InSight

A Journal of Scholarly Teaching

Volume 13

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Faculty Center for Innovation**

"Teaching and learning have both become more public: faculty are reflecting on their teaching in ways that can be shared with a wider community of educators, and, using a variety of evidence-gathering and documentation strategies, they are making their students' learning more visible too."
~ Pat Hutchings, Anthony Ciccone, and Mary Taylor Huber, *Scholarship of Teaching and Learning Reconsidered: Institutional Integration and Impact*

Copy Editor

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Subscription Information

InSight: A Journal of Scholarly Teaching is published annually as a free, refereed resource highlighting scholarly contributions to advance the practice and profession of teaching. Limited print journals are available upon request; online versions are available at http://insightjournal.net/.

"Through the implementation of creative interventions, it is possible to influence students positively beyond the imperative to curb poor pass rates. We believe that supporting students' agency through creating safe spaces for dialogue and exchange can provide a more fertile environment for a more meaningful and reciprocal learning experience."

~ Kim Berman and Shonisani Netshia, *Enlivening Pedagogical Methods in the Classroom through Visual Arts*

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"Part of the 'value' of SoTL is that it has far-reaching implications. It can affect and address academic and student behavior, educational design and assessment, professional development offerings, institutional structures, and educational policy — often far beyond the discipline itself."
~ Susan L. Rowland and Paula M. Myatt, *Getting Started in the Scholarship of Teaching and Learning: A "How to" Guide for Science Academics*

<u>*Introduction*</u>

About Park University…

Park University (originally Park College) was co-founded by Colonel George S. Park and Dr. John A. McAfee in 1875. An independent, private institution, accredited by the Higher Learning Commission of the North Central Association, Park University currently enjoys a distinguished position in higher education as a growing institution with 42 campus centers in 21 states including an extensive online degree program. In 2005, Park University created The Faculty Center for Innovation to promote the practice and profession of teaching, including scholarly inquiry into teaching across the disciplines. *InSight: A Journal of Scholarly Teaching*, an outreach of the Center's programming, is a refereed academic journal published annually. The editorial staff invites submissions of research and scholarship that support faculty in improving teaching and learning. Open to submissions from all disciplines and institution types, *InSight* articles showcases diverse methods for scholarly inquiry and reflection on classroom teaching.

From the Editor…

Looking back upon my first year as Editor of *InSight*, I find myself overwhelmed with a sense of enlightenment. I have become much more deeply invested in the rich and varied pursuits within the ever-expanding field of the scholarship of teaching and learning (SoTL), which is why I am particularly proud to bring this installment, Volume 13, to our readers.

This issue opens with a reflective introduction by Miami University's Dr. Gregg Wentzell that serves as an encouraging call to action for all of us to (re)consider the value of scholarly teaching. As such, it makes for a fitting prelude for the various topics tackled in the articles that follow. While our contributing authors grapple with a remarkably diverse set of topics – from grading and assessment practices to mentoring of international teaching assistants – they share in a powerful sense of inspiration. In their examinations, they foster a desire in all of us who teach to reexamine our pedagogy, to reassess teaching effectiveness, and to continue to reinvent the modern post-secondary learning experience across disciplines.

I am equally inspired by and give thanks to the amazing team of individuals who serve as essential contributors to the success and publication of *InSight*. Dr. Jamie Els is vital to the publication process and has been incredibly gracious this past year in her guidance and advice as I embarked on my editorial role. In addition, former editor Dr. Stacey Kikendall has proven invaluable in her efforts to encourage a smooth transition and continued growth of the journal, and copyeditor Lauren Lovvorn has done an impressive job of diving into her role with enthusiasm. A final thanks as well to our amazing group of peer reviewers, whose dedication to the nuances of scholarly inquiry helped to shape this captivating issue.

--Alexis Culotta, PhD

More Acknowledgements…

"The inclusion of the arts and humanities will not simply add new methods and new ideas, it will involve rethinking the foundations, the principles, and the operating assumptions of the entire SoTL enterprise."
~ Michael K. Potter and Brad Wuetherick, *Who is Represented in the Teaching Commons?: SoTL Through the Lenses of the Arts and Humanities*

Engaging in Scholarly Teaching to Transform Practice:
Encouragement for Reluctant Colleagues

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If you are reading this issue of *InSight: A Journal of Scholarly Teaching,* you probably have an interest in and appreciation for evidence-based teaching and learning. Perhaps you already are passionate about the value of classroom research, and you regularly set learning outcomes, consult methods based in the literature to design instruction that will help students achieve those outcomes, assess, and reflect on the results to adjust instruction in ways that will improve student learning. You may even be a seasoned practitioner of the scholarship of teaching and learning (SoTL). Some of you may have presented results of your work at one or more teaching and learning conferences, or even published it in one of the peer-reviewed SoTL venues.

You likely know colleagues, however, who have not yet acquired your passion. They may truly care about their students and their learning, but they are convinced that the tyranny of content still must rule the day and that there is no time to try out and assess innovative classroom techniques. Or maybe disciplinary scholarship, still the coin of the realm in academe, occupies most of their time and energy. Whatever their reasoning, as an advocate of a scholarly approach to teaching, you, have the ability to help your colleagues transform their practice and, in turn, their students' learning. If you often feel you are the only one in your department (or on your campus) who is passionate about student-centered, evidence-based teaching, don't despair; what follows is advice for persuading your reluctant peers to join the conversation.

First things first, what is scholarly teaching? As Richlin (2001) defines it, *scholarly teaching* is intended "to impact the activity of teaching and the resulting learning" (p. 58). Scholarly teachers engage in several activities with the goal of improved student learning. They (a) investigate (in the literature) what has been attempted to solve similar pedagogical problems or challenges, (b) select the teaching method that offers the best opportunity for helping students achieve the desired learning objective, and (c) observe and record the application of this method in a systematic way. Your peers may be heartened to realize they are already doing some of these activities.

Why are faculty interested in taking a scholarly approach to teaching? Some who are new to the conversation may question its benefits to them and to students—or they simply may need reassurance that the efforts are worth it. First of all, scholarly teaching allows us to explore questions about teaching and learning that interest us. It also offers insight into our own instructional biases (e.g., questioning our assumptions about student performance): "Why do some of my students consistently underperform?" "Why do I always have difficulty when I teach X topic?" Moreover, empirical evidence is necessary to know whether students are actually learning (just as we need evidence for our disciplinary research). Investigating new teaching

approaches also helps keep our teaching fresh and viable over time, and it allows us to learn in new ways from both our students and our peers (Bishop-Clark & Dietz-Uhler, 2012). Finally, engaging in scholarly approaches to teaching can help us get greater recognition for an important part of the work we do, as Ernest Boyer (1990) advocated.

The Scholarly Process

Once faculty have begun to open their minds to the benefits of a scholarly approach to teaching, it is useful to offer them a framework for doing the work. The Ongoing Cycle of Scholarly Teaching and the Scholarship of Teaching (SoTL) (adapted from Richlin, 2001) is effective for illustrating the scholarly process: (1) describe the problem, question, or opportunity; (2) provide the context; (3) propose a solution; (4) establish a baseline; (5) assess the results; and (6) communicate the results (and repeat these steps as necessary).

Step 1: Describe the Problem, Question, or Opportunity

Scholarly teaching begins with a need to impact student learning. Encourage your colleagues to describe what they see in their students' behavior or their institution's approach that they wish to change and *why*. Suggest they tie this question

Scholarly teaching begins with a need to impact student learning.

to course learning objectives—"What do you want students to be able to *do*?"—and phrase it in measurable terms, such as "After I complete this project, my students will be better able to [define, analyze, identify, etc.]." Remind your peers that many variables can affect a project's outcome, including who they are, who their students are, the content they are teaching, and even environmental factors such as the classroom itself.

Some teaching and learning problems that could be well-suited to scholarly teaching projects include a need to impact student behavior (e.g., improving classroom discussion, helping students overcome math or science anxiety); a desire to better achieve a course learning objective through an innovative method (e.g., the flipped classroom, team-based learning); or a challenge to improve learning or other concerns regarding an institutional approach (Cox & Wentzell, 2016).

Step 2: Provide the Context

Just as in the disciplines, when doing research in teaching, it is important to consult the literature. Doing so allows us to build on what is already known and avoid duplicating ineffective practices. Prospective scholarly teachers should ask themselves, "What have others done (at my institution and elsewhere) to address this question? What is different about my approach?" Resources for the literature search include search engines such as Google Scholar as well as selected bibliographies of SoTL resources, including disciplinary and multidisciplinary pedagogy journals (see, for example, http://cetl.kennesaw.edu/teaching-journals-directory) and teaching conferences. The Original Lilly Conference on College Teaching (www.miamioh.edu/lillycon/) provides a list of all Conference session keywords.

When 10 or more sessions include the same keyword, it is listed as a Theme Track. The annual listing of theme tracks provides an effective way to determine which teaching and learning research topics and approaches are popular (and which may be under-investigated).

Step 3: Propose a Solution

With a context for what has been done to address the problem or question established, it is time to propose a solution. Some possible approaches to recommend to peers, depending on their learning objectives, their students, and their course, could be to introduce the use of writing, music, visuals, or reflection in class; to use personal responders (clickers) in class for a few weeks; or to put students in groups for a course unit.

Step 4: Establish a Baseline

In order to know whether a new approach has made a difference in student learning, it is important to understand where students are at the outset. What will your peers use for comparison to show change or impact? Possible measures could be outcomes from a previous time they taught the course: grades, student work, retention; first-day or early-term survey results from the class; or a "control group," someone teaching the same course but not attempting the intervention (this could be the same person if he or she is teaching more than one section).

Step 5: Assess the Results

The next step is to determine the effectiveness and impact of the solution. Many formative options are readily available to recommend to new scholarly teachers, and many of these new teachers may already be using one or more of these methods in some form: pre- and post-surveys of learner reactions and/or results, retention in the course or unit over the term, reflections in an instructor's journal, focus groups, and classroom assessment techniques, to name a few. Among these methods, classroom assessment techniques (CATs), developed by Angelo and Cross (1993), are an ideal method of collecting data for small classroom research projects because they are generally short, ungraded, anonymous, informal assessment measures that can be used as often as necessary to gauge student learning. It is also easy to tie CATs to learning objectives using a self-administered assessment of instructional goals like the *Teaching Goals Inventory* (https://fm.iowa.uiowa.edu/fmi/xsl/tgi/data_entry.xsl?-db=tgi_data&-lay=Layout01&-view).

Step 6: Communicate the Results

How can instructors use assessment data in their teaching? The possible applications and outcomes are vast! A scholarly teacher would begin by comparing the results to a baseline (and the literature). Upon reflection, the next step is to incorporate the findings into teaching as appropriate, and then to assess again to note changes in student learning. Encourage your colleagues to share results with students,

including comparisons to findings from the literature, to invite their buy-in. If we can show students that our teaching is based on sound research (including our own), they understand much better why we do what we do in the classroom and are more likely to accept methods that may be unfamiliar to them. Finally, share the results with colleagues to compare results, discover new approaches and interpretations, and continue to grow as a teacher-scholar.

Those engaging in this scholarly process should repeat these six steps as needed to refine and expand their practice. Some instructors may wish to take the next step, to the scholarship of teaching and learning, by submitting their work for a peer-reviewed presentation or publication. While this is another discussion that would require more space than we have here, possible venues to explore include teaching and learning conferences such as the Lilly Conferences on College Teaching (www.lillyconferences.com), newsletters (*The Teaching Professor; The National Teaching and Learning Forum*), journals of specific disciplines (*Teaching Sociology; Teaching of Psychology)*, and journals across disciplines (*Journal on Excellence in College Teaching; Innovative Higher Education*).

If we can show students that our teaching is based on sound research (including our own), they understand much better why we do what we do in the classroom and are more likely to accept methods that may be unfamiliar to them.

Caveats and Resources for Support

A few caveats and resources may be helpful to peers who are new to scholarly teaching. First, try out new techniques for a course lesson or unit first to see how well they work—wholesale new approaches could encounter student resistance (Cox & Wentzell, 2016). Second, it is wise to obtain IRB (Human Subjects) approval in case the instructor may want to present or publish the results. Campus offices can provide support for data collection and interpretation if desired—in particular, the offices of institutional research, statistical consulting, the library, the teaching and learning center, and the psychology and educational psychology departments (Cox & Wentzell, 2016).

Finally, colleagues who are new to the field may need to be disabused of scholarly teacher Impostor Syndrome. After all, it took years to become an expert in their discipline—how can they acquire expertise in another area of research without investing significant time? However, classroom research is designed for the intelligent non-expert, and it is relatively free of jargon. They may reach the frontier in their area of interest relatively quickly.

The articles in this issue of *InSight* all began with their authors doing scholarly teaching in some form. Spread the word among your colleagues. They could transform their own practice—by questioning their assumptions and biases and engaging in fresh, more effective approaches—and their students' learning—by investigating how they learn, what motivates them, and, ultimately, how better to help them become enlightened, global citizens (McGuire, 2015). By communicating their results in various forms, these new scholarly teachers—in large part because of your encouragement and support—may even change the culture in their department or

across the campus more broadly. For your peers, for students, and for the campus as a whole—become a scholarly teaching advocate!

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How Faculty Create Learning Environments for Diversity and Inclusion

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The demographics of college campuses are changing and necessitate faculty provide a safe and inclusive environment for learning. The purpose of this study was to examine how faculty establish a sense of belonging in their classrooms, using focus group methodology to explore issues of power, privilege, and access at the postsecondary level. Faculty (N = 33) representing multiple identity groups discussed opportunities and challenges in effectively reaching diverse groups of students. Three thematic categories emerged illustrating how faculty prepare their courses for inclusive content, develop in-class instructional practices including methods regarding assessment, and believe in professional responsibility through persistent role modeling.

College campuses are more diverse now than ever (Museus, Yi, & Saelua, 2017). The number of students from multicultural backgrounds continues to grow as opportunities abound for previously underrepresented groups to obtain a postsecondary education. While most would argue that a diverse learning environment is ideal and can bring benefit to the larger campus community, some faculty still struggle with how to create a feeling of inclusion in the classroom setting. This hesitation is particularly salient as tensions rise across the country in the wake of recent socio-political events (Hesse, 2017). In everyday course interactions, faculty and students have to navigate potential landmines that highlight issues of power, privilege, and access in a post-racial environment (Niehaus & Williams, 2016). It can be a daunting task for those professors not equipped with the instructional techniques and strategies to provide a psychologically safe environment for their students.

For years there has been an emphasis on increasing diversity in college settings, and there is a growing need to ensure that the inclusion of disparate voices is heard (Cuyjet, Linden, Howard-Hamilton, & Cooper, 2016). Research indicates that retention is predicated on numerous social, motivational, and academic factors (Tinto, 1993), not the least of which is how closely connected students feel to their professors and peers in the classroom setting. The quality of faculty-student relationships is at the cornerstone of inclusion (Kim & Sax, 2017). When students feel their beliefs and backgrounds are respected and valued, they report a stronger connection to their college environment (Wilson & Gore, 2013). To this end, the purpose of this study was to explore how faculty create an inclusive environment in the college classroom setting.

Theoretical Framework and Literature Review

Maslow's theory (1943) of human motivation and self-actualization provides a useful premise for the importance of establishing a sense of community amongst

students. Maslow contended that all humans have basic needs that must be met prior to achieving more lofty and advanced goals. In this hierarchy of needs, Maslow argued one must first feel the psychological needs of love and belongingness before they can ascend to higher planes on the pyramid, such as mastery and achievement. Specifically, before students can be expected to demonstrate motivation and engagement, they need to feel a sense that they belong. As humans we are tribal and depend on those in our surroundings to provide support and encouragement (McMillan & Chavis, 1986; Strayhorn, 2012). In the college classroom this is best described as sense of school belongingness.

Typically studied in K-12 settings, school belonging is a psychological construct that emphasizes valuing, connection, and caring (Goodenow, 1993; Osterman, 2000). In collegiate settings, school belonging has been studied in relation to student retention (Hausmann, Schofield, & Woods, 2007), campus climate (Johnson, 2012), psychological adjustment (Schochet & Smith, 2014), and academic engagement (Zumbrunn, McKim, Buhs, & Hawley, 2014). Belongingness is a multifaceted and complex state of being that is heavily influenced by both internal and external factors. A significant external factor is the degree to which instructors establish a psychologically secure and safe space for learning to take place. When students feel disrespected, unwelcomed, or fearful, learning is minimized. Conversely, when classroom dynamics are positive, inclusive, and engaging, learning can flourish optimally (Murphy & Zirkel, 2015).

A consistent metric of student belongingness is how connected students feel to their instructors and peers (Finn & Zimmer, 2012). Fredricks, Blumenthal, and Paris (2004) assert that belongingness is an affective state of engagement, one that is heavily influenced by how students feel about themselves and others in the classroom (Kay, Summers, & Svinicki, 2011). While behavioral and cognitive engagement is important, the socio-emotional relationships students develop are vital as well. When students feel bonded with the university through positive experiences with classmates and faculty members, their feelings of self-worth and perceived competence increase (Pittman & Richmond, 2007). This heightened sense of belonging then increases the likelihood of persistence to degree (Pascarella, Pierson, Wolniak, & Terenzini, 2004).

Belongingness is a multifaceted and complex state of being that is heavily influenced by both internal and external factors.

The research is very clear about what college students want from their professors: accessibility (Case, 2013), warmth (Morrow & Ackerman, 2012), organizational detail (Weaver & Qi, 2005), and compassion (O'Keeffe, 2013) are just a few of the characteristics mentioned in the literature. Students want to know that they can reach out to faculty when they need support or encouragement (Booker, 2016). They also expect faculty to be sensitive to their feelings and maintain a respectful environment that is not hindered by disrespect and antagonism (Sidelinger, Bolen, Frisby, & McMullen, 2011). Part of this process requires faculty to be aware of and sensitive to how multicultural groups of students experience a common learning environment. Faculty who are committed to culturally relevant andragogy know how to employ *cultural scaffolding* as a way to help students use "their own culture and

experiences to expand their intellectual horizons and academic achievement" (Gay, 2002, p.109).

