTA appeared well prepared overall, but there were awkward moments in the presentation or information that was not clearly explained.	UTA appeared well prepared and demonstrated clear mastery of the information being presented.	UTA was very well prepared, perhaps with supplements to instruction (e.g. PowerPoint, handouts, etc.); explained material and answered questions with clarity.	UTA was exceedingly well prepared and demonstrated confident mastery of material throughout the class session.
Involvement of the Entire Class in the Activity or Discussion	UTA failed to engage the entire class in the activity / discussion, perhaps by not structuring the activity / discussion in such a way as to involve everyone.	UTA engaged the entire class, but too many students were too often passive; UTA relied too heavily on a few students to carry the activity / discussion.	UTA engaged the entire class, being careful to not rely on a few talkative students; UTA may have structured the activity / discussion to involve more students in active participation.	UTA utilized one or more pedagogical techniques to ensure active participation from the entire class (such as Think / Pair / Share, having students write on the board, workshopping, etc.).	UTA utilized one or more pedagogical techniques in a strategic or hierarchical way to ensure active participation and engagement from the entire class.
Responding to Unforeseen Problems, Disruptions, etc.	UTA appeared flustered or incapacitated when confronted with unforeseen problem; may have needed assistance from instructor to deal with the problem.	UTA appeared mildly flustered and was not able to deal with unforeseen problem without a noticeable disturbance or delay in the activity / discussion.	UTA appeared only mildly flustered by unforeseen problems, but was able to deal with the problem quickly and maintained continuity in the activity / discussion.	UTA was not noticeably affected by unforeseen problems and dealt with the problem quickly in order to maintain continuity in the activity / discussion.	UTA was able to not only deal with unforeseen problems quickly, but was able to use the situation as a teachable moment for students.
Connecting Activity or Discussion to Previous Concepts, Learning Objectives, or Assignments	UTA did not explain how the classroom activity related to previous class sessions, course or unit learning objectives, or requirements of current / upcoming assignments.	UTA only briefly or tangentially explained how the classroom activity relates to previous class sessions, course or unit learning objectives, or requirements of current / upcoming assignments.	UTA explained clearly how the classroom activity relates to previous class sessions, course or unit learning objectives, or requirements of current / upcoming assignments.	UTA more than once explained clearly how the classroom activity relates to previous class sessions, course or unit learning objectives, and/or requirements of current / upcoming assignments.	UTA more than once explained vividly or creatively how the classroom activity relates to previous class sessions, course or unit learning objectives, and/or requirements of current / upcoming assignments.
UTA Selected Criterion:					

Table 2. UTA Assessment Rubric – Facilitating a Small Group

UTA Assessment / Self-Assessment Rubric – Facilitating a Small Group Activity or Discussion

BOTH the faculty mentor AND the UTA should complete this rubric to assess / self-assess the UTA's performance.
To facilitate open and direct feedback, the faculty mentor and UTA should review and discuss the completed rubric together.