While these qualities appear rather straightforward in their implementation, a considerable number of faculty nevertheless have expressed concern over their abilities to encourage progressively inclusive classroom environments (Funge, 2011; Valentine, Prentice, Torres, & Arellano, 2012). When attending to multiple perspectives and backgrounds, some professors do not feel equipped to construct learning environments that support the participation and engagement of students from diverse backgrounds. Of particular concern is how to integrate multicultural perspectives into course content without it appearing like an "add-on" component. Faculty have personal conceptions of community that are sometimes unable to be translated into the classroom setting, especially as it relates to instructional practices such as rigorously assessing students' reflective assignments, selecting student partners for group work with an eye focused on demographic differences, etc. Professors have to balance divergent perspectives without judgment, favoritism, or preference. Faculty also find that some students are resistant to discussing "hard topics," such as sexism and racism, which can leave a significant void in students' content knowledge of certain academic disciplines without faculty willing and able to guide learning in those provocative areas of discourse (McHatton, Keller, Shircliffe, & Zalaquett, 2009).

In this study, we presented the challenges and opportunities faculty experience when establishing an inclusive environment. Our goal was to add to the literature on culturally relevant andragogy and multicultural course change at the postsecondary level. The research questions in this study were:

1. How do faculty define inclusion?
2. What, if any, instructional practices do faculty incorporate to address inclusive practices?
3. What concerns do faculty have regarding how to create an inclusive instructional environment?

Methodology

Context and Participants

This study took place at a mid-size university in the Southeastern United States. The institution enrolls 18,000 undergraduate and graduate students with over 150 majors. Almost all of the 930 full-time faculty members have professional or terminal degrees. Students of color account for 15% of the population. The five-year graduation rate is 71%. This qualitative study was a part of a larger university-wide survey project. Faculty who completed a survey on diversity and inclusion were invited to participate in focus group interviews. A total of 33 faculty members participated in this sub-study. Twenty females and 13 males from various departments across campus agreed to be involved with the project. Academic affiliations included Arts and Sciences, Health Sciences, College of Education, College of Business, and Fine and Applied Arts. Fifty-five percent of the sample were tenured and 45% were non-tenured (tenure-track and clinical instructional) faculty. Instructional course loads ranged from small, upper-level seminars to large undergraduate lecture sections.

Twenty-five faculty members (78%) classified themselves as Caucasian/White. The largest age group represented was 30-49 years old (53%); those aged 50 or older made up 37% of the sample, with the smallest number being faculty members aged 20-29.

Data Collection

Six focus groups were conducted over the course of the spring semester. Each focus group connected faculty from similar backgrounds; for example, there was a focus group for female faculty only. The reason to separate faculty into demographic categories was to elicit honest and candid responses that may not have been as easily obtained in a more heterogeneous group (Onwuegbuzie, Dickinson, Leech, & Zoran, 2009). A structured interview protocol was developed that asked specific questions about the ways in which each group of faculty participants shaped their courses to be inclusive and represent various facets of diversity. Sample questions included: *What do you do in your courses to help students realize that inclusion plays an important role in the subject matter that you are teaching (i.e., assessment methods, examinations, student projects, journals, self-assessment, etc.)? What type of challenges and concerns, if any, have you experienced addressing inclusion within your courses?* Each focus group interview lasted from 45 to 75 minutes. All participants agreed to be audio-recorded during the interviews. To enhance the analytical process, field notes were taken to add to the verbatim transcription.

Data Analysis

An inductive process was chosen to analyze the data. According to Thomas (2006), "Inductive approaches are intended to aid an understanding of meaning in complex data through the development of summary themes or categories from the raw data" (p. 3). The first step in analysis was to clean the data; this meant all interview data recordings were transcribed for accuracy during the analytical process. From there, we read over all transcriptions for common language used by the participants in response to the questions presented (Creswell & Poth, 2017). In the third step, we generated categories based on the information gathered during the focus group. We had to make judgments about how to prioritize certain data points (Thomas, 2006). The final step was to reduce and refine the thematic categories into core ideas that illustrated the research objectives.

Trustworthiness

This project was fully vetted and granted approval by the University Institutional Review Board. All participants were made aware of consent procedures and ethical guidelines were followed. Trustworthiness was evaluated in two ways. First, a stakeholder check was conducted by encouraging faculty input into the data collected and to correct any misinterpretations. A second approach was to achieve a consistency check (Thomas, 2006, p. 7) between the members of the research team. Each researcher was given parts of the raw interview data and tasked with confirming the categorical conclusions of the others. This process involved detailed readings of the interview data, the codes developed, and the thematic categories established.

Findings

In response to the first research question, faculty used many common terms and phrases to define inclusion such as respect, welcoming, diversity, open-mindedness, and safety. These terms were used to describe both states of mind as well as deliberate actions faculty would take when working with diverse populations of students. Overall, three findings emerged from the interview data for research questions two and three: the importance of adequate course preparation, use of culturally relevant in-class practices, and a strong belief in role modeling and professional responsibility. All three themes are presented with illustrative quotations to underscore the voice of the faculty participants. The findings are also organized in a chronological way to represent faculty preparing for their courses, presenting the course content, assessing student learning and then reflecting on their own professionalism within the discipline.

Adequate Course Preparation

A number of faculty discussed the importance of beginning the course with explicit statements about the diverse nature of topics discussed in the class and how there was an expectation of respect and consideration for all perspectives and experiences. Faculty expressed the need to be clear with students from the beginning so as to minimize surprise or confusion. For many it was prudent to include these philosophies in the syllabus as a way to ensure students were aware of how class sessions would be conducted and the emphasis that would be placed on inclusive learning goals. The following are quotations from three different participants gathered by the audio-recordings from the focus group:

> I think if you put it [inclusive statement] in the syllabus as our contract with the student…if you're pretty straightforward in saying these [diverse perspectives] are the items we're going to address…you're making that contract and kind of reinforcing the idea that this is a valued item…whether the students pay attention to those contracts is a different story…but that's how we view the syllabus…this is what I'm going to tell you, this is what's going to happen in this class…

> I put in my syllabus readings about implicit bias and stereotype threat and how that works to structure fields…how that [stereotype threat] works in people being perceived as leaders…people being perceived as good teachers…I just make it [inclusive content] thematic…

> I put a statement in my syllabus that says "In this course you will encounter texts that may have ideas that you don't agree with and I don't expect you to agree with them but you need to be familiar with them"…basically for my protection and for the protection of other students who may, you know, get attacked and want to have a policy to refer to that says "no, this is okay"…the syllabus is the contract for this class…

In addition to contractual statements in the syllabus, faculty also turned a significant portion of responsibility back onto students to share in the experience of creating an inclusive environment. As previously mentioned (Hausmann et al., 2007; Murphy & Zirkel, 2015), peer interactions are vital to maintaining a positive learning environment. Faculty mentioned how they would be intentional with providing prompts for large group discussions, small group work, and overall classroom interpersonal dynamics. This statement from a female professor spoke to the importance of emphasizing her expectations for how all participants are responsible for contributing positivity and support in the classroom setting:

> I ask the students to help me create a climate of a welcoming environment where I say, "all persons of [all] races, classes, genders, sexualities, religions are respected"…I say that harassing will not be tolerated…
>
> Usually when we're going to have a group discussion I just start it with "all opinions are valid and allowed to be said whether you agree or disagree"…that it's a time to develop your opinions by discussion and so they're told that everyone gets to speak regardless of whether they're saying what I say or something totally different…

In-Class Practices: Language and Intentionality

In the aforementioned thematic category, faculty discussed the importance of setting the scene early for students to feel a sense of connection and ease within the classroom. Another theme that emerged from the data related to specific instructional practices faculty would use to emphasize the way that students should express themselves and treat others during class meetings. Civility in speech is an issue that many college and universities face (Popovics, 2014). Faculty expressed a willingness to support students in navigating the sometimes difficult terrain of maintaining amicable conversations during class discussions and debates. These two education faculty members imparted steps they took to focus on invitational language in the classroom:

> I teach inclusion and diversity in all of my classes…I teach educators...a big chunk of my classes include diversity as content but I also start out the class talking about gender pronouns and trying to use them and make sure that I'm including everyone's…so content wise it's in my classes but we also work on how to engage each other in discussion using appropriate language…
>
> We do have one course that is entitled *Diversity and Inclusion*…these are graduate students but they're going to be working with college and university students across the nation…so, in that particular course, we have them sign an affirmation statement and the reason being is to open up dialogue because even at that level they're not always sure about what it is that they value and, more importantly, they might be *too* sure…for instance, where I see the rub is where there might be some students that are pretty religious and they're struggling with trying to balance religion with their views on say homophobia or whatever…so it's more of a way to open up dialogue…that's what we're trying to get at…sustained dialogue that we have on campus so that students are not turning each other off but communicating in a civil way…

Faculty also stressed how providing relevant examples to students of multicultural perspectives allowed for a more inclusive learning environment. Students need to see themselves in the relevance of the content area (Bain, 2004). Faculty who were committed to establishing a sense of community and inclusion were highly attuned to this practice of highlighting those outside the dominant norm. While each of the following three faculty members represented very different academic disciplines, all of them were cognizant of intentionally incorporating diverse perspectives and examples into their instruction:

> I teach in a STEM field that, I think, historically has a pretty terrible track record of inclusion and equity…I try to teach the historical context of the major scientific discoveries we talk about in class…usually on the first day of class…but certainly in the first few weeks I make it clear that there's a reason we're only talking about old White guys…because the field has a history of racism and sexism and I usually try to say pretty explicitly that's an ongoing thing and not a historical artifact…

> I teach art and when I'm showing examples of work by different artists I make sure that I'm not just showing, you know, a White male dominated example of artwork…actually I try and avoid showing White men's work as much as possible…

> I'm an anthropologist and so different cultures and diversities are subject matter and I'm an archaeologist, specifically, so in my classes…kind of along the lines of making sure that not just White guy art is shown…I try and assign readings that are not just by White guy archaeologists but also native archaeologists, international archaeologists, women…very explicitly my classes compare what the authorship brings to the interpretation of the data and how one person might see things through their particular biases and cultural lens…

Part of this exercise involved encouraging students to reflect on their position in society and how ideas such as access, power, and socialization affect their experiences. Several faculty wanted to help students connect the dots between course content and real life application. These two excerpts show that instructors were prepared to provide students with authentic associations between the information and practical relevance:

> The first day of my community health class I show them a video about what it means to be a citizen of the world…the global citizen movement…the key thing that comes out of that, the question I always pose is we as human beings should never stop asking "why…"

> Part of what I do with my students is to help them understand that they have to understand themselves to be able to understand others…to be able to better serve others and understand themselves and their relationship to society and the social group memberships they're a part of…we start with socialization very early and talking about culture and I have them do a lot of writing and reflecting…sharing within small groups and in large groups…

Many faculty discussed the value of having students engage in reflective activities to encourage a deeper understanding of cultural matters (Nagaoka, 2016). Oftentimes, faculty said students would be quite surprised at how their views and perspectives changed once they connected the "new to the known."

In-Class Practices: Assessment

Students must be assessed, and evidence suggests that there must be a high degree of congruence between learning goals (in this case, an exploration and mastery of inclusive principles) and how students are evaluated (Walvoord & Anderson, 2011). Realizing that the successful attainment of student learning goals is a priority, faculty discussed how they selected and implemented assessment practices that would underscore inclusive practices presented in the course. In a discussion about testing approaches, two psychology faculty members relayed:

> One of the things I try to do particularly in my exams or my tests is application based and scenario based…I pull names from various cultures…I've even had students comment "wow these are some crazy names, where did you get them"…but I want them to realize, you know, not everyone looks like you…

> One of the essays they can do, for example, is the intersectionality of race, class, sexuality, and gender…some assignments that are tied to that…I try to make my test questions reflect diversity as well as I can…that's sometimes a little bit hard…

Assessment can take many forms and faculty in this study explained how they were willing to allow students latitude in how they demonstrated mastery of course content. Part of establishing inclusive learning environments is realizing that not all students' proof of achievement will be tied to traditional forms of assessment, such as quizzes and objective tests (Gay, 2002). Faculty who wanted to provide students with a diversity of ideas were also prepared to let them exhibit content knowledge in less conventional ways.

Role Modeling and Professional Responsibility

When reflecting on their tasks as instructors, faculty shared an understanding that they had a responsibility to show students how the content was applicable to their lives but also how students "fit into" the discipline. A number of faculty expressed feeling an obligation to inform students of the state of their profession but also provide a welcoming space for them to feel that they could be a part of the ongoing discussion and change the composition of the discipline. Two professors shared ways that they engage their students in an induction into the state of their profession:

> I'm a physics professor, so there are less than two percent of PhDs in physics who are women and even less in other unrepresented groups…so we have a lot of work to do in physics…I try to use science as a platform…I start with scientific papers…a lot of people in physics education have done research to try to see how we can get more of these groups in physics and, based on the data, one of the main things that needs to happen is just discussions about

underrepresentation…like that was the most powerful thing that someone can do…so I start with that…with papers and show the graphs, show the data, and say "look, we need to talk about getting more people in physics…"

I want the students who are getting degrees in anthropology or archeology or any of the humanities or STEM fields [to know] how does your work matter…why is it relevant…so much of what we do is relevant because it's contributing to these really contentious political things…we basically scrapped half our syllabi last semester in North American Archaeology so we could talk about the Dakota Pipeline which is this really fascinating and evolving intersection of history and sovereignty…heritage and economy and environment…it is just such a wealth of things to discuss and it has a direct relationship to the sorts of jobs my students can expect to get and why they might want to do what they want to do…

Faculty mentioned how facilitating positive and respectful exchanges with students could benefit their interpersonal and intrapersonal growth. Instructors intentionally used class time to give students an opportunity to speak up and voice their concerns or ask questions. Classroom dynamics are predicated on supportive interpersonal exchanges (O'Keeffe, 2013), which faculty accentuated in their courses. Instructors expressed specific techniques they used to enable constructive interactions between students:

As much as possible I try to encourage debate and will ask explicitly divisive questions to get people to try and do that…kind of like the sustained dialogue initiative…trying to communicate with one another more often than not…I sometimes have to play a role and kind of model for students, so that's why I try and bring people in conversation with one another…

I teach religion…nothing controversial there!...and so occasionally if the room seems to have a dominant opinion I try and take a different one…"what about this"…."how would you answer that"…and often I'll say something like "we hear from the extroverts pretty regularly but now I want us all to just be as quiet as long as it takes for some of our more introverted people to have some time to gather their thoughts and participate in the conversation…"

The conversation on culturally relevant andragogy emphasizes how some social groups have been excluded from the conversation for so long, instructors have to be intentional with providing space for students to feel comfortable sharing. Faculty expressed how simply having a warm and caring presence helped them create a learning environment that was productive for all students. They assumed a professional responsibility to show students they belonged in that setting and could thrive while there.

Discussion

The present study sought to examine how faculty created an inclusive environment in their classroom settings. As is clear in our findings, ideas about

inclusion are not relegated to the time spent only in the classroom setting but extend to how faculty conceptualize the course and see their role as content experts in helping students of underrepresented groups find a place in the discipline. There is no longer a "typical" college student. In the 21st century, faculty members have to traverse the areas of gender identity, racial demographics, religious ideology, immigration status, and ableness while maintaining a respectful and engaging classroom environment. Faculty discussed ways they actively choose to help students connect with them, the course content, and their peers. Instructors intentionally prepared themselves and students for the inclusive practices they wanted to demonstrate. Whether through syllabus statements or actually expressing it verbally in class, faculty alerted students that the subject area would come up and they would be expected to participate in significant ways. Syllabi can be conceptualized as guides, contracts, and/or collaborative tools (Lund Dean & Fornaciari, 2014). By placing language in the syllabus about the exploration of diverse perspectives, faculty demonstrated their willingness to open the course to multicultural perspectives.

During class sessions, faculty were deliberate in how they used language to convey an appreciation of diverse opinions and experiences. Faculty made content relevant and relatable to students by presenting examples from different groups and connecting what students were learning to professional goals. Several faculty members emphasized inclusion by consciously choosing to teach students about the contributions of underrepresented groups. Faculty also wanted students to reflect on what they learned to make the course connections deeper. These instructors required students to see the larger implications of the information they were studying.

In terms of assessment, faculty struggled a bit to link inclusive learning goals to evaluate students' mastery of course content. Faculty felt more confident in providing an extensive array of options for students to demonstrate mastery of the course information. Again, instructors offered students the chance to be reflective in their work through debates, service projects, and media assignments. Finally, faculty expressed a sense of professional responsibility to expose students to the larger context within which their discipline operates. Presenting information about underrepresented groups and having discussions to deliberately include less active members of the class were ways faculty tried to increase belongingness amongst the class.

Maslow's theory (1943) provided a model for this study by demonstrating the importance of providing a psychologically safe place for students to maximize learning. As Maslow contended, we are all in the search for an actualized self, and college students are no different. Students should experience a welcoming learning atmosphere in order to thrive to the fullest. Before they can be expected to ascend to a level of mastery and achievement, the environment and the players therein must be willing to provide a psychologically safe place for acquiring the content of the course. Our findings show faculty were able to use tools of collaboration, communication, and active listening to create a sense of community. Faculty were keenly aware that students had to feel connected and engaged for learning to occur (Nagaoka, 2016). They were intentional with their course preparation and instructional practices, encouraging an environment of belongingness and inclusion.

Limitations and Areas for Future Research

This study interviewed a small sample of university faculty about their experiences of inclusion in their courses. In the absence of classroom observations or interviews with their students, we cannot be certain that these practices were truly implemented as expressed by the participants (Sciame-Giesecke, Roden, & Parkison, 2009). Conducting observations of instructional time would be a useful addition to our study to determine the nature of faculty's inclusive teaching practices. It would also be beneficial to speak with students to uncover their perceptions of inclusive learning. The strategies and techniques faculty employ may not have the impact they believe it does. Talking with students about their experiences in courses with a component of multiculturalism would help give some indication of the congruence between student and faculty perspectives. Finally, because some faculty members expressed uncertainty with how to connect diversity learning goals to assessment measures, additional research could explore that practice. Future research could also investigate how, or if, faculty use institutional resources available to them (e.g., teaching grant funds, university-led diversity training) to support their decision to provide an inclusive environment.

Conclusion

The importance of safe spaces for student learning cannot be denied. College students need inclusive environments that facilitate active participation and a sense of community. Faculty members are the guides in the classroom who help or hinder this process. In this study, we showed how instructors were deliberately reflecting on how to best reach their students and make the classroom setting positive and broadly encompassing of all backgrounds. An instructional triangle presumes students link to their teacher, their peers, and the course content. Faculty who want to develop an inclusive environment are tasked with supporting student connections in all three domains. This study adds to the literature by presenting how a small group of faculty are working to ensure students are better equipped to deal with an ever changing global society.

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Social Learning via Improved Daily Writing Assignments, Implementation of Study Groups, and Well-Structured Daily Class Discussions

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As recent scholarship emphasizes the value of social learning, this article describes a course redesign that sought to encourage such social learning. This multi-year course redesign includes altering a daily writing assignment to make it more specific and to make it a contribution to the learning of a study group. Data was collected and evaluated to explore the effectiveness of this change. The author also offers reflections on how the course redesign encouraged social learning via study groups and how the redesign made daily class discussions more deliberate and robust.

In his 2013 book *Social: Why Our Brains Are Wired to Connect*, Matthew Lieberman discusses the human need for social connection. Lieberman explores the fundamental need that humans have for social connection and how that connection is essential for human development and flourishing. A recent examination in this very journal explores the value of students learning with peers and how to allay fear about social learning that students may have (Jacobs & Greliche, 2017). With this inspiration, I redesigned elements of my Humanities course to deliberately encourage students to use and value social learning. My course redesign encourages social learning with the implementation of study groups as part of daily classroom activity. The course also uses extra credit on exams to encourage study groups. I also redesigned a daily writing assignment. In fact, the bulk of this article explores that redesign, provides data about it, and discusses the results of the redesign. Finally, the new daily writing assignment provides a more deliberate daily class discussion structure. All three elements are crucial to how the project encourages the social learning that Lieberman recommends so highly.

Background

I teach an introduction to the Humanities course at a small, private university in the southeastern part of the United States. My course introduces literature, visual art, architecture, music, film, and television arts to about 30 students in each section. The students are mostly first-year students, and the course theme is laughter. To encourage pre-class preparation and reflection, in the fall of 2014 I implemented a daily writing assignment called "The Coolest Thing I Learned." This open-ended assignment invited students to reflect upon the element of the assigned homework that they found most interesting. Students generated a short (350 words) response. Students brought two copies of the response to class. The first copy was turned in, and the second copy was used for small, informal discussions of the material as the class started (see Appendix A for the description of the assigned "The Coolest Thing I Learned" daily paper).

These assignments encouraged students to come to class prepared, but, as I graded these daily writing assignments, some of them seemed rather superficial. Many responses failed to engage the readings beyond an impressionistic, personal response, and few used evidence from the reading to support their insights. I wondered if the open-ended nature of the assignment contributed to this seeming superficiality. With the help of some ideas from the Teagle-funded Collaborative Humanities Redesign Project team, a team of scholars from several universities involved in course redesign, I decided I would do two things. The first thing was to encourage social learning by putting students into study groups. I hoped that study groups would both encourage the value of social learning as well as encourage students to respond with greater insight and substance. The second change was to restructure the daily writing assignment to encourage more specificity and depth.

Many responses failed to engage the readings beyond an impressionistic, personal response, and few used evidence from the reading to support their insights.

In order to deliberately encourage social learning, I dedicated a few minutes of the first day of class to putting students into study groups. Each study group had three students. Each student in the study group would have a numerical designation: one student designated as number one, another as number two, and the third as number three. I then changed the daily writing assignment. Instead of having each individual student generate a very open-ended response to "The Coolest Thing I Learned," the revised assignment required students to generate a "Study Group Contribution." The "Study Group Contribution" was the same length as the previous "The Coolest Thing I Learned" assignment, but the difference was that each student in the study group had to respond to a specific prompt as their contribution to the study group's learning (see Appendix B for the description of the assigned "Study Group Contribution" daily writing assignment). I also varied the prompts over the course of the semester so that students would engage different approaches and skills.

An example of the revised assignment is the one I give for John Kennedy Toole's novel *A Confederacy of Dunces* (see Appendix C). For the new assignment, one student writes about how Toole characterizes the novel's main character, Ignatius, in addition to writing about Ignatius's worldview. A second student has to respond to Boethius's *The Consolation of Philosophy* and its role in the novel. A third student discusses what the novel says about African-Americans and racism in New Orleans at the time. These specific prompts require that the three members of the study group look carefully at the novel and assemble insights that can be shared with the group. The hypothesis was that this would improve the writing assignments by providing greater focus. This would also encourage study groups, since the class would start with a discussion among study group members about each person's contribution. The third element of this redesign was that then I structured the subsequent class discussion around those three prompts. The prompts are specific enough to generate a focused discussion while still requiring textual analysis skills. The prompts are also well-suited to subsequent class discussion because they not only require students to synthesize many elements of the assignment, but they also allow us to discuss connections between the assigned work and other works examined in the class.

Effectiveness of Course Redesign

In order to determine the effectiveness of this change, specifically the change in the redesigned daily writing assignment, I compared the earlier "The Coolest Thing I Learned" papers with the subsequent "Study Group Contributions." I examined the quality of the insights that these papers generated. I had several questions that an analysis of this redesign might answer:

1. Would the open-ended papers generate a broad range of insightful responses or would they yield papers that are vague and superficial?
2. Would the revised assignments, the Study Group Contributions, have the sort of focus that would make them more substantial and insightful compared to the earlier assignments, or would they seem too limited and even mechanical or formulaic?
3. Would the Study Group Contributions give the impression that students are just trying to answer the question without really delving into the assignment with depth or insight?

My focus in comparing the assignments to measure their effectiveness was to see how well students could marshal clear textual evidence to build and support a compelling argument or to support worthwhile insights about the work of art.

In November 2015, I submitted a protocol to the university's IRB to get approval to do this research. I provided the consent form that I would send to students as well as the parameters and the objectives of the research. In December 2015, I was notified that my project had been approved. Each student was subsequently contacted and was given the opportunity to participate or not. An evaluation rubric was developed to examine the daily writing assignments (see Appendix D). This rubric includes three evaluation levels. Papers ranked as "high" use clear textual evidence to build and support a compelling argument. In addition, "high" daily writing assignments demonstrate interesting and thoughtful writing. Assignments judged as "moderate" include some textual evidence to form an argument or provide insight, but the argument and/or the evidence is weaker than papers ranked as "high." "Low" papers have little or no textual evidence and/or fail to make an argument (samples of the levels for both assignments are Appendix E).

Student Work

The assignments were examined using the rubric, and the results of that examination are in Table 1 on p. 31. The papers from fall 2014 are the "The Coolest Thing I Learned" assignments for the class discussion of *A Confederacy of Dunces*, while the three subsequent semesters are "Study Group Contribution" assignments for the same reading. The fall, 2014 semester was the first semester I assigned a daily writing paper, so it is the only group of "The Coolest Thing I Learned" assignments that could be compared.

Table 1

Data from the Evaluation of the Daily Writing Assignments

	Fall 2014	Winter 2015	Spring 2015	Fall 2015
High	6	16	17	18
Moderate	9	7	8	10
Low	11	0	0	0

Reflections

As these results demonstrate, students produced writing with much more textual evidence and a stronger argument with the revised Study Group Contributions than the earlier "The Coolest Thing I Learned" assignments. This finding confirms that the focused prompt led to writing with stronger evidence and better arguments. It is interesting to note that there were no daily writing assignments assessed as "low" for the Study Group Contributions. Part of what might also accounts for this improvement is that students knew that they were going to have to share their contributions. Students knew that their group was relying upon their input. The collaborative nature may have encouraged everyone to at least produce "moderate" contributions to the study group.

Of the earlier "The Coolest Thing I Learned" papers, the best ones used evidence from the assignment and tended to link a discussion of the assignment with something of interest to the student. Weaker papers featured personal, subjective responses, while the weakest ones spoke almost exclusively about the student's response to reading the novel with little meaningful exploration of the book itself. The best Study Group Contributions provided a thorough response to the prompt, ample textual evidence, and a solid, interesting argument. Even the moderate papers provided a stronger exploration of the book than the correspondingly moderate "The Coolest Thing I Learned" papers. This revision may be particularly useful for first-year students, who may be less comfortable or experienced engaging the assigned work and responding in an analytic instead of an almost exclusively subjective manner.

Where the data offers clear evidence of the effectiveness of this revision in generating student work with stronger textual evidence and better arguments, the course redesign includes two other elements that do not lend themselves to a similar data analysis. These elements are encouraging social learning via study groups and clarifying the structure of daily class discussions. As mentioned - previously, students who knew they were contributing to a study group instead of merely talking about something they found that was "cool" may have benefited from the social pressure and connection to make evidence-based and stronger responses. In addition, with respect to the goal of encouraging social learning, I offered extra credit to students who prepared for their exams by studying with study groups. The extra credit was a modest 2% bump in the exam score, and I implemented this with the change in the writing assignment in the winter of 2015. Over the subsequent semesters I have consistently had between 50% and 65% of students prepare for exams with study groups. While students have taken this option more often than not and while those who do seem both excited and happy with it as well as report a positive experience, I have neither the data

nor the means to measure exactly how effective study group preparation has been relative to individual preparation. My impression from their enthusiasm for it and their positive experiences with it seem to indicate that it is effective.

In addition to encouraging social learning, the nature of the Study Group Contribution prompts made them excellent points-of-departure for the subsequent class discussion. In fact, with these assignments in place, I structure the subsequent class discussions around those prompts. We spend about one third of the class, to use the example from the class on *A Confederacy of Dunces*, discussing Ignatius, his character and characterization, his worldview, and his relationships with key characters. We then spend another third of the class discussing *The Consolation of Philosophy* and how that book provides the structures for both Ignatius' thinking and the novel itself. The final third of the class is spent examining the role of race in the novel. As students had examined these issues before coming to class, they are ready for a lively discussion about these topics. My experience is that these prompts and the format encourage students to study in groups. They also provide a clear structure for class. Lacking any data to substantiate how well this revision clarified daily discussion structure, all I can offer are my impressions, but it does seem that the class discussions are structured in a way that is easy for students to understand and anticipate. Students come much better prepared for those discussions because they have addressed a specific prompt. My impression is also that our class discussions now can focus more on the text, on important issues, and on evidence and arguments related to the assignment rather than subjective responses to the reading. In addition, students seem to appreciate the deliberate structure and respond positively to how well class discussions seem organized. In these respects, the course redesign produced better initial conversations about the assignment, better class discussions of the text, better understanding of the course as a whole, and more robust social learning.

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Appendices
Appendix A
Description of "The Coolest Thing I Learn" Daily Writing Assignment

Coolest Thing I Learned (CTIL)

In addition to taking the daily quiz, you will also write a 300 word explanation of the coolest thing you learned from that day's assignment. The audience for this short piece is your classmates. You will bring **TWO (2)** copies of this to class. One copy you will turn in as class starts; the other copy you will use for a short, informal discussion with a classmate or classmates to begin each class. You may be asked to share your CTIL with the entire class. Each CTIL is worth 5 points, and they are graded pass/fail.

Appendix B
Description of the "Study Group Contribution" Daily Writing Assignment

Study Group Contribution

21st century learners often find that learning is more effective when it is social. While many elements of this course are individual, you will also work with a study group. These study groups will be formed on the first day of class. Each member of the study group will be assigned a number. Part of each class period's assignment is a study group contribution. The study group contribution is a written response to the prompt or question listed in the daily assignment. There are three prompts, and those prompts correspond with each member of the study group. If, for example, you are group member number 3, you will create your study group contribution as a response to study group contribution prompt number 3.

Appendix C

Sample "Study Group Contribution" assignment for class on John Kennedy Toole's A Confederacy of Dunces

Study Group Contributions
1. What is Ignatius like, what does he wear, how does he interpret the world, and how might his approach to his experiences help and not help him?
2. What is Boethius's *The Consolation of Philosophy*, what is its connection with the "wheel of fortune," and, in the entire course of the novel, how do different characters like Lana, Jones, Mr. and Mrs. Levy, and Ignatius and his mother go up and down on the wheel?
3. What does the book seem to say about the state of African-Americans, how is this obvious in the lives of people like Burma Jones, and what does the book seem to say about people like Lana Lee, Ignatius, Mr. and Mrs. Levy, and Myrna Minkoff's responses to the racism of the time?

Appendix D

Evaluation Rubric for Daily Writing Assignments

What level of art examination skills does the writing convey?
- **High**: Clear textual evidence is used to build and support a compelling argument or worthwhile insights about the work of art. It is clear from the writing that the student has solid art examination skills. The writing is interesting and thoughtful. It may or may not combine personal insights.
- **Moderate**: Some textual evidence is used. That evidence is used to form an argument or provide insights, but it may be weaker in its use of evidence than writing at the high level. The paper may also present an argument or insights that are not as strong or compelling as a high example. The paper may rely too much on personal insights or may fail to effectively connect those insights with the text.
- **Low**: Very little to no textual evidence is used and/or the paper may fail to make an argument or offering interesting insights. The writing may be vague. It may also be so subjective and "impressionistic" that it leads one to question how well the student understood or even examined the work.

Appendix E
Samples of "The Coolest Thing I Learned" and "Study Group Contributions"

Sample 1 Coolest thing I Learned
High
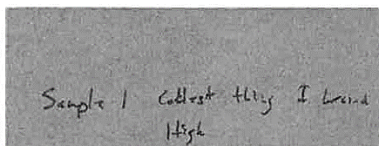
Dr. Tucker

Laughter in the Fine Arts

10/16/2014

CTIL – A Confederacy of Dunces

After reading the novel "A Confederacy of Dunces" by John Kennedy Toole, I found that the coolest thing I had learned was the genre of the novel of itself. The novel falls under the category of *picaresque*, a subgenre of prose fiction. The book contains many satirical elements, such as the big picture of Ingatius' ill-minded and lame actions taking a positive effect at the end of the novel, by jailing the unfair and unruly owner of the bar, the Night of Joy, and giving officer Mancuso the glory he has always been in search of. Other effects are caused by his actions, such as the public shaming of Dr. Talc at his school (which is well deserved for his lack of skill in his profession), the liberation of Jones from the bar that he is forced to work at to avoid jailing, the long-deserved retirement of Miss Trixie and her prompt reception of an Easter ham, the better job opportunity given to the B-girl Darlene as an exotic dancer at a finer establishment, and Mr. Levy's avoidance of the lawsuit threatened by one of his vendors. Mr. Levy also receives redemption in his marriage for his good fortune of avoiding the whole situation, and shames his wife for constantly portraying him to be the cause of disgrace in his family to his daughters. He then carries his luck even further by creating a more successful Bermuda shorts company, which then employs Jones. Even Mrs. Reilly gets what she wants, as she is able to start a real relationship with her Claude Robichaux, especially after her decision to commit her son to a mental hospital. It eventually works out for poor Ignatius, as his ex-girlfriend Myrna Minkoff comes and takes him away, instead of to a mental hospital. It was interesting to see this pan out throughout the novel, as it is unclear whether or not *Fortuna* will grant Ignatius with the good fortune he has been desiring.

CTIL: A Confederacy of Dunces

First, let me say that I had a difficult time reading and understanding the book. The grammar and vocabulary was difficult for me to read at times and I didn't like nor connect to Ignatius at all. There's only been one other novel where I absolutely couldn't stand any of the characters and A Confederacy of Dunces might place second on that list. I like the themes and meaning of this book, but overall, it wasn't an enjoyable experience for me.

The coolest thing I learned while reading this book however was the argument between fate and free will. This is an argument that isn't frequently discussed, whether humans choices and actions are all set in stone and their life cannot be changed, or if humans have choices in the actions that they make and can constantly change their destiny. I know most people don't believe that our lives are set in stone, but, as a Christian I'm taught that are lives are predetermined. Even though we have the choice to choose, it doesn't affect what happens in the long run because our choices were already planned. Hence, our lives are predestined.

It's interesting to see how this book played with the argument. Ignatius believed that all of his non fortune/fortune occurred because Fortuna spun the wheel and his life ended up being pretty crappy at times. But here, at least to me, Ignatius life doesn't seem predestine. I think he's confused fate and free will, and has blurred the lines because he is always making the choice. And the religious doctrine that he chooses to believe in doesn't set his life in stone, so his life isn't predetermine. However, Fortuna is spinning the wheel so we don't know what will happen to Ignatius (this is what Ignatius thinks). To me fate is somewhat involved, but I don't think his life is solely based on fate, I believe that his life is determine by a lot of his own free will/choices and he covers his mistake by saying it was bound to happen. It's a scapegoat.

CTIL 11- Confederacy Assignment

After hearing the title of this novel and reading it, I realize I had a very different vision for what the book would be about. I wasn't expecting the drama and plot twists that happened, and I definitely judged a book by its cover/title. I had expected almost a memoir or history book after hearing the Confederacy of Dunces. Therefore, the coolest thing I learned was that this book was not what I had expected and totally took me by surprise. The book changed my perception about what it was going to be, which is very interesting to me.

I also thought the concept of a picaresque novel was very interesting as well. I learned that a picaresque novel is a genre of fiction which can be satirical and depicts the adventures of a mischievous hero of low social class who lives in a corrupt society in a real and humorous way. I thought this was very interesting when comparing a Confederacy of Dunces. I would have never thought Ignatius was a hero throughout the novel, and almost didn't even find him humorous. However, the different jobs including Levy Pants and being a hot dog vendor at Paradise Vendors were funny and entertaining, as were many other scenes in the novel. I thought overall it was an interesting and entertaining novel, and told an important story.

Dr. Tucker

IDS 120

15 October 2015

What does the book seem to say about the state of African-Americans, how is this obvious in the lives of people like Burma Jones, and what does the book seem to say about people like Lana Lee, Ignatius, Mr. and Mrs. Levy, and Myrna Minkoff's responses to the racism of the time?

  The book, A Confederacy of Dunces, is set in 1960s New Orleans, a place where racial discrimination was very much prevalent. The Civil Rights movement was on the rise, but discrimination against black people was nowhere near gone. Burma Jones, a black man who is hired at the "Night of Joy" club, is the main African-American character in the book. Jones plays a large role in the story in order to show the state of African-Americans of the time. Although slavery was abolished, Jones character is used to illustrate how black men were still treated as lesser beings. For example, Jones says, about how Lana Lee, "She ain't exactly hire me, She kinda buying me off a auction block" (Toole 34). Lana does not treat Jones very well and, later in the story, she even forces him to dress as a slave for one of her shows. The purpose of this is to show how discrimination was still very present in their society.