	Developing	Emerging	Proficient	Excellent	Exceptional
Creates a Supportive and Encouraging Environment for the Group	UTA was not inclusive of each member in the group. UTA did not help resolve group conflicts and may have contributed to them. May have discouraged students with lack of empathic response.	UTA was occasionally inclusive of each member in the group. UTA rarely helped the group resolve conflicts. Some degree of encouragement was present.	UTA was mostly inclusive of each member in the group. UTA at times helped the group resolve conflicts. Encouragement was usually provided when appropriate.	UTA was frequently inclusive of each member in the group. UTA actively helped the group resolve conflicts. Often responded with both empathy and encouragement for each student.	UTA was always inclusive of each member in the group. UTA consistently helped the group resolve conflicts. Consistently responded with both empathy and targeted encouragement for each student.
Facilitating the Group Process	UTA did not foster participation by group members. UTA was unable to keep the group adequately focused or on task.	UTA occasionally fostered participation by a few group members. UTA was at times unsuccessful in keeping the group focused and on task.	UTA fostered some level of participation by most group members. UTA tried to keep the group focused and on task.	UTA frequently fostered active participation by most group members. UTA was generally successful at keeping the group focused and on task.	UTA fostered active participation by all group members. UTA consistently (and perhaps creatively) kept the group not only focused and on task, but also motivated and energized.
Eliciting Discussion and Engagement.	UTA dominated the discussion and spent most of the time speaking and asking few questions. Side talk and distractions were prevalent.	UTA occasionally dominated the discussion and spent too little time asking questions. Occasional side talk and distractions were present.	UTA mostly listened and tried to balance the use of questions with responses. Some side talk and distractions were present, but UTA attempted to refocus students.	UTA mostly listened and balanced the use of questions with responses. Side talk or distractions were minimal, perhaps owing to effective re-focusing by the UTA.	UTA spent majority of time listening and providing open-ended questions that challenged ideas and stimulated conversation. Full engagement with no side talk or distractions.
Incorporating the Language of the Course and Fostering Learning	UTA did not use the language of the course. There were missed opportunities to give feedback and provide "teachable moments."	UTA occasionally used the language of the course. Some opportunities for feedback were taken but there were few "teachable moments."	UTA mostly reinforced the language of the course. Most opportunities for providing useful feedback were taken and some valuable "teachable moments" were present.	UTA frequently reinforced the language of the course. UTA provided constructive feedback and took advantage of "teachable moments" to further the activity's learning objectives.	UTA consistently reinforced, and encouraged students to use, the language of the course. UTA provided constructive and supportive feedback and capitalized on (or engineered) impactful "teachable moments."
UTA Selected Criterion:					

Table 3. UTA Self-Assessment Rubric – Facilitating Individual One-on-One Mentoring

UTA Self-Assessment Rubric – Working One on One with Individual Students

The UTA should complete this rubric to self-assess their performance.
To facilitate open and direct feedback, the faculty mentor and UTA should review and discuss the completed rubric together.

	Developing	**Emerging**	**Proficient**	**Excellent**	**Exceptional**
Relational Qualities *(i.e. personable, supportive, encouraging, motivating, etc.)*	Did not build rapport with student and did not establish a relational space supportive of authentic expression, personal disclosure, or risk taking.	Occasionally built rapport with student but only began to build a relational space supportive of authentic expression, personal disclosure, or risk taking.	Built foundational rapport with student and laid groundwork for a relational space supportive of authentic expression, personal disclosure, and risk taking.	Effectively built good rapport with student and developed a relational space supportive of authentic expression, personal disclosure, and risk taking.	Confidently built strong rapport with student and developed a relational space supportive and encouraging of significant authentic expression, personal disclosure and risk taking.
Verbal Communication *(i.e. clarity of content, conversational quality, etc.)*	Unable to initiate meaningful dialogue with student – session was mostly one-way communication. Feedback was not delivered with the clarity needed to be fully understood by student.	Occasionally initiated dialogue with student, but did not adequately motivate or encourage student to participate. Feedback at times seemed to lack the clarity needed to be fully understood by student.	Initiated a consistent dialogue with student, and effectively motivated student to participate. Feedback was communicated with sufficient clarify for student to understand its content.	Maintained a consistently meaningful dialogue with student, and effectively motivated student to actively participate. Feedback was communicated with sufficient clarity for student to understand both its content and its value relative to the course.	Initiated and maintained a truly collaborative dialogue with student. Delivered high quality constructive feedback with clarity. Encouraged student to discuss academic (or other) problems and concerns openly in a safe environment.
Interaction *(i.e. active listening, eye contact, body language, professionalism, etc.)*	Persistent lack of active listening and direct eye contact. Unable to recognize responsive body language. Did not establish a professional persona in interaction with student.	Periodically displayed active listening strategies and direct eye contact. Occasionally demonstrated responsive body language. Was unable to maintain a consistent professional persona in interaction with student.	Frequently engaged in active listening and direct eye contact. Frequently responded with positive body language. Established and generally maintained a professional persona in interaction with student.	Consistently engaged in active listening while maintaining direct eye contact. Frequently used positive body language to support communication. Established and maintained a professional persona in interaction with student.	Consistently engaged in active listening, direct eye contact, and positive body language, while being cognizant of and responsive to the particular student. Established and maintained a professional student, tailored as necessary to the particular student.
Learning *(i.e. adaptability, critical inquiry, self-reflection, etc.)*	Did not display adaptability in working with individual student, and did not contribute to their learning process. Critical inquiry and self-reflection were absent.	Occasionally adapted communication to the individual student's needs, and mildly impacted their learning process. Some critical inquiry and self-reflection were initiated.	Adapted communication to the individual student's needs, and positively influenced their learning process. Stimulated critical inquiry and self-reflection.	Frequently and effectively adapted communication to the individual student's needs, and positively impacted their learning process through dialogue. Stimulated on-going critical inquire and self-reflection.	Consistently and effectively adapted communication to the individual student's needs, and facilitated student agency over their learning process. Modeled and instilled a habit of critical inquiry and self-reflection.
UTA Selected Criterion:					