  The book also incorporates the issue of race in the lives of some of the white characters. For example, it is explained that Myrna Minkoff is involved in Civil Rights activism because she deeply desires to make a difference and save somebody's life. Ignatius, on the other hand, simply wants to "one up" Myrna; therefore, he plans to organize some kind of racial demonstration at Levy Pants, the factory in which he works. In chapter five, Ignatius even compares himself to African-Americans by saying "I have always felt something of a kinship with the colored race, because its position is the same as mine: we both exist outside the inner realm of American society" (144). Although Ignatius does acknowledge that his situation is somewhat "voluntary", he still likens himself to the minority race because he feels like an outsider.
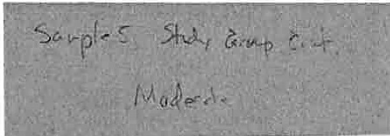
Laughter and the Humanities
Tucker
SGC- Confederacy
10/15/15

<div align="center">What is Ignatius like, what does he wear, how does he interpret the world, and how might his approach to his experiences help and not help him?</div>

Ignatius is an entertaining character to analyze. The large man wears a green hunting cap and carries himself with a false sense of inflated individuality. Overall, Ignatius Reilly might be categorized as a person with a cynical point of view, however, still being convinced that he is better and above everyone. Ignatius' outlook on life forced the character to be wildly self-confident but in reality, is a lazy unemployable grown child with almost nothing to show for. Along the way, Ignatius' misinformed paradigm has both helped him and hurt him. Positively, the character's enormous ego and out-of-touchness with reality gives Ignatius the confidence to at least attempt to stage a social rebellion, for example. These same qualities work against Ignatius as well. Although he is gifted with self-confidence and a wild imagination, Ignatius doesn't really have any skills besides eating hot dogs and whining. In short, Ignatius' hero is Ignatius, and the character is always high on himself- like when he comes up with the world peace through homosexuality plan. While I can't necessarily dispute his rationale, I don't think it is the most direct path to world peace. Realistically, Ignatius is not an outstanding member of society, but according to him, he is society,

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A Process and Outcome Evaluation of a One-Semester Faculty Learning Community: How Universities Can Help Faculty Implement High Impact Practices

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This process and outcome qualitative study describes and critically assesses the experiences of the faculty who participated in the one-semester FLC addressing CLTs through a content analysis of individual narratives completed at the end and ten months after the FLC ended. The existence and contributions of four prerequisites for successful collaboration (Einbinder, Robertson, Garcia, Vuckovic & Patti, 2000) are introduced to explain this FLC's success and then extended to suggest how future FLC initiatives can expand and improve on these accomplishments.

Collaborative learning techniques (CLTs) and Faculty Learning Communities (FLCs) are two of ten high-impact practices (HIPs)[1] touted as relatively inexpensive and proven ways to improve the quality of higher education (Bonet & Walters, 2016; Brownell & Swaner, 2010; Ganeshi & Smith, 2017; Kilgo, Sheets, & Pascarella, 2015; Kuh, 2008). In the study reported here, collaborative learning techniques (CLTs) refer to instructor-designed, in-class group activities that require students to work together collaboratively and are intended to facilitate improved critical thinking skills and increased knowledge acquisition (Barkely, Major, & Cross, 2013).

U.S. and Canadian institutes of higher education have been introducing FLCs in the U.S. at a fast pace (Hegler, 2004; Furco, & Moely, 2012). In 2004, there were an estimated 300 FLCs (Beach & Cox, 2009, as cited in Desrocher, 2011). By 2012, more than 800 FLCs were documented (Jessup-Anger, 2015). In spring 2015, FLCs were introduced at California State University Dominguez Hills (CSUDH), a public university educating 10,000 diverse undergraduate and 3,000 graduate students in Los Angeles County, California. These FLCs were part of a multi-pronged, broad-based initiative to increase retention and graduation rates introduced by the Provost who had joined the campus in January 2014.

Faculty at all ranks were invited to apply for one of nine scheduled FLCs, each addressing a different topic. Topics addressed included: (1) writing-intensive courses, (2) collaborative learning techniques, (3) undergraduate research, (4) diversity/global learning, (5) service-learning, (6) internships, (7) capstone courses and projects, (8) local history as pedagogy: The Watts rebellion; and (9) Affordable Learning Solutions

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[1] The other HIPS are first-year seminars and experiences; common intellectual experiences (core curriculum); writing-intensive course; undergraduate research; diversity and global learning courses examining "difficult differences;" service- or community-based learning; internships; and capstone courses and projects (Kuh, 2008).

(CSUDH)[2]. Coordinated through the campus' Faculty Development Center, application review generated invitations to faculty to serve as participants. In each FLC, two faculty were invited to serve as co-facilitators and provided with 2 hours of training in advance. A total of 90 full-time faculty took part in these FLCs (CSUDH Academic Affairs, personal communication, 2017).

This process and outcome qualitative study describes and critically assesses the experiences of the faculty who participated in the one-semester FLC addressing CLTs through a content analysis of individual narratives completed at the end and ten months after the FLC ended. The existence and contributions of four prerequisites for successful collaboration (Einbinder, Robertson, Garcia, Vuckovic, & Patti, 2000) are introduced to explain this FLC's success and then extended to suggest how future FLC initiatives can expand and improve on these accomplishments.

What are Faculty Learning Communities?

An FLC is, essentially, a study group whose members engage in conscious, self-directed and collaborative learning to master specific knowledge and skills (Sicat et al., 2014). FLCs usually target improved student learning by enhancing teaching quality (Hubball, Clarke, & Beach, 2004, p. 88). Comprised of a small number of faculty or faculty and students, FLCs can operate for one semester or longer. They can be topic-based, addressing a specific teaching approach or skill, or they can be cohort-based, including only faculty at the same rank (Bishop-Clark, Dietz, & Cox, 2014). Membership can be interdisciplinary, but FLCs are most commonly comprised of participants from the same discipline or profession (Sicat et al., 2014). FLCs have been recommended for mid-career faculty interested in regenerating their research and teaching interests (Blaisdell & Cox, 2004; "How to Recruit Faculty to Learning Communities," 2006; "Look to Midcarrer Faculty for Learning Communities," 2006). At one campus, tenure-track faculty formed cohort-based FLCs. Members collectively designed and conducted a research project that generated a publication and simultaneously integrated components of the research project into their teaching in the classroom. These participants concluded that the FLC was an effective way to improve their teaching and increase their scholarship (Hershberger, Cesarini, Chao, Mara, Rajaei, & Madigan, 2005).

Effectiveness of Faculty Learning Communities

Research evaluating whether and how well FLCs improve student learning outcomes and/or increase retention and graduation rates is limited but growing. The majority of published studies have small samples, are non-experimental, rely on faculty perceptions and beliefs as indicators, and only collect data a few times over a short period of time, but they consistently report that FLCs improve student learning

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[2] Affordable Learning Solutions is an initiative enabling faculty to reduce the costs of books and required readings for students by using free, open-source, and reduced-cost sources (California State University, Office of the Chancellor, 2012).

(Addis et al., 2013; Beery et al., 2011; Bishop-Clark et al., 2014; Desrochers, 2011; Hegler, 2004; Jackson, Stebleman & Laanan, 2013; Sicat et al., 2013).

Continuous, ongoing assessment was noted as key for improving FLCs and necessary to generate support to institutionalize them and ensure their sustainability (Gray, 2000). Hubball et al. (2004) suggested assessing three broad areas: student learning indicators, FLC outcomes, and faculty learning measures. Summative and formative protocols have also been recommended (Hillard, 2015). Sicat et al. (2014) encouraged administrators to include FLC faculty in designing, implementing and carrying out protocols evaluating this work.

Challenges of Improving Teaching through Faculty Learning Communities

Universities have established robust reward systems encouraging faculty research, but few provide initiatives to enhance teaching quality. Baker et al. (2014) observed that research rewards and incentives detract from attention on teaching quality, enabling faculty and institutions to ignore inferior and ineffective instruction and instructors. Simply demanding that faculty improve their teaching or mandating that everyone adopt high impact practices cannot be done without a major cultural change (Addis et al., 2013). Such changes would require significant modifications to employment contracts, tenure and promotion standards and myriad other considerations.

While research has increasingly become a collaborative endeavor, teaching remains a predominately individual and isolated activity (Sirum, Madigan, & Kilonsky, 2009). There are few external rewards to mastering new pedagogies, which take time to learn. Changing one's teaching style can complicate departmental teaching assignments, contradict accreditation requirements, and confuse students and colleagues, especially if more than one version of the class is offered by two different faculty who teach the same content in very different ways. And, of course, time spent on teaching takes away from time spent on research or other pursuits.

Faculty have reported that FLC participation is time-consuming, adding to their already demanding workloads (Beery et al., 2011). Fifty-five percent of faculty who participated in a 3-year, federally funded, multi-campus FLC initiative to integrate community internship experiences into their classes reported that they were unable to do so; the most common reasons they offered were collegial or faculty resistance and insufficient funds (Furco & Moely, 2012).

FLCs made up of faculty who volunteered to participate offer a way to incrementally revise expectations and requirements of instruction. Faculty who participated in FLCs reported improved job satisfaction (Jackson et al., 2013), increased pedagogical and interdisciplinary knowledge (Hegler, 2004), enhanced collaboration abilities (Sicat et al., 2014), and positive mentoring experiences (Beery et al., 2011). They also appreciated opportunities to collegially share and build on their teaching knowledge and skills in a "safe place" (Furco & Moely, 2012). Faculty interest in interdisciplinary collaboration, the heart of an FLC, motivated administrators at the City University of New York (CUNY) to create integrated, coordinating structures combining teaching and research. These structures have enabled the institution to entice internationally esteemed and far better paid faculty to leave tenured positions at

Ivy League and other private universities and join the CUNY faculty (Robinson, 2014). And CUNY successfully courted these academic superstars while addressing complaints of dirty classrooms, unhygienic bathrooms and rodent infestations on the campus (Ahmad, 2016).

Recommendations for Successfully Implementing FLCs

Integrating FLCs into a university's mission has been noted as a positive factor in their successful implementation (Boose & Hutchings, 2016) and as a way to enable sustainability (Gray, 2000). A framework for assessing FLC success comes from a study that identified four prerequisites for successful collaboration by professionals at California's county-level child welfare agencies: Incentives, willingness, ability and commitment (Einbinder et al., 2000).

Incentives. Incentives refer to institutional and individual motivations to work collaboratively, including access to resources. These can include tangible rewards (money), knowledge acquisition, and opportunities to build collegial relationships. Based on the experiences of participating faculty in a 3-year, federally funded, eight-campus FLC initiative facilitating service learning, concrete incentives should replace, rather than add to, existing workloads (Furco & Moely, 2012). A quasi-experimental study of FLCs improving science instruction reported that these incentives be made clear to participating faculty to encourage participation (Addis, et al. 2013).

Willingness. Willingness describes the conditions and environment needed for trust and respect to grow among and between collaborating participants, creating a "safe space" for developing shared values through open, reciprocal, and equitable interactions. The overall goal of the FLC, as presented by administrators, must honor faculty values in order to succeed in establishing willingness by faculty (Furco & Moely, 2012).

Ability. Ability describes the knowledge, skills and expertise to collaborate: Collaboration is a skill often taken for granted and just as frequently unfamiliar to novice practitioners. Learning while doing is common (Hegler, 2004), but success is more likely when FLCs have trained, seasoned facilitators (Beery et al., 2011; Desrouchers, 2011; Ortquist-Ahrens & Torosyan, 2009; Sicat et al., 2014). Ensuring participant access to FLC research has also been noted as a factor (Beery et al., 2011; Desrochers, 2011). Having a free-standing, independent Faculty Development Center on campus that is sufficiently staffed and funded to coordinate campus-wide events and activities is another example, along with library subscriptions to the full range of academic journals with articles investigating the effectiveness of high impact practices for faculty to access as desired.

Capacity. Capacity refers to administrative mechanisms and arrangements that facilitate successful collaboration, seen as essential elements for FLC success (Furco & Moely, 2012). One example is administrative commitment to ongoing support (Furco & Moely, 2012). Including FLC faculty in designing and implementing protocols to evaluate FLCs (Boose & Hutchings, 2013; Sicat et al., 2014) and opportunities for FLC faculty to generate publications and presentations about their work (Sicat et al., 2014) are also capacity-builders.

The CSUDH faculty in this CLT FLC had no experience working collaboratively with each other, participating in an FLC, or using CLTs in their

teaching. This process and outcome evaluation was created for three reasons: (1) to show how these faculty managed this experience; (2) to evaluate its effectiveness; and (3) to recommend how to improve on what was done to increase the likelihood that other campuses instituting FLCs can better facilitate supporting faculty interested in improving their teaching to increase student learning.

Methodology

Design. A qualitative, longitudinal research design was used in this evaluation. The FLC met five Friday mornings throughout the semester. Participants independently wrote narratives twice: After the last FLC session and 10 months later.

Participants. Ten faculty attended the first FLC meeting in spring 2014; two of the participants also served as c-facilitators and had completed a two-hour pre-training. None of the faculty had any experience participating in an FLC.

One faculty member withdrew after that session without explanation. The five men and four women in this FLC were, collectively, responsible for over 100 years of undergraduate and graduate instruction at CSUDH and on other campuses. Three identified as Latino, one as Indian, and five as Caucasian. Faculty who attended all five sessions, submitted a revised syllabus, and implemented a CLT in it in fall 2015 received $1,000. A co-facilitating FLC member left CSUDH in the summer of 2015, after the FLC ended for reasons unrelated to the FLC or this study.

An interdisciplinary, mixed-rank group, participants included one tenure-track first-year Assistant Professor, one part-time Lecturer, three full-time Lecturers, two tenured Associate Professors and two tenured Professors. Graduate and undergraduate courses targeted for modification were in accounting, economics, finance and business, foreign language, humanities, negotiation, public administration, public policy, and social work. The co-facilitators were full-time Lecturers who had completed a 2-hour training to prepare them for this work.

Materials and procedures. CSUDH IRB approval was obtained before beginning this study. After the last meeting, faculty were asked to write about what it was like for them to participate in this FLC with no specific suggestions or advice on content or length. Ten months later, faculty were sent nine open-ended questions and asked to send their replies to the author via email. They were asked if they had implemented collaborative learning techniques, how they evaluated this work, whether it improved their teaching as well as students' critical thinking skills and learning outcomes, and to identify additional resources that would enable them to continue this work (see Table 1 on p. 49).

Nine of the participants completed the post-FLC narratives. Eight of these nine participants completed the 10-month post-participation questions.

Data analysis. A conventional content analysis (Hsieh & Shannon, 2005) was conducted on the unstructured post-participation narratives. Each narrative was read one-at-a-time to get an overall impression of each participant's experience. They were re-read a few more times to find latent content not stated directly but implied, as interpreted by the researcher. This analysis is supplemented with details of the activities completed and issues addressed in each of the five FLC sessions to generate a "picture" of this experience.

The 10-month post participation narratives were analyzed using summative content analysis (Hsieh & Shannon, 2005). Responses to the open-ended questions were classified (i.e., yes or no) and counted, one question at a time. For example, the participants were asked how they felt about collaborative learning techniques. The number of participants who were enthusiastic, ambivalent or skeptical were tallied. Then the manner in which they described these feelings was re-read a few times in order to assess latent content, or the underlying message of the comment that might not be included in the explicit or manifest responses. This process was repeated for each question.

Validity and reliability. Assessing validity and reliability in qualitative research is difficult. The criteria of authenticity and credibility (Lincoln & Guba, 1985), respectively, are roughly comparable tools to assess validity and internal validity in qualitative studies. Since the author was also a participant in the FLC, contributed an individual narrative, and interpreted these findings, these criteria are important to address.

Authenticity assesses the degree to which the participant experiences were faithfully described. It is roughly comparable to validity in quantitative research. Credibility evaluates whether the study findings seem believable and truthful. It is roughly comparable to internal validity in quantitative research. One way to test for authenticity and credibility is to ask study participants to read the manuscript and give feedback regarding what they think of the researcher's interpretation of the data, called "member-checking" (Lincoln & Guba, 1985). All of the FLC participants received an earlier version of this manuscript that they were asked to read carefully and send the researcher any and all questions, concerns or criticisms about it, including the interpretation of the data. None challenged any part of the manuscript. While this response may be because it was not read comprehensively, it is more likely that they found the description authentic and credible.

One of the characteristics of qualitative research is its intentional subjectivity; its purpose is to capture individual, eccentric information that is drowned out in quantitative studies. Qualitative study findings are not often generalizable. In this study, the faculty who participated in the CLT FLC likely held similar attitudes, beliefs and opinions as those of the 81 additional CSUDH full-time faculty who took part in this initiative. Whether and how many faculty on other campuses feel the same way is unclear. But concerns about increasing retention and graduation rates are common at most public and many private institutions of higher education in the U.S., as are initiatives implemented to address them, suggesting that this study's findings may be helpful beyond the CSUDH campus.

Findings

Findings from the conventional content analysis are presented first. These depict faculty attitudes and opinions about the CLTs and how they experienced participating in the FLC. The summative content analysis of 10-month-post-participation narratives follows. This content portrays participant experiences implementing and evaluating the CLTs they designed during the FLC, as well as their thoughts about both. Direct quotes are cited by the participant's number and the page number on the narrative each person submitted.

Process Evaluation

Unbeknownst to each other, every participant was skeptical about the effectiveness of CLTs. A few pointed out that the CLTs were foreign to them and antithetical to their own "traditional" learning. One suggested that CLTs offered a way for students to evade learning:

> The learning process for me was always to read the textbook chapter before coming to class, attend lecture, which was in many cases a mechanical repeat of the textbook chapter, and to work the homework examples on my own time and in my house. I used to work full time then and attend college full time also, so group projects were a waste of time and highly inefficient. I believed that some people truly enjoy to work in groups because they liked to socialize and chat about things unrelated to academics or because they do not want or do not know how to complete the assignment on their own (5, p. 1).

Another participant confessed a deep dislike of collaborative learning itself, a result of three failed collaborative assignments in graduate school. Even though many participants disclosed their (mostly negative) feelings about CLT, none had mentioned them in the FLC sessions.

In the same vein, most of the faculty, including the co-facilitators, were also nervous about what they were supposed to do during each FLC session and how the FLC process functioned. This sentiment, too, was held by most participants but never shared among them or discussed in the FLC sessions. A co-facilitator's comment reflects this confusion: "I am collaboratively facilitating an FLC – which is itself a form of collaboration - on collaborative assignments and projects" (7, p. 1).

These unshared misgivings raise a question: Why did these faculty voluntarily participate in this unknown process, given their ambivalence and uncertainty about FLCs and CLTs?

In their narratives, participants described their strong commitment to teaching excellence, a treasured value perceived as a job requirement. The FLC participants dedicated themselves to improving the quality of their instruction out of this sense of obligation. As one participant put it: "I have always been open to the possibility that there might be a better way to teach and prepare students than the way I learned in college and later applied to my own students" (5, p. 1). They also respected fellow colleagues who shared these values, and this mutual respect permeated FLC interactions. Teaching was discussed with a reverence more commonly reserved for scholarly research. These shared beliefs likely helped the FLC succeed.

Confusion in the first three sessions. The first three FLC sessions were experienced as confusing and unclear[3]. Armed with a 2-hour pre-training, the co-facilitators struggled to guide the group, even on a supposedly simple task of getting

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[3] This confusion and insecurity led the author to conduct a comprehensive literature search that inspired this study. Publications describing the FLC process and studies investigating the effectiveness of collaborative teaching techniques were located and posted on the FLC's Blackboard site, to share with all of the CLT FLC participants.

faculty participants to collaborate on determining what to do in each session. After deferring to requests to devote FLC session time to a non-FLC activity, one co-facilitator said:

> Many members in the group seem to be interested in what strikes me…as basic LMS/Blackboard training…CSUDH offers Blackboard workshops every term. Yet, not until they committing to meeting for five Fridays with a task to deliver…have some members actually wanted to know what tools are available and how to use them. (7, p. 1)

While the organizational website that the co-facilitators arranged for FLC participant use was viewed as very helpful, it did little to defray confusion over the FLC process. At its inception, it contained meeting agenda, publications, and "files" for participants to submit their "before and after" syllabi.

At the third session, an article by Sirum et al. (2009) that specified concrete activities for each FLC session was reviewed by participants, and agreement was reached to implement some of them in the remaining two FLC sessions. This step created a transformation in the CLT FLC.

Transformation. At the fourth meeting, FLC members worked in teams to practice some of the 31 collaborative learning techniques in *Collaborative Learning Techniques* (Barkley, Major, & Cross, 2014), a book purchased by the Faculty Development Center and given to each FLC participant (without charge). In the fifth and last session, FLC participants brainstormed, in groups of two, how to salvage a collaborative learning technique imperiled by a "difficult" student, using vignettes provided by the co-facilitators. Finally, each participant demonstrated one of the CLTs that had been modified for implementation to the group and received feedback after the presentation was completed.

This transformation was noted in participant narratives. One identified the change "…we gathered momentum when we experienced actual collaborative skills ourselves and discussed how to resolve conflicts with difficult students (6, p. 1)."

The opportunity to brainstorm how to deal with a difficult student and the chance to practice implementing a CLT generated confidence and satisfaction among the participants, as noted "…participants focused on understanding and practicing different types of collaborative learning techniques to enable us to successfully revise syllabi and generate deliverables (5, p. 2)."

Immediate post-participation assessment: Mixed views. All of the participants said that they enjoyed taking part in the FLC, as their comments show:

> "I am learning a lot from my participation in the FLC and plan to use that knowledge to apply it to one of my courses" (5, p. 1).
> "…a positive learning and useful experience…" (2, p. 1).

> "I greatly enjoyed the interacting and sharing information among faculty…it was very significant in continually improving an instructor's ability to teach" (1, p. 1).

> I did not think I would learn anything new, but was pleasantly surprised … I like the idea of incorporating games and competitions

among groups in my classes, and it will make learning a very fun experience for my students. (2, p. 1)

The snacks that different FLC members brought to share to each of the five meetings were also applauded. One said that the snacks enhanced the FLC's learning environment, but another said, "While it was appreciated that members took turns bringing food for everyone, it was unsurprising that the only ones who did this were the women. The men never volunteered to bring food" (8, p. 2).

There were also negative comments. Many participants felt that the FLC ending was abrupt, and that the FLC's work was incomplete. One reported feeling unprepared to implement the CLTs: "Another major concern is how to measure the effectiveness of group assignments versus individual assignments" (6, p. 1).

Another participant shared disappointment:
> Although I asked a few times that we agree to extend our FLC into the fall semester and that we meet again before the onset of the fall semester to discuss introducing a standardized assessment process across all of our courses, one of our co-facilitators left CSUDH and the enterprise was abandoned. (8, p. 3)

CSUDH Faculty Development Center. The Director of the Faculty Learning Center visited briefly in the first and last FLC sessions to solicit data from the participating FLC faculty, who were asked to complete a standardized survey. No further information was provided about what, if anything, was done with that data.

Outcome Evaluation

Table 1 presents responses to eight of the nine open-ended questions in the 10-month-post-participation narrative. The ninth, identifying resources, is addressed separately.

Seven of the eight participants reported that they had successfully implemented collaborative teaching techniques in the fall semester. One intended to do so in the next academic year, when the course modified with collaborative teaching techniques was next offered.

The participants who implemented their FLC work also evaluated it. Evaluation protocols were varied. One used a rigorous experimental design (randomly assigning students to participating in the collaborative learning technique or not) to gather feedback from students. These findings suggested that the CLTs were effective in terms of student learning, but the sample was too small to test for statistically significant differences between the groups. Pre-/post-tests and multiple assessments during the semester, using standardized surveys, were also used; all showed that the collaborative learning techniques had been effective at improving student learning and critical thinking. The two participants who relied on informal feedback solicited from their students to conclude that their work was effective, and

one more who relied on student feedback on the mandatory course evaluation administered by the university, also claimed that their work was effective based on this data.

Table 1
10-month Post-Participation Responses: Summative Content Analysis Findings

Open-ended question	Responses
(1) Did you integrate and implement collaborative learning techniques from our FLC into your fall teaching? How did it work out?	• **Yes (n=7)**; all had positive experiences • **No (n=1)**; One participant planned to implement next term

(2) Please describe whether and how you chose to evaluate these modifications, and, if you did, how you did so and what you learned.	• **Yes (n=8)**
	  o Informal discussions with students (n=2)
	  o Pre/post-standardized surveys (n=1)
	  o Multiple measures during semester, including pre/post surveys (n=2)
	  o Perceived Teaching Effectiveness (student evaluations) (n=1)
	  o Have not designed yet (n=1)

(3) Please describe whether and how you informed your students of your use of these high-impact practices (or if you did not, and why).	• **No (n=4)** – they knew already; would impair evaluation; no need to inform • **Yes (n=3)** – Written into syllabus; important for students to know what is going on • Have not decided (n=1)
(4) Do you plan to continue to integrate collaborative learning techniques into your teaching?	• **Yes (n=8)**
(5) Did you share your work with collaborative learning techniques with faculty in your department?	• **No (n=4)** – not prepared; lack of interest/support within department • **Yes (n=4)** – informally; 2 FLC participants were in the same department
(6) Do you think that collaborative teaching techniques improved your students' ability to learn and think critically?	• **Not sure/No (n=3)** – no empirical evidence • **Yes (n=5)** – grades higher; students said it helped them prepare for exams; applied to real-life problems
(7) Did it make you a better teacher?	• **No/Maybe (n=3)** – less controlling & students liked class better; more effective teaching; students had fun • **Yes (n=5)** – shifted role to facilitator; more engaged; thinks it will
(8) How much did the FLC prepare you to integrate collaborative teaching techniques into your teaching?	• Would not have implemented collaborative teaching techniques without participating in FLC (n=6); significantly; most effective way; helpful; forced the focus

Four participants were convinced that this experience made them better teachers and improved student learning and critical thinking skills. Three participants were not so sanguine. Two pointed out that their empirical evidence was not sufficient to conclude this result. All three admitted that their students seemed to enjoy – and had more fun – in the classes in which they had implemented collaborative learning techniques.

All of the CLT FLC participants intended to continue and expand integrating collaborative learning techniques in their teaching. The FLC itself was credited as the best forum to learn how to do this. Six stated that they never would have changed their teaching by designing and implementing CLTs in their class without the FLC, which functioned as a safe, supportive place to learn and practice with their colleagues.

Suggestions from Participating Faculty

The majority of recommendations made in the 10-month-post-participation narratives identified resources and issues that the university could provide, as Table 2 shows on p 51.

All of the participants wanted more: More training; more time in this FLC, more FLCs, and more support for FLCs. Three participants asked for additional training in CLTs and other high-impact practices in online and hybrid classes. Two participants wanted this FLC reconvened and run for another 2 consecutive semesters. Another suggested an 18-month FLC to maximize its effectiveness. In this model, participating faculty would study and plan their collaborative learning techniques in a spring semester. That fall, each instructor would implement their CLTs and gather data. Then, in the following spring semester, they would access help in analyzing and evaluating their work and generating conference presentations and scholarly publications.

Another participant recommended that the university ensure that every student had a cell phone, tablet or laptop to facilitate full participation in collaborative learning in their classes. One more suggested that senior administrators should require department chairs to support interdisciplinary collaborations like this FLC.

Providing funding to faculty to attend and present their research at high impact practices conferences, and sponsoring on-campus forums or workshops for faculty who had completed this FLC to share their experiences with campus colleagues were also suggested. Two participants noted that limited library holdings and subscriptions made it difficult to explore the effectiveness of high impact practices and asked that this be addressed.

Conclusion and Recommendations

This qualitative process and outcome study described the experiences of faculty who voluntarily took part in a one-semester FLC to learn how to implement CLTs in their classes at a state-funded, public university in Los Angeles County. It demonstrated that this FLC created conditions that built trusting relationships among and between the participants, generated conditions for learning and preparing to implement CLTs, and served as a campus mechanism for interested faculty to gain

Table 2

Recommendations for Improving Support of Collaborative Learning Techniques

Student Access to Technology (n=1)
- Ensure that every student has a cell phone, tablet or laptop to use in class to enhance collaborative learning experiences

Extend this FLC's Lifespan/Institutionalize Formal FLC Structure (n=5)
- Continuation of this FLC (1) since it was "very significant in continually improving an instructor's ability to effectively teach" (1)
- Formalize the FLC structure and make this FLC ongoing to serve as a forum for ongoing communication so that faculty doing collaborative learning techniques get together regularly (3)
- CSUDH should continue effective FLCs like this one (1)

SDE edited a little – do more "It takes time to formulate a program and effective groups, As soon as the program gains momentum, it stops; thus, inhibiting the effectiveness of the current program and future progress. There needs to be a structure in place, headed by the university, for those teachers/faculty interested in pursuing. Having a community to discuss ideas, collaborate on techniques, conference proposals, papers, etc. is valuable not only for the teacher but for the university and ultimately what we are all here to do: Improve the learning of our students (1)

- Extend FLC for 3 consecutive semesters – spring preparation, fall implementation, spring evaluation
- More training in HIP (4)
- Additional feedback and continued learning (1)
- Learn how to integrate into traditional and online classes (1)

On-campus Forum for Faculty to Share these Experiences with Faculty Colleagues
- Having workshops or informal sessions for faculty to meet and share their experiences with rest of faculty (5)

Fund Faculty Attendance/Presenting at Conferences Addressing Collaborative Learning
- Fund faculty attendance at conferences addressing collaborative learning techniques (currently not funded) (3)

Require Departmental Support for Interdisciplinary Faculty Collaboration
- Departmental support for interdisciplinary collaboration (6)

Institutional Access to Research Literature/Knowledge Base
- Continue studying the literature on effectiveness of different collaborative teaching techniques (1)
- Make sure that the library has key literature (articles, texts, journal subscriptions) that comprise the knowledge base of collaborative learning techniques (3)

Create Standardized Evaluation Protocol/Create Large-scale, Longitudinal Database
- Establish a centralized, standardized evaluation protocol for all faculty to use in undergraduate and graduate, online, hybrid and traditional classes and require its use so that the university can create a large-scale, longitudinal database to evaluate the effectiveness of HIPs and whether they increase retention and graduation rates.

pedagogical knowledge and skills to improve the quality of their teaching.

...served as a campus mechanism for interested faculty to gain pedagogical knowledge and skills to improve the quality of their teaching.

The participating faculty enjoyed this experience and credited the FLC with helping them prepare to successfully implement CLTs in their classes. Among those who implemented CTLs, half trusted findings their evaluations that suggested that this work improved student learning and critical thinking. The others, who had also generated findings indicating that the CLTs were successful, were skeptical due to their use of simplified evaluations that used small samples and subjective measures.

Prerequisites and Recommendations for Successful Inter-Professional Collaboration

The four prerequisites of successful inter-professional collaboration - incentives, willingness, ability and capacity - provide a framework for evaluating the process and outcome of this FLC. For each prerequisite, the indicators mentioned by FLC participants are identified first, followed by those provided by the administration.

Incentives. FLC faculty noted four incentives that prompted their participation. These included: (1) the opportunity to acquire new knowledge; (2) the chance to develop professional relationships with campus colleagues from different disciplines and professions; (3) snacks; and (4) the $1,000 cash payment received for completing FLC work.

The administration allocated $90,000 for cash payments to the 90 faculty who participated in all ten FLCs in Spring 2015; it is likely that the initiative itself required additional funds. A new, annual, campus-based conference about innovative teaching, inviting presentation proposals from all campus faculty was inaugurated. Breakfast and lunch were served to all attendees. Two CLT FLC faculty presented research about their work at this conference.

Willingness. FLC faculty demonstrated a willingness to trust each other, which seems to have overcome each participant's unshared but surprisingly strong skepticism and ambivalence about both the FLC process and CLT effectiveness at the start. Members appeared to have quickly recognized that everyone there shared their values about teaching excellence and practiced ongoing evaluating and improving their instruction. This made this FLC a "safe" place for the work and also a "safe" place to figure out how to work collaboratively. The mutual respect and shared values were probably responsible for helping the group limp through the first three confusing sessions to reach success in the last two.

The FLC initiative conveyed the administration's trust in its faculty, too. It suggested that administrators believed that the quality of faculty instruction mattered and that faculty deserved support in this work. In some ways, the FLC initiative was a gift to faculty willing and eager for opportunities to improve their teaching at a campus increasingly emphasizing the need for scholarly research.

Along with the funding incentive, these are important considerations for the faculty, particularly for the time in which this transpired. Faculty at the 23 CSU campuses were working without a contract since July 2015. Protracted negotiations over salaries and benefits initiated in 2014 were heading toward a historic, week-long

strike in April 2016 that administrators did not support and that was narrowly averted by a last-minute agreement that was ratified by faculty vote (California Faculty Association, 2016). Despite recent state budget improvements, the average annual salary for faculty at public institutes of higher education was recently estimated to be $78,874, compared to $90,206 for those at private institutions (Arntz, Clery & Miller, 2017, p. 1).

The Faculty Development Center also illustrates the administration's willingness. Providing pre-training to co-facilitators, setting the session meeting schedule, scheduling rooms for FLCs to meet, and paying modest stipends directly to faculty are more examples of this prerequisite from the administration.

Ability. In the first three FLC sessions, it was increasingly obvious that the FLC faculty lacked the ability to work collaboratively to learn and master how to implement CLTs. Instead, the serendipitous discovery and use of a journal article with concrete suggestions for FLC session activities spurred the FLC's subsequent success in the last two FLC sessions.

The distribution of the CTL book by the administration provided what the faculty needed to learn about CLTs and how to implement them. The two-hour pre-training for the co-facilitators, though, did not appear to prepare these FLC participants to guide the group in working collaboratively.

Capacity. Participating FLC faculty capacity was evident in attendance. With one exception (a co-facilitator was presenting a paper at a teaching conference), the FLC participants came to campus on a Friday (when they did not have classes or meetings), arriving on time to begin the work by 9 am and attending every session. The administration established the FLC initiative and set up mechanisms and arrangements necessary for them to operate, representing capacity. Like this FLC itself, these were short-term.

Recommendations for the Future

The six-month long CLT FLC appears to have been successful, although the faculty's work was never evaluated to determine whether and how well CLTs increased retention and graduation rates. Additional indicators of successful inter-professional collaboration are suggested as factors that could have expanded this FLC's accomplishments and might improve future such initiatives at this and other campuses.

Missing indicators of incentives. To sustain and extend the success of the CLT FLC, more meetings could have been scheduled over the summer or in the fall 2015 semester. This would have served as a powerful incentive for these faculty to continue working together, since they themselves requested that the Faculty Development Center extend the FLC into the summer and fall semesters. Absent the FLC structure and support, faculty lacked a venue to discuss and assist each other in implementing the CLTs, which may have improved the overall quality of their work. It could have also generated a cadre of faculty with inter-professional collaborative experience and accomplishments with two high impact practices. In turn, these faculty could informally mentor and co-facilitate new faculty FLCs to expand the reach of this work. Continuing this FLC would also serve as an incentive for these faculty to strengthen and expand the knowledge and skills they acquired about CLTs. And of course,

granting workload releases for participating in the FLC would have been an even bigger incentive (and cost more).

Publishing proceedings of the innovative teaching conference could serve as another, even if this was limited to posting presenter PowerPoints on the website of the Faculty Development Center. These missing incentives squandered the good faith of the participating faculty. Their absence suggests that the administration had no interest in institutionalizing or sustaining the work that the CLT FLC faculty had successfully completed together. Other campuses considering introducing FLCs should plan long-term in order to identify and provide as many incentives as possible if sustainability is desired.

Missing indicators of willingness. The Administration's willingness was focused exclusively on getting the FLCs running and completed. Neither the Provost's Office nor the Faculty Development Center contacted the FLC faculty to find out if they had implemented the CLTs as planned.

Nor, for the matter, did the Faculty Development Center's Director inform the participating faculty what, if anything, was done with the pre-/post-test survey that they were asked to fill out. The questions on the survey, which were the same both times it was administered, asked respondents to rank collegiality within their department or program and to share their views of faculty collaborations within departments and across campus. There were no questions about high impact practices or their relationship to increasing student retention or graduate rates.

The absence of these willingness indictors indicates that the administration was not interested in maintaining ongoing support of the spring 2015 CLT FLC. Again, it appears that sustainability and continuity were not goals, either.

Additional indicators of willingness could be grafted into existing campus activities. For example, the President and Provost sponsor and attend a few annual campus events to honor and award certificates to select faculty for a range of accomplishments (including an annual teaching excellence award, an annual research award, and awards for 5-year, 10-year, and longer years of campus employment). Adding an award or two for FLC faculty would add prestige to participating and raise campus awareness that the administration valued the work of faculty participating in initiatives intended to increase retention and graduation rates.

Missing indicators of ability. Access to research studies investigating the effectiveness of high impact practices in general and FLCs and CLTs in particular was limited at the CSUDH library. Requests to expand its subscriptions to include academic journals addressing FLCs and CLTs were ignored. The campus still does not have access to *Learning Communities Journal* edited by Kuh, as well as other key sources. This can be addressed in new FLC initiatives and should be fulfilled by other campuses considering the adoption of high impact practices so that they can evaluate whether they work for their students.