Conclusion

This essay began by noting how, following the creation of our undergraduate teaching assistant program, the focus was on how students serving as UTAs would impact the engagement and learning of students (in the courses in which they were assisting) rather than on the specific learning outcomes of the UTAs themselves. As the program developed, this was recognized as a deficiency, namely that we had not adequately articulated the precise learning objectives of our UTAs and had not developed adequate assessment (and self-assessment) tools for monitoring those learning objectives. Murray (2015) offered a helpful first step toward articulating those learning objectives, and the goals of the subsequent project, as previously presented in Murray, et al. (2019), were: (1) to either validate or revise that foundation through a close examination of a sampling of UTA work plans and final reflections, and (2) to use the results of that examination to inform the generation of assessment tools with which both faculty mentors and the UTAs themselves could more adequately assess, and subsequently engage in productive dialogue about, some of those learning objectives.

Overall, then, the primary objectives of this essay were to share – and more importantly to stimulate further discussion about – some best practices for the assessment of learning outcomes in similar undergraduate peer mentor and teaching assistant programs. Our analysis of a sampling of UTA work plans and final reflections (Murray, et al., 2019) largely validated our foundational "List of Learning Objectives and Modalities of Engagement" (Murray, 2015) in that those documents consistently reflected five areas of development: writing skills, public speaking skills, leadership skills, teaching skills, and mentorship skills – as well as many comments categorized generically as "communication skills." Additionally, they revealed several trends that informed the generation of three assessment rubrics, one each for three typical and recurring roles that UTAs have in the undergraduate classroom: leading/facilitating a whole-class activity or discussion, facilitating a small-group activity or discussion, and working one-on-one with individual students.

Again, the resulting assessment regimen begins with an individualized student work plan, proceeds through formalized student-self-assessment and faculty-mentor-assessment as facilitated by the three rubrics, and concludes with an individualized student final reflection -- with all three stages relying on the same foundational framework provided by the "List of Learning Objectives and Modes of Engagement," which helps articulate the stated learning outcomes for undergraduate students serving as UTAs / peer mentors. While there is certainly more work to be done, both in further testing and fine-tuning these three rubrics and in developing additional rubrics to more fully canvas the variety of roles and modes of engagement in which UTAs and peer mentors engage, we nevertheless hope that these three specific assessment tools, and the larger three-part assessment regimen of which they are an integral element, can be adopted or adapted in useful ways by faculty participating in similar undergraduate peer mentor and teaching assistant programs to better serve the wonderful students who contribute so meaningfully to the teaching missions of our colleges and universities. Specifically, it is our intention and hope that instructors working with undergraduate teaching assistants or peer mentors will be able to use the three rubrics, and the larger regimen of assessment in which they resided, as a model with which to develop their own assessment tools (and overall program of assessment) that are consistent with stated programmatic learning objectives, integrated with other assessment tools, and perhaps most of all meaningfully resonant with students' own reported experiences.

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