Missing indicators of capacity. To improve the success of the FLC, administrative commitment to ongoing support is needed. The CLT FLC faculty lacked time to design evaluation protocols for their work, a capacity that could have been provided by the administration and one recommended for future initiatives. Too, participating faculty should be invited to participate in planning how to evaluate their work as well help to design how to assess the effectiveness of the entire FLC initiative,

another indicator of capacity that was missing here. At CSUDH, this was moot since there did not appear to be any administrative or institutional attempt to find out if these FLCs increased retention and graduation rates, a strange oversight at an institute of higher education. Publishing the conference proceedings, which can be done easily and inexpensively by posting the PowerPoints on the Faculty Development Center's website, is another missing capacity indicator.

Study Limitations

This qualitative study is, by its very nature, subjective; a CLT FLC participant interpreted these findings. It is possible that this study does not accurately represent the views of some or all of the CLT FLC participants (or the administrators involved in this initiative). However, participating CLT FLC faculty received an earlier version of this manuscript that they were asked to review, and no questions or challenges were raised to the contents.

One significant limitation to this study is institutional. In Spring 2016, the Provost, who had introduced a series of broad-based initiatives, including the FLCs, to increase student retention and graduation rates left, CSUDH. An interim Provost filled the position until a new Provost joined the faculty in June 2017. The Director of the Faculty Development Center was on sabbatical in AY2016-2017 and stepped down to return to full-time faculty status upon her return. The Acting Director for AY2016-2017 turned down the option of continuing in that position, which remains vacant. A national search to fill the position is in process.

The future of the FLC initiative at CSUDH is unknown. [4] It was introduced without any long-range planning or attention to sustainability and absent any evaluation considerations. And even though the CLT FLC addressed here appears to have been successful, there is no way to tell if the FLC initiative, or the other broad-based initiatives introduced at the same, actually increased retention and graduation rates. Any future endeavor of this nature must make sure to address these factors in order to avoid wasting time and money. With attention to the full range of indicators of collaborative success, high impact practices in general, as well as FLCs and CLTs, can make a difference in undergraduate education at CSUDH and beyond.

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[4] The FLC initiative at CSUDH was restarted in spring 2017, on a much smaller scale. Each semester, three or four new, one-semester FLCs have been created with one exception: In spring 2017, a new iteration of the collaborative teaching initiatives FLC with this author and three new faculty colleagues met and received permission to continue this work through fall 2017 and spring 2018. This new FLC is currently completing a pilot study evaluating a standardized assessment of collaborative teaching initiatives for all types of courses, including those offered to graduate and undergraduate students and those offered online and in traditional classroom settings. If shown to be effective, this assessment tool may be used to generate a longitudinal database of these efforts across the entire campus that can, eventually, be used to test whether and how this particular high impact practice contributes to increasing graduation and retention rates.

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"Why did I get a C?": Communicating Student Performance Using Standards-Based Grading

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Standards-based grading, an alternative form of grading in which a student's achievement is based on their performance on a clearly defined set of standards rather than on their performance on tests and assignments, is commonplace in K-12 education but has been slow to catch on in higher education. This article presents an example of how standards-based grading was implemented in two sections of an undergraduate course on assessment to add clarity to the meaning of students' grades. The author reflects on lessons learned from implementation including the benefits and challenges posed by adopting the practice.

"How many points is this worth?" "What do I need to do to get an 'A'?" "Do you offer extra credit?" These are the types of questions I often get from students when we talk about their grades. I generally respond by discussing the weight of different assignments in comparison to tests and projects, the impact of turning assignments in late, the amount of material to be covered on tests, and, almost invariably the admonition, "t's in the syllabus." Rarely it seems do these conversations focus on student learning. In fact, grades often seem to impede rather than facilitate communication.

To address the confusion that often surrounds the awarding of grades, I implemented an approach that is commonplace in K-12 schools but almost completely absent from higher education called standards-based grading. Standards-based grading is a practice that bases students' grades on their performance on a set of clearly defined learning objectives rather than the completion of assignments and tests or the accumulation of points (Brookhart, 2009; Guskey & Bailey, 2010). With the system of standards-based grading I implemented, students' grades were calculated by averaging scores they received on rubrics indicating a level of mastery of course objectives. I derived the rubric scores using evidence from tests, quizzes, projects, etc. instead of just adding up points for correct answers. At the end of the course I developed a standards-based report card that clearly showed my students exactly which learning objectives they had mastered and which ones they had not.

What I discovered was that implementing standards-based grading involved much more than a simple cosmetic redesign of my grade book. By aligning my grade book with specific standards and by basing the students' grade on their performance in relation to these standards, the standards-based grading approach caused me to reconceptualize the relationship between assessment, curriculum, and instruction in significant ways. As a result, I had much more substantive conversations with students, focusing on learning rather than policies, effort, or the number of points for an assignment. Most importantly, I felt like the grade I awarded to students at the end of the term much more accurately represented their level of understanding than when my grades were based solely on the number of points students earned. In short, my experience implementing standards-based grading was truly transformational. The

purpose of this article is to describe a rationale and a process for implementing standards-based grading and to reflect on the benefits and challenges of implementation.

Background on Standards-Based Grading

To understand standards-based grading it is helpful to understand how it is different from traditional grading practices. In higher education, and in most secondary schools, a student's grade is determined by their performance on a variety of assessments, such as tests, quizzes, and projects. It is common for each assessment to be worth a certain number of points, with assessments that are deemed more significant being worth more points or a greater percentage of the student's grade. Assessments generally address multiple learning goals, sometimes identified on a rubric in the case of a project, or, in the case of a test the learning goals are reflected in the questions, but are often not explicitly communicated to the student (i.e., the final exam will cover all the material addressed since the midterm). In contrast, in a standards-based approach students receive a score for each learning goal or target addressed in the course. The score for each standard is determined by a student's performance on assessment items (test questions, performance assessments, etc.) carefully aligned with the learning targets or goals. For example, my students take three tests during the term. Each test is made up of approximately 20 open-ended questions, and each question is aligned with a learning target with multiple test items aligned to a specific standard. When I grade the tests, I score each item on a scale based on their level of understanding, and then I give a standards-based score that is an average score of the items that addressed that standard. When students get their tests back they can see not only how well they did on each item, but also how well they did on each of the standards. Similarly, students complete several projects and -receive scores on a rubric that is aligned with course learning goals (for a summary of key differences between standards-based grading and traditional grading practices, see Appendix A, and see Appendix B for a sample standards-based grade report).

Standards-based grading is not a new practice in K-12 education. Beginning in the 1990's, the curriculum of elementary and secondary schools became increasingly standards-based. With the passage of No Child Left Behind in 2001, an accountability system was established to monitor the educational progress of students using standardized tests. The pressure to prepare students for standardized testing caused many in education to question the relationship between students' performance in the classroom, represented by their grades, with their performance on standardized tests. Presumably, a student who can get good grades in a math class should do well on standardized tests in the same subject. Now that most states adopted the Common Core State Standards in math and English/language arts the alignment between curriculum, instruction, and assessment is likely to be ever more heavily scrutinized (Welsh, D'Agostino, & Kaniskan, 2013). Anybody who has seen a report card for an elementary student recently has probably noted how they no longer report a student's grade in single subject areas, such as math or science; instead they report the student's progress on specific skills or standards.

To make grades a more accurate reflection of what students know and can do in relation to standards, standards-based grading is based on several core principles. First, a grade should represent the degree to which a student has demonstrated mastery of a clearly defined set of standards (Brookhart, 2009; Marzano, 2000; Popham, 2011; Wiggins, 1998) rather than a norm-referenced or relative approach in which students are compared to other students. Second, performance in relation to standards should be defined using clearly articulated descriptors on a scale of four or five levels rather than with a percentage system based on the accumulation of a number of points (Guskey, 2011). Third, factors that influence a grade, but are not directly related to student mastery of a standard, should be considered separately for grading purposes (Guskey, 2011). Such factors include lateness, effort, attendance, and the use of extra credit to "boost" a grade. These factors only serve to confuse the true performance of the student. Fourth, a grade should reflect how much a student has learned and not when they learned it, meaning, the most recent and/or consistent evidence of a student's understanding should be considered over a simple averaging of performance on tests and assignments over the course of a year or semester. Finally, and related to the last principle, students should not be

> **…reassessment provides teachers with opportunities to use grades to facilitate meaningful communication with students.**

penalized for practice, meaning, not all assignments should be factored into a student's grade (Fisher, Frey, & Pumpian, 2011). Homework, practice problems, or other types of formative assessment should be used for feedback but not to determine a final grade because they reflect a students' developing understanding and not their final understanding, which should be measured using summative assessments.

In addition to these core principles, standards-based grading is often connected to mastery learning (Guskey, 1980). The underlying assumption behind mastery learning is that all students should be provided with multiple opportunities to demonstrate their understanding of a standard to achieve proficiency. Grades in this approach are used to help identify students' strengths and weaknesses to foster growth rather than simply to identify talent (Guskey, 2011). Allowing opportunities for reassessment provides teachers with opportunities to use grades to facilitate meaningful communication with students about their specific strengths and weaknesses.

Review of Literature

While the research supporting the use of standards-based grading is lacking, there are several studies that suggest traditional grading practices are flawed. For example, in two famous early studies by Starch and Elliot (1912, 1913) on the subjectivity of grading they discovered a wide range of scores awarded by teachers grading the same assignment, even when it involved subjects like geometry. Brimi (2011) replicated one of these early studies and discovered almost identical results, even after teachers had received 20 hours of training on assessment. Another problem is that the meaning of a grade is often difficult to ascertain because it conflates too many factors—lateness, effort, neatness, for example—often unrelated to learning or impossible to measure (Gordon & Fay, 2010). The well-documented rise in grade

inflation, too, suggests that there is good reason to be skeptical of the meaning of grades as a true measure of a students' understanding (Rojstaczer & Healy, 2012; Seligman, 2002). Brookhart (1994) discovered in her research on teachers' grading practices a lack of congruence between best practices in the field of assessment and how teachers graded their students. In other words, many teachers are simply not well-educated when it comes to issues of assessment and grading. This is particularly clear in the emphasis teachers place on grades as a reward for students' work, rather than a level of achievement (Brookhart, 1993, p. 139). These are just a few of the reasons why experts in assessment advocate for standards-based grading as an alternative to traditional grading.

The studies done in K-12 education on the practice of standards-based grading suggest that it can improve student learning and may increase student motivation. A large-scale study in the Denver area, for example, demonstrated a higher correlation between grades and standardized test scores in schools with standards-based grading versus those without. The scores on standardized tests in schools with standards-based grading were higher than in schools without (Haptonstall, 2010). In the Omaha Public Schools as well, the number of students failing classes decreased significantly when a standards-based approach to grading was implemented (Proulx, Spencer-May, & Westerberg, 2012). Also, in a study by Fisher et al. (2011) a school in San Diego that implemented several components of standards-based grading saw their performance on state tests increase as well as students' GPAs. Despite these positive findings, very little research has been done in higher education related to the use of standards-based grading.

The few studies that do exist on the use of standards-based grading in colleges or universities suggest that grade reform is possible in higher education, and the experiences of both the professors and students involved in the studies were generally positive. Beatty (2013), for example, documented his experience implementing standards-based grading in two semesters of university physics. He discovered that many, but not all, students liked the standards-based approach; however, the logistics of successful implementation are significant and challenging. Rundquist (2011) also reported a similarly positive experience implementing standards-based grading in an upper level physics course. Finally, Kalnin (2014) implemented proficiency-based grading in one instructional unit in a course on assessment and found that the process gave her a deeper appreciation of the challenges of "practicing what we preach," and it deepened her students' assessment literacy. To date, these appear to be the only studies specifically on the use of standards-based grading in college or university settings; however, given currents trends in K-12 education it appears likely that standards-based grading will continue to grow in use in colleges and universities, and the need for a better understanding of the best practices in implementing this approach will only increase.

Context

The context in which I implemented standards-based grading was a private, selective liberal arts college in the Midwest. The course was Assessing Learning, a required course for all students in the Education program, which includes elementary,

secondary, and K-12 majors. As the second course in the education sequence, most students take Assessing Learning as sophomores, and they have all either been fully or provisionally admitted into the education program by the time they take the course, meaning most the students have at least a 3.0 GPA and received a minimum of a 22 on the ACT or 1100 on the SAT. The fact that the students were all majors and most have met minimum program requirements means that they, on average, are more highly motivated and capable than the average student on our campus. Also, as majors in education they tend to have a high level of engagement and interest in topics such as grading.

The Process of Implementing the Standards-Based Grading Approach

To implement the standards-based grading approach I consulted a variety of articles and texts, mainly relating to the context of K-12 education, but also those mentioned above in higher education. Various articles cited below influenced practical considerations, but the overall process came from the course text (Popham, 2011) and the work of Guskey and Bailey (2010) and Marzano (2000). I used Popham's process primarily because I wanted to model what was presented in our course text, and I found that there was a great degree of conceptual similarity between the different approaches, even though Popham refers to the approach as "goal-attainment grading." Guskey and Bailey (2010) and Marzano (2000) provided more in-depth answers to the many practical considerations I needed to make.

Step 1: Clarifying Curricular Aims or Standards

The first step in implementing the standards-based grading approach is to determine a set of learning targets or objectives that accurately reflect important concepts and skills addressed in the course. I started with ten course goals, which were broad statements of what the teacher candidates need to know and be able do. Using these broad outcomes as a guide I thoroughly reviewed course materials and readings to identify more specific and assessable learning targets reflecting the knowledge and skills I deemed necessary to be literate in classroom assessment practices. Bloom's Taxonomy was useful for ensuring the learning targets represented an appropriate range of cognitive challenge and for ensuring the learning targets were all assessable. Examples of specific learning targets can be found in the sample standards-based report card in Appendix B.

Once I identified an appropriate number of learning targets addressing the essential content and skills, I considered what non-academic behaviors were important for my students to demonstrate. Advocates of standards-based grading argue that non-academic factors such as lateness, effort, attendance, etc., should not be used to determine a standards-based grade (Guskey & Bailey, 2010); however, Guskey and Bailey (2010) recommend acknowledging the importance of these non-academic factors by separating students' grades into product (mastery of course objectives), process (factors such as attendance), and progress (how much a student has gained from a course). The process goals I deemed most important included attendance, active participation, meeting deadlines, completing assignments (even ungraded ones), and

the general professional dispositions desirable of an adult working with children (use of appropriate language, communication skills, etc.). See Appendix B for an example of how the process grade was communicated to students using the standards-based report card. A progress grade was not computed because of the challenges of fairly determining the amount of growth attained by each student during the term were simply too great, particularly given an eleven-week trimester.

Another step in the process of clarifying one's curricular aims is to identify the criteria by which you will determine if a student has mastered the aim (Popham, 2011, p. 391). Having an idea of what mastery looks like is an essential step in clarifying for oneself and one's students what the curricular aim is. After reviewing multiple examples of rubrics (Beatty, 2013; Guskey & Bailey, 2010; Rundquist, 2011), I arrived at a five-point scale to evaluate student learning in relation to my learning targets (see Appendix C).

Step 2: Choosing Standards-Based Assessment Evidence

Once I identified my learning targets, both product and process related, I reviewed my course assessments—a combination of performance assessments and traditional tests—to make sure I was collecting appropriate evidence of my students' understanding. All my assessment items required constructed responses in which students needed to write out an answer rather than multiple choice or true/false questions. Multiple assessments were helpful for a variety of reasons, some of which will be discussed in the next section, but overall, advocates of the standards-based grading approach suggest that students should have multiple opportunities to demonstrate mastery of course learning targets, and a grade should be based on a sufficient amount of evidence (Marzano & Heflebower, 2011). I found that I really did not have to significantly change my assessments, but rather the process required me to think about how my assessments were connected to my learning targets and how strong the evidence was I collected.

I also excluded a wide range of assignments I normally would have included in the grade book when calculating the final grade. The types of assignments excluded fall into the category of formative assessments, assignments designed to collect evidence of a student's progress towards meeting standard for feedback and to assist the student in monitoring their own learning (Popham, 2011). Examples of formative assessments not included for grading were daily homework assignments, quizzes, and other in class assignments. While these assessments were critical for me as the professor to know if my students were learning, including them in the final grade would have ultimately punished students for practice (Fisher et al., 2011).

Step 3: Weighting Standards-Based Assessment Evidence

When considering how to weight the evidence that would be used to determine the final grade, I again considered the basic tenet of the standards-based grading approach that low grades received early in a term should not be averaged with grades received later (Fisher et al., 2011). This means that my grade book was set up so that the time of assessment was taken into account and that the most recent grade a

student received was the most important grade in determining the final grade. While there are different models and approaches to determine a grade for a single standard (Hooper & Cowell 2014; Marzano 2000), using the most recent score made sense to me both because it didn't penalize student for low grades early in the term and because it would ostensibly communicate to students that what really matters is how they finish, not how they start. The fact that average scores on my first test tend to be much lower than on later tests suggests to me that students also need to get used to the assessments and the expectations for assessment evidence graded as distinguished, on target, etc.

Another question related to the weighting of evidence is what to do if a student scores lower on a reassessment opportunity. Should the lower, but most recent score be used, should the new score be disregarded, or should the scores be averaged? I decided to average the two most recent scores because I wanted to communicate to students that the fact they had already demonstrated a higher level of understanding was important, but consistency was also important and, if a student had mastered a learning target early in the term with a 4 but forgot what they learned and scored a 1, then perhaps they really did not reach a level of mastery warranting a score of "distinguished."

Lastly, it was clear to me as I determined the standards to be assessed that not all standards should be weighted equally. Some standards were more important because they reflected a greater level of cognitive complexity or they were more fundamental to the broader course outcomes required by the course and the program. For example, my students' ability to identify different types of assessment bias was important, but their ability to construct their own assessment items that were free from assessment bias was even more important and worthy of more weight in the grade book. The system of weighting used involved a multiplier from 1 to 4 depending on the complexity and significance of the standard being assessed. This system of weighting was useful when communicating with students because it gave them an idea of what knowledge and skills were most significant and why.

Step 4: Arriving at a Final Standards-Based Grade

The overarching purpose of standards-based grading is to clearly communicate to students a level of performance in relation to a set of standards, and the best way to do this is to use a reporting system that is sufficiently detailed to accomplish this task. Guskey and Bailey (2010) recommend reporting performance on non-academic or process goals separately from product and progress goals so that the ability of the grade to clearly communicate will not be diminished (p. 157). Yet in higher education and in most secondary schools there is a need to award a student a final, omnibus grade. Acknowledging the significance of grades for students to advance in our program and with an understanding of the need to ensure that the grades I awarded students were indeed reflective of their mastery of course standards, I provided students with a grade report that was separated into process and product grades so that I could communicate to them what their grade was based on, but I also calculated a final grade that reflected both academic and non-academic performance. My decision to include the process score in the students' overall grade is a significant departure from the spirit of standards-based grading, but I was concerned that a

student could receive a good final grade in the course but not demonstrate the types of dispositions we expect of our students, and in my case, future teachers. Accordingly, I wanted the final grade to reflect both mastery of content and professional dispositions.

To do this I decided that to receive an "A," a student should demonstrate an understanding at the distinguished level on a majority of the learning targets and exhibit no non-academic concerns. With this in mind I arrived at a final, omnibus grade, by averaging their performance on the learning targets, using the most recent evidence (or an averaging of the previous two scores if the most recent score was lower) and averaging the scores awarded for non-academic factors (determined through a combination of self, peer, and instructor assessment, depending on the trait). Finally, I multiplied the product score by .8 (80%) and the process score by .2 (20%) and combined them to determine the final score, which I then converted to a letter grade using the grade point scale (see Appendix B for a sample grade book). The final grades I awarded were comparable in range and distribution to grades given in non-standards-based grading courses, but unlike in non-standards-based grading courses, they were based on clearly defined standards of performance.

Reflections on the Process

My main take-away from implementing standards-based grading and from reviewing the research is that it is an approach with a great deal of value because it encourages healthy reflection on what we teach and how we assess our students. It also fosters communication with our students by making the focus of a grade on student achievement rather than on success on an assessment instrument. The grades students received at the end of the course more accurately reflected a level of understanding of course content than in the past when I based my grades on an accumulation of points. Also, the way I communicated with students about their grades and assessments improved significantly. Rather than discussing low test scores or a failure to complete assignments as the reason for a poor grade, I used a standards-based "report card" to communicate with students' specific learning targets they still needed to master and the opportunities they would have to demonstrate their understanding of these learning targets. In course evaluations students reported that they clearly understood the relationship between course content, in-class learning activities, and assessments, and that this helped them to focus on learning what was important. These conversations represented a significant, positive shift in the way I talked about grades and assessment with students.

In fact, students' reaction to standards-based grading were mostly very positive. The results from an anonymous post-course survey indicate students liked the clarity of standards-based grading and that it gave them a sense of control over their grade because of the opportunities for re-assessment. On the other hand, some students felt that the standards were set too high or that they were not sure what they needed to do to reach a higher level of mastery. Also, the practice confused some students. I believe this was partly because it was different from what they were used to and partly because I was still learning how to implement the practice. Despite some negative comments, scores on course evaluations were much higher than the average for other courses at the institution, specifically on items related to grading and

assessment. Overall, the majority of students appreciated the approach and wished other faculty used it in their courses.

The process also required me to think about my assessments differently as each item on a test, for example, was connected to a specific learning target. Reviewing my assessments from this perspective improved them by ensuring that course content was adequately represented. Most importantly, when I graded my tests, I was able to see which learning targets students struggled with and which the majority had mastered. Understanding student and class performance in relation to learning targets then led me to examine my teaching practices and the ways I presented different topics in class. As a result of this reflection, I made several changes to my teaching to better address specific learning targets students struggled with, including using more formative assessments and structuring in-class activities to address specific topics in more depth. I also used item analysis to inform future assessments, making sure to include questions on topics the class overall struggled with to provide them with an opportunity for reassessment.

Providing both individual and group opportunities for reassessment represented another significant improvement afforded by standards-based grading. While not all students took advantage of opportunities to reassess, I believe those who did benefited from the opportunity to review material and to demonstrate their understanding in different ways. In almost all cases reassessment led to higher scores for students, and, because the higher, most recent score was used to determine the final grade, this final grade was a more accurate representation of the students' level of understanding.

Despite my generally positive experience, standards-based grading is not without its pitfalls. Something that I hear quite often from K-12 teachers, and is reflected in my own course surveys, is that standards-based grading is difficult to understand at first because it is different. Another common complaint I hear from K-12 and pre-service teachers is that students are not as motivated to complete assignments if they know the grades on the assignments will not count for their grade. The practice of not grading work that is formative, a central component of standards-based grading, reflects a significant hurdle for teachers or professors wanting to implement this approach. The way I addressed this concern was to include work completion in the process grade, so that a students' grade was impacted if they failed to complete homework assignments. In addition, to participate in class students needed to come prepared with their work complete, which was another graded component of the course. Standards-based grading is also difficult to implement because it requires professors to think about assessment differently. It was definitely more work grading because, rather than just adding up the number right on tests, I was thinking about the level of understanding reflected in their answer compared to a standard of performance.

My main conclusion is that the philosophy and the growing body of research supporting standards-based grading is promising, but the realities of assessing and grading in higher education present professors with challenges of implementing it with fidelity. Issues such as arriving at a final, end-of-course grade that does not take into account non-academic factors, providing multiple opportunities for reassessment, and not grading homework are all elements of standards-based grading that I struggled

with as I implemented the approach. My review of the three published articles related to the implementation of standards-based grading suggest that the issues I faced are not uncommon; however, the way these issues are addressed varies depending on context. The nature of the course and the methods of assessment will likely determine what standards-based grading will look like in practice.

Recommendations

While my experience and the reaction of the students was positive overall, more needs to be done to "work out the kinks." The challenges to implementing this approach in a higher education context with fidelity to the basic principles are significant. To be successful multiple iterations are likely to be needed and much more serious, systematic inquiry into the benefits and limitations will be needed.

My first recommendation is that more research needs to do be done to better understand best practices for implementing standards-based grading in higher education. Some of the more obvious areas in need of investigation include: what role does context play in the successful implementation of the standards-based grading approach? In K-12 education standards-based grading has been implemented in a wide variety of contexts, but it seems to run into more resistance in secondary education. Could it be that the content being taught and the course level will determine whether or not standards-based grading can be implemented successfully? It seems to work well in college physics and assessment courses, but what about upper division writing courses or introductory language courses? Is it feasible in large, lecture style courses or will it only be manageable when course enrollment is low?

Another question needing to be researched is how does the standards-based grading influence students' approach to learning and their overall mastery of the course goals? If the standards-based grading approach is meant to improve learning, do we know this is really happening? The work that has already been done is promising because it suggests students view the approach favorably, but the next step needs to be taken particularly when the opportunity to compare student learning in courses with standards-based grading and without standards-based grading is available.

For those interested in implementing standards-based grading, my recommendation is to start by developing a mock grade book representing the elements that you feel are most important to you and that will help to facilitate communication with your students. If a significant reason to adopt standards-based grading is to improve communication, then the tool used to convey this information to students is important. Once you have an idea of what the final product will look like then the process for arriving at the grade report, outlined in the article, will likely make more sense.

The work that has already been done on standards-based grading suggests that it is a worthwhile approach but that it is challenging to implement. In my experience, the challenges are worth the effort because of the clarity standards-based grading brought to my grading process and the improved levels of communication it enabled. Given that standards-based grading is likely to become more commonplace in higher education it behooves us to continue to work out the kinks and to learn from each other.

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Appendices
Appendix A

Table A1

Summary of Differences between Traditional Grading and Standards-Based Grading **Traditional Grading System**	**Standards-Based Grading System**
1. Based on assessment methods (quizzes, tests, homework, projects, etc.). One grade/entry is given per assessment.	1. Based on learning goals and performance standards. One grade/entry is given per learning goal.
2. Assessments are based on a percentage system. Criteria for success may be unclear.	2. Standards are criterion or proficiency-based. Criteria and targets are made available to students ahead of time.
3. Use an uncertain mix of assessment, achievement, effort, and behavior to determine the final grade. May use late penalties and extra credit.	3. Measures achievement only OR separates achievement from effort/behavior. No penalties or extra credit given.
4. Everything goes in the grade book – regardless of purpose.	4. Selected assessments (tests, quizzes, projects, etc.) are used for grading purposes.
5. Include every score, regardless of when it was collected. Assessments record the average – not the best – work.	5. Emphasize the most recent evidence of learning when grading.

Note. Adapted from *How to Grade for Learning: Linking Grades to Standards* (2nd ed.), by M. Townsley from K. O'Connor (2002). Copyrighted 2014 by Corwin Press.

Appendix B
Sample Standards-Based Report Card

Name:	Doe, John			
Course #:	EDUC 330			
Section #:	1			
Product Grade (80%)				
	The student…	Weight	Final Unweighted Score	Final Weighted Score
Course Learning Targets*	knows how to collect reliability evidence	1	3	3
	can define assessment bias and identify its different forms	1	3	3
	can explain the difference between norm-referenced and criterion-referenced score interpretations	1	4	4
	can create a performance assessment and identify its key features	4	2	8
	knows the difference between aptitude and achievement tests and appreciate the appropriate uses for each	2	4	8
	can define formative and summative assessment and identify the purposes of each	3	4	12
	can identify different approaches to grading and evaluate their relative worth	2	3	6
	Total Weighted Standards	14	Total Weighted Score	44
	Total Weighted Score/Total Weighted Standards			3.14
	Average Product Score × .8			2.51

Process Grade (20%)				
		Score		
Process Grade Components	Attendance	3		
	Participation	4		
	Timeliness	4		
	Homework Completion	3		
	Average	3.5	Avg. Product Score+ Avg. Process Score	3.21
	Average Process Score × .2	.7	Final Grade	B

*This is just a sample of the course learning targets upon which the grade was based.

Grade Scale		A	4.0-3.71	A-	3.7-3.5
B+	3.49-3.3	B	3.29-3.0	B-	2.9-2.7
C+	2.69-2.3	C	2.29-2.0	C-	1.99-1.7
D	1.7-0				

Table A2
Generic scale used to evaluate assessment evidence

Level of Performance	Performance Descriptor
4-Distinguished	Students demonstrates clear, accurate, and advanced evidence of understanding
3-Mastery	Student demonstrates a clear, accurate understanding
2-Developing	Student demonstrates a partial understanding
1-Concern	Student demonstrates a clear misunderstanding
0-No evidence	No evidence of understanding provided

Appendix D
Student post-course survey comments

What did you like about standards-based grading, if anything?

That it reflects what [is] most important; Learning

I like how the intangibles are separate from the overall grade. This makes the student's assignment grade more accurate as to the caliber of his/her performance in mastering the learning targets. It also provides more organization for the teacher because basically everything (assessments, grading, instruction, etc.) revolves around the learning targets he/she puts in place to satisfy standards. This ensures that teachers do not get too carried away with planning only somewhat related lessons because everything has to tie back to the learning targets.

I like how there is something that everyone could achieve and work up to.

I like that standards-based focuses on the mastery of content when giving a grade. Then nothing else would influence the grade and students, parents, and teachers would get a clear understanding of the student's learning.

I liked that we had the opportunity to reassess on certain learning targets that we did not fully master.

I like the reassessment opportunities.

I like that we can do reassessments for our learning targets.

It really shows whether or not you understand the content and where you need to focus your attention if you want to raise your grade.

I was able to be reassessed. I could see where I went wrong on what topic. I liked how I knew everything that was going to be on the test. I knew exactly what to study. Nothing was a surprise.

It is extremely fair. I like that the standards are communicated with us before hand and we know exactly what we are going to be graded on.

I did like how I was better able to tell what I did know and didn't. It was easier than just a percentage.

I like that learning targets were given to us for every class period, and we knew exactly what was expected for us to know and be assessed on.

I liked how it set out a certain criteria.

The learning targets make it easy to track progress and help students know what to study.

I did enjoy seeing exactly where I was lacking. Being able to see the learning targets and my score on each helped motivate me to reach 4s for every target

It follows the course objectives/ learning targets and it measures student mastery of their content

I liked that it showed the level of understanding for each of the standards and that the grade was not given but it had more of an impression that it was being earned.

Only assess[es] the students learning based on the standards being assessed

It most resembled how much I actually learned.

I thought this was an awesome way to grade, especially with reassessment opportunities.

What did you NOT like about standards-based grading, if anything?

Not understanding my grade for 8 weeks.

I honestly like standards-based grading but I feel like it would be a culture-shock to suddenly implement this in schools. Although people would eventually get used to it, I feel like many students and parents would be initially overwhelmed by the grading format as it would appear on something like PowerSchool. Instead of having the traditional format of exams, homework assignments, participation, etc., there would be actual learning targets with assignments listed under it. Like I said, people would get used to it, but I know that I would be somewhat alarmed if my child's grading format was changed dramatically from the way I was comfortable with.

I think it would be hard to not consider effort when giving a grade because it is very important in the learning process.

I was sometimes confused about why I got a different level than I expected (for example, a "Target" instead of "Distinguished"), and I didn't feel like this was ever explained to me.

I really enjoyed it a lot. The only thing was that I wasn't used to this type of grading, so it took me a while to adjust to how I can view my performance.

I did not necessarily dislike it, but I could see that some people would dislike how heavily test scores are weighted and that their homework does not count for much.

The teacher controls the standards, so sometimes they are subjective.

I didn't know why I got the score I got and what was the 100% correct answer ever.

I did not like how on a test if you mastered it the first time, but then is it was to be re-assessed and you didn't do as well the second time, then the score was reevaluated and lowered.

It can be too specific - not allowing for creativity or wiggle room.

I did not like how hard it was to gain mastery. I understand it, but it took a lot more work to earn my A than other classes may take.

I do not like the fact that it is often difficult to tell how I did on a particular assignment. For me, I do not think of my courses as being separated into various standard. I think of them as being separated into various assignments. If you tell me I got a 2/3 on this standard, that doesn't mean anything to me. But if you tell me I got an 85% on the rubric project, I can judge that against how I *thought* I should have done on that project and determine whether I need to put in more effort. In short, I think it's useful for letting students know how they are doing, which as a student is frustrating.

When being reassessed I did not like the averaging of the scores if the 2nd time the grade was lower.

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Making Better Tests with the Rasch Measurement Model

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This study had two aims. The first was to explain the process of using the Rasch measurement model to validate tests in an easy-to-understand way for those unfamiliar with the Rasch measurement model. The second was to validate two final exams with several shared items. The exams were given to two groups of students with slightly differing English listening proficiency. The two exams, a low-advanced and a high-advanced exam, were given to 76 and 45 Japanese university students, respectively. Each exam had 56 questions with 26 shared questions linking the two exams. After conducting a simple Rasch analysis, it was determined that up to 33 questions needed to be modified or deleted from subsequent versions of the exam. The unexpected number of recommended modifications and deletions suggests that, even for experienced teachers, the Rasch measurement model can be of tremendous value by offering greater precision in the assessment of students, as well as greater assistance in the validation of tests.

Literature Review

"Tests do not have reliabilities and validities, only test responses do…test responses are a function not only of the items, tasks, or stimulus conditions but of the persons responding and the context of measurement" (Messick, 1989, p. 14).

Test validity can be defined as how accurately a test measures what it is supposed to measure. Is a listening test actually measuring listening ability? Is an advanced reading test actually measuring advanced reading ability? Are the questions at the appropriate difficulty level for the students? Are the questions worded clearly, or are they confusing students? Teachers need to remember Messick's quote whenever they give their students a test, as it is important to make sure that their test is measuring what it is supposed to be measuring.

One way to assess the validity of a test is to use the Rasch measurement model. While this paper will focus on how language teachers might use the Rasch measurement model, teachers of *any* subject can use the Rasch measurement model to better assess their students and/or validate their tests. The same principles of improved assessment and validation being demonstrated in this paper can be applied to any subject where testing occurs. Traditionally, language teachers have used Classical Test Theory (often referred to as CTT) when making and giving tests (Novick, 1966). With CTT, a person answers questions correctly or incorrectly and gets points for correct answers. While CTT can be easy-to-score, the imprecise nature of the assessment makes it best for low-stakes testing (Nunally, 1978). In contrast, the Rasch measurement model offers teachers several valuable benefits, most importantly, (1) a means of assessing the validity of a test's questions and (2) a more accurate assessment

of the ability of students (Andrich, 1988; Bond & Fox, 2007; Linacre, 1997; McNamara, 2011; Runnels, 2012).

Perhaps a good way to summarize the Rasch measurement model is that it is a method of analyzing response data, in which both the questions on the test (referred to as *items* in this paper) and the people taking the test (referred to as *persons* in this paper) are incorporated into a predictive mathematical model. The Rasch measurement model uses the response data from a test's questions to predict how each person *should* respond to each question. In this process, ordinal data of correct and incorrect responses are converted into interval data (examples of interval data are frequently seen in the physical sciences, such as units of distance, weight, and speed). For example, rather than answers being marked simply as correct or incorrect (ordinal data), the Rasch measurement model is able to assign a specific value to each question, so an easy question might have a difficulty measure of 0.75 logits while a difficult question might have a difficulty measure of 3.40 logits. The conversion of ordinal data into interval data is done for *both* items and persons. Items are given a difficulty measure, which is a number representing the difficulty of a question. This item difficulty can be used to assess the appropriateness of questions. Similarly, persons are given a person ability measure, which is a number representing the ability of people in the construct that is being measured (in the case of this paper, English listening ability for university students in Japan). The Rasch measurement model also produces a slew of other data which indicates how well the real responses matched the model's predicted responses, and this data can be further used to validate a test.

To illustrate the difference between CTT and the Rasch measurement model, imagine a physics test with two questions, "*What is the formula for force?*" and "*How does Einstein's theory of relatively work?*". John answers only the first question correctly and Mary answers both questions correctly. With CTT, John would get a grade of 50% and Mary a grade of 100%. Does this mean that Mary is twice as smart as John? Because John answered a basic question and Mary answered a basic and an advanced question, Mary is probably much smarter than John, but it is difficult to say that she is exactly twice as smart as John. The Rasch measurement model weighs items based on how many people answered the questions correctly, and simultaneously produces difficulty measures for items and person's ability measures for people. These difficulty and ability measures give very precise assessments of where items stand in relation to other items, and where people stand relative to other people (Sadiq, Tirmizi, & Jamil, 2015). In the previous example with John and Mary, the basic question might have a difficulty measure of -0.56 and the advanced question might have a difficult measure of 2.40, while John might have a person ability measure of -0.36 and Mary might have a person ability measure of 2.80. Based on this, the Rasch measurement model offers a much more accurate assessment of an item's real difficulty level or a person's true ability level. This difference in accuracy between CTT and the Rasch measurement model can have real-life consequences for language teachers. In a study by Weaver, Jones, and Bulach (2008), several students entering a university as freshmen were placed in different ability levels depending on whether their placement exam was scored with CTT or with Rasch measurement, illustrating how more precise assessment methods, such as the Rasch measurement model, can lead to better student placement when entering a university.

Another feature of the Rasch measurement model is that it makes it easier for teachers to improve their tests. One way it does this is by putting the difficulty level of the items and the ability level of the persons on a shared scale, so the items and persons can be easily compared, as shown in the *Wright Map* in Figure 1. The Wright Map in Figure 1 includes several x's on the left side of the vertical line which represent the people who took the test. The top x (at 2 logits) represents the person with the highest ability, and the bottom x (at -1 logits) represents the person with the lowest ability. On the right side of the vertical line, numbers from 1-56 represent the questions on the test. The highest item is 20, which was the most difficult question on the test, and the lowest items are 55 and 56, which were the two easiest questions on the test. When a person and an item are perfectly matched, such as the top x and item 36, the person has a 50% chance of answering that question correctly. For the top x, the only item that was above their ability was question 20. Being able to easily see how the people and items match can be useful if teachers want to know if their test was too easy or too difficult. If the test was too easy, the items on the right would be below the persons on the left. If the test was too difficult, the items would be above the persons. This visual inspection is one way that the external validity of a test can be confirmed (Baghaei & Amrahi, 2011).

In the case of Figure 1, items 15, 8, 17, 14, 53, 54, 55, and 56 fell below the person with the lowest ability, with items 14, 53, 54, 55, and 56 far below the lowest person's ability, suggesting that these items should be made more difficult or removed from the test. Related to the visual benefit of seeing how the items and persons match on the logit scale, the Rasch measurement model places items in a hierarchy along the logit scale (from difficult at the top too easy at the bottom) which allows test makers to make *a priori* hypotheses about the difficulty of questions on the test (Beglar, 2010), representing another way to confirm the validity of the test.

Finally, the Rasch measurement model is able to measure unintended constructs within a test. In the earlier example with John and Mary, if a third question was on the test, such as "*What is the composition of water?*", the Rasch measurement model is able to identify this as a chemistry question, and not a physics question (even if the test-maker has not realized this). This is referred to as dimensionality and can be especially useful for teachers and researchers who are making tests and surveys that should focus on one construct. All tests and surveys are multidimensional to some degree (Baghaei & Amrahi, 2011), but the Rasch measurement model can identify exactly how much multidimensionality is present in a test, and it is up to the test-maker to decide if this amount of multidimensionality is tolerable (Baghaei & Amrahi, 2011; Runnels, 2012).

The use of the Rasch measurement model to assess students or validate tests and surveys has become more common in the TESOL field (Baghaei & Amrahi, 2011; Baghaei & Carstensen, 2013; Beglar, 2010; Cox & Clifford, 2014; Huhta, Alanen, Tarnanen, Martin, & Hirvela, 2014; McNamara, 2011; Runnels, 2012; Tiffin-Richards & Pant, 2013; Wu & Dou, 2015). For teachers who want to more accurately assess students or improve the validity of their tests, it is important to understand the basic principles of the Rasch measurement model. This paper will guide readers through the process of making and assessing a test with the Rasch measurement model.

```
PERSON - MAP - ITEM          <more>|<rare>
   3            +
                |
                |
                |   20
                |
                |T
                |
                |
   2        X   +   36
                |   41
                |
                |
             T|
           XX  |   22
                |   23
           XXXX |S  25      39
   1          S+   35
             X  |   13      37      4       46      48      49      7
           XXX  |   44
       XXXXXX   |
             X  |   19      3       38
       XXXXXX  M|   10      28      34      40      43      51      9
           XXXX |   29
       XXXXXXX  |   30      32
   0        X   +M  24      26      45      52
           XX  S|   1       21      6
           XX   |   12      2       42      47
           XXXX |
                |   11      31      5
                |   16
              T|   18      27      33      50
                |
  -1        X   +
                |S
                |   15      8
                |   17
                |
                |
                |   14
                |
  -2            +   53
                |
                |
                |T
                |
                |
                |   54
                |
  -3            +
                |
                |
                |
                |   55      56
                |
                |
                |
  -4            +
         <less>|<frequent>
```
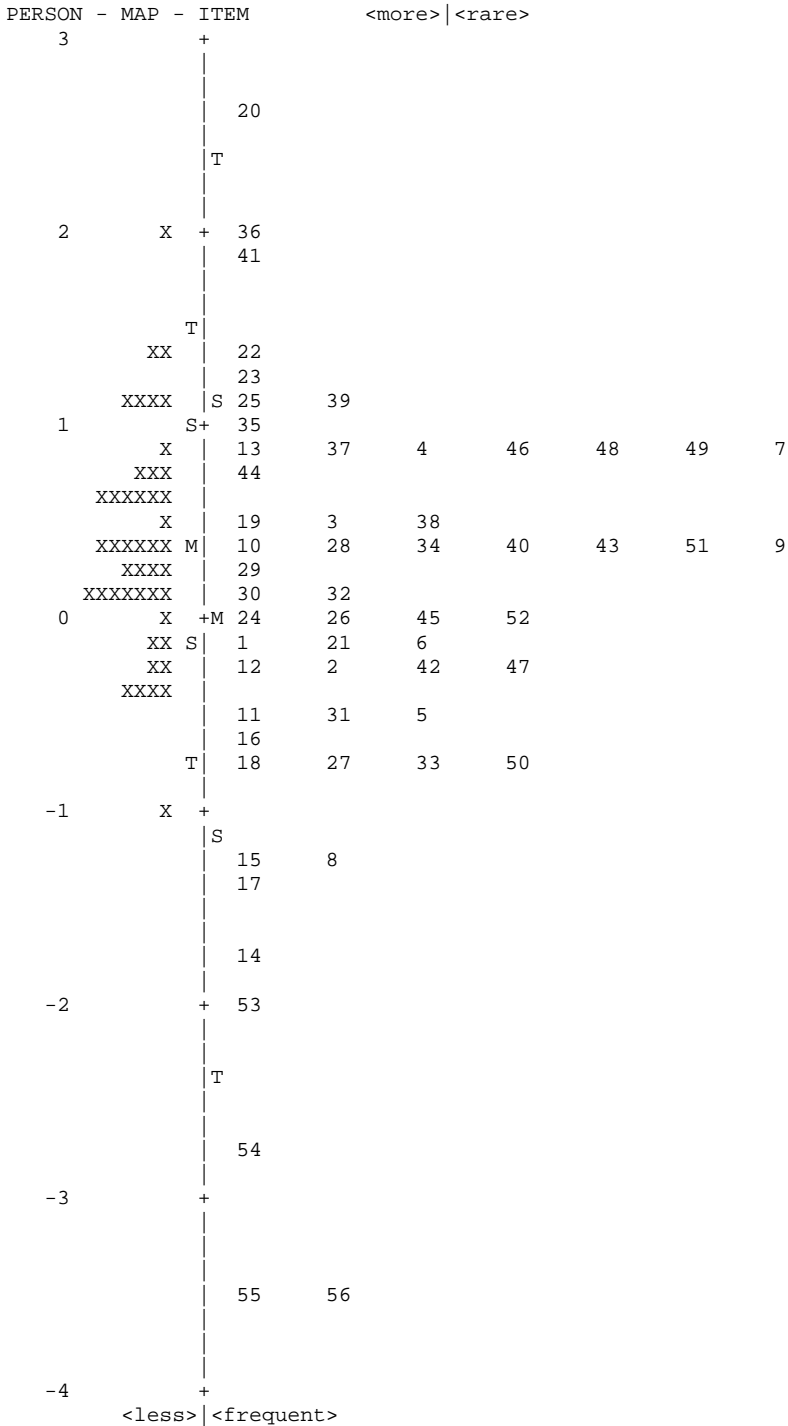
Figure 1. Wright Map for High-Advanced Test

Research Goals

Besides explaining the Rasch measurement model, the goal of this study was to give an example of test creation and assessment. Two separate exams were created for this study, for two groups of advanced students.

Having two levels of students within the advanced level (a high-advanced group and a low-advanced group) created a dilemma in how to fairly assess students. It was necessary to give all students in the advanced level a final exam, but if the exam was too difficult, it would punish the low-advanced group. Conversely, if the exam was too easy, it would not be challenging enough for the high-advanced group. If two distinct exams were created, one for each group, it would lead to distorted grades when comparing the two groups of students. For example, should a student in the low-advanced group who scored a 90% on the easier exam be considered equal to a student in the high-advanced group who scored a 90% on the more difficult exam? How much should the former student's exam score be discounted so a fair comparison could be made with the latter student? Because the Rasch measurement model can collectively assess the relative difficulty of questions on an exam, if the two exams shared several items (illustrated in Figure 2), it would be possible to accurately compare the two groups of students, even if the exams were significantly different in difficulty level (albeit with some shared items).
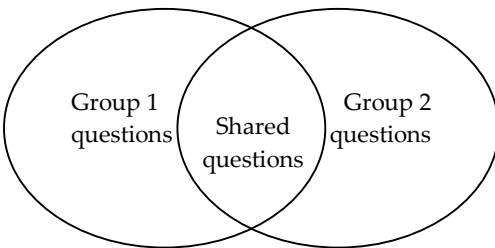
Figure 2. Linking two tests together

When two tests share items, and all items (shared and non-shared) are computed simultaneously, it is known as *concurrent equating method*, one of three ways to link tests (Masters & Keeves, 1999). The concurrent equating method has been shown to have higher consistency and better measurement of items (Baker & Al-Karni, 1991).

After the tests were given, a simple Rasch analysis was conducted on the test data to confirm the validity of the test's questions.

Participants

This research included 121 first-year students in the advanced English level of an intercultural communication program at a large private university in Tokyo. Students were drawn from five different listening classes. Within the advanced level, there were two groups of students: a *low-advanced* and a *high-advanced* group. The *low-advanced* group included 76 students from three classes and had TOEFL iBT scores

roughly in the range of 55-65, while the *high-advanced* group included 45 students (some of whom were returnees) from two classes and had TOEFL iBT scores roughly in the range of 65-80. Because students were in the same level (advanced), they needed to be graded together. However, because there was a significant difference in the ability between the two groups, they could not take the same test (a single test would be too difficult for the low-advanced group, or too easy for the high-advanced group). Using the Rasch measurement model to link two tests with several shared questions would solve this problem.

Instruments

Separate tests were created for the low-advanced and high-advanced groups in a listening course with each test including 56 multiple choice questions. There were 26 questions that were shared between the two tests, and there were 30 questions that were exclusive to each test.

Each test included two vocabulary and seven listening comprehension sections. The questions that were the same on both tests included the two vocabulary sections and two listening comprehension sections, which were based on content from the course textbook. The questions that were exclusive to each test included five listening comprehension sections and were based on content taken from the website www.ted.com.

Procedures

Making level-appropriate tests. The criteria for the tests were that they would take one hour to complete, use some of the textbook's content, test the listening ability of students, and be easy to grade because over 120 students would need to be assessed.

First, because listening passages would need to be included within the test's one-hour time limit, only 25 minutes would be available for answering questions (with 35 minutes for listening passages). It was thought that 56 multiple test questions would be suitable for the test (giving students around 30 seconds to answer each question).

Second, some teachers suggested that a quarter of the questions be vocabulary questions. A quarter of the 56 questions would be around 13-14, leaving approximately 42 for listening comprehension. If 42 questions were reserved for listening comprehension, and seven listening passages would be used in the test, then each listening passage would include six comprehension questions. Ultimately, the test had 56 total questions, of which 14 were vocabulary questions, and 42 were listening comprehension questions.

Third, five-minute listening passages from the website www.ted.com that were the appropriate difficulty level for the low-advanced and high-advanced groups were used in the test. The website at www.ted.com has an extensive library of videos that are available for copyright-free download. Ten listening passages that were roughly five minutes in length were used, with the five that seemed to be easier assigned to the low-advanced test, and the five that seemed to be more difficult assigned to the high-advanced test.

Finally, each of the 56 questions followed a multiple-choice format, which allowed for easy scoring of the test.

Generating data. When using the Rasch measurement model to assess whether the tests were appropriate for each of the groups, it was first necessary to generate data.

To generate data, the test responses must first be entered into a simple text file, and then the text file must be processed with the software *Winsteps 3.68* (Linacre, 2009). An example of a text file with response data is shown in Figure 3.


```
;This is file "G-level Listening Test, Fall 2015-16 (all items)"
TITLE= G-level Listening Test, Fall 2015-16
NI= 86
ITEM1= 1
NAME1= 88
ITEM= ITEM
PERSON= PERSON
CODES= ABCDEFGHIJ
KEY1=
CDEAGBFDBDADBCCBDCABCBCCBBDABACCCCCBAACDABDCCBDACADADCCAADABBCCDBABABACBCDACBDADJBHIEC
&END
;
1 aspirations
2 generate
3 precursor
4 pundit
5 rage
6 revenue
7 well intentioned
8 What was the main theme of this lecture?
9 Which even marked the beginning of mainstream acceptance of hip hop?
END NAMES;
CDEAGBFDBDCCBCDADCABCBCDBDDBBBCBCCCAAACDCBDDCBBAD          DJBHIEC A1Bob Harris
DFABCGEDBABBCCDBDCBACDCBDBCABACCCBCADABDBBDBBABAC          DJGHIEC A1 Herman Blume
DFABCGECCBADBCCBDABACCDCDCDABAAACDDBDBCDACBBCDABD          DABHIEC A1 Ernie McCracken
DFBGCAEDBDAACCCBDCABADCCABCBBACACCADDDAABBBABCDCD          DJBHIEC A1 Phil Connors
CDEAGBFDABAABCCDDCA          DBCAABADAABDDCDBCAADCCDCDACCDADJBHIEC A3 Peter Venkman
CDEFGBADCBABBCCAACA          ADADCAADDCBBDADBCDADBCBACADCAAGJBHIEC A3 Bob Wiley
CDAEFBGDBCADBCCBDCD          ACDDCAAADDBDDCABDBABBACACBCBDADABHIEC A3 Frank Cross
CDEAGBFDCDABBCCCDAA          AADDABAACDBBBCACBDACBBAAACCBDDFGDHIEC A3 Grimm
```

Figure 3. Example of Winsteps command file

A complete Winsteps manual with dozens of example text files can be downloaded from the Winsteps website as a .pdf file. The example text file in Figure 3 is relatively straightforward and is explained below. A completed text file is referred to as a command file.

Winsteps Command File

At the top of the command file is the name of the text file, followed by the title of the data (neither of these are essential to your analysis). Next are the headings "NI", which indicates the number of items in the test, "ITEM1", which indicates the space where the item responses will begin, and "NAME1" which indicates the space where person names will begin. This is followed by "ITEM", which indicates the term used for the test's questions, "PERSON", which indicates the term used for the people completing the test, and "CODES", which indicates the range of possible answer choices for the test's questions (on the tests in this study, the vocabulary questions had answer options from A-J while the listening comprehension questions had answer options from A-D). This is followed by "KEY1", which indicates the correct answer choices for all of the items on the test (the first 19 answers were for shared questions, the next 30 answers were for the high-advanced test, the next 30 answers were for the low-advanced test, and the final 7 answers were for shared questions), "&END;", which

is necessary code to end this portion of the command file, and, finally, the listing of all of the items.

In the example command file, only the first nine items on the test were listed because listing all 86 items would have required too much space for this article. Of note, spelling does not need to be perfect because these are only labels that will be used in the data output, and as long as the test-maker can identify the item, items do not need to be spelled perfectly (hence the spelling error in item nine). If the test-maker wants, the item can be labelled with a number rather than the full question. When the list of items is finished, "ENDNAMES;" should be included, followed by the specific responses for each student on the test. For example, the first student listed was labelled as "A1 Bob Harris" (a pseudonym). This identified the student as being in class A1 (the high-advanced group) with the name Bob Harris. Bob answered the first 49 items on the test as "C" for item 1, "D" for item 2, "E" for item 3, "A" for item 4, and so on, then did not answer items 50-79 (because these questions were only on the low-advanced test), and then answered items 80-86. The last response was followed by a space, and then the students' identifier (in this case, their class and name). In the example command file, only some students who took the test were listed because listing all 121 students would have required too much space for this article. For an example of a student from the low-advanced group, the fifth student listed was labelled as "A3 Peter Venkman" (a pseudonym). This identified the student as being in class A3 (the low-advanced group) with the name Peter Venkman. Peter answered the first 19 items, then did not answer items 20-49 (because these questions were only on the high-advanced test), and then answered items 50-86.

To run the command file in Winsteps, open Winsteps, go to *File* from the drop-down menu, then select the *Open File* option. Next, a dialog box will open, and then select the command file. Once the command file has been selected, press the *Enter* key twice and Winsteps will generate the Rasch data.

Assessing the Data

When assessing the Rasch data generated by Winsteps, there are several variables that should be examined. An example of the variables produced by Winsteps is shown in Table 1 (see pp. 84-92).

Winsteps allows for the Rasch data to be analyzed in several different ways, such as examining the ability and behaviour of the people who completed the tests or examining the difficulty and reliability of the items on the test. The data shown in Table 1 is an examination of the difficulty and reliability of the items on the test. This data can be obtained by going to the *Output Files* drop-down menu in Winsteps and then choosing the *ITEM File = IFILE* option. Next, a dialog box will open, and the user will be given some choices on how the output should be generated (such as in an Excel file, a text file, or an SPSS file). Unless the user has experience with SPSS, it is probably easiest to choose the Excel file option (a text file will not allow the data to be easily viewed by the user). The Excel output file will include 17 columns of data. Not all of this data is essential for analysis, so only ten columns of data have been included in Table 1.

Table 1
Item Statistics by Measure

Entry	Measure	Count	Score	Error	IN MSQ	IN ZSTD	OUT MSQ	OUT ZSTD	Item
52	2.43	76	9	0.36	1.06	0.32	1.12	0.49	22b Why does the speaker use the example of the brain producing pain after the body is burned?
20	2.37	45	5	0.48	1.04	0.22	1.49	1.12	20a What was the main theme of this lecture?
62	1.81	76	15	0.29	0.96	-0.19	0.96	-0.12	32b What was the main theme of this lecture?
66	1.81	76	15	0.29	1.02	0.16	1.03	0.21	36b Why does the speaker feel we should change our model"?"
36	1.79	45	8	0.40	1.04	0.26	1.30	0.99	36a According to the speaker, what causes Alzheimer's disease?
55	1.73	76	16	0.29	1.04	0.29	1.08	0.49	25b Which movie does the speaker refer to?
41	1.64	45	9	0.38	1.02	0.15	1.04	0.24	41a In the speaker's story about his own research, what was the problem?
70	1.29	76	22	0.26	1.07	0.65	1.16	1.25	40b According to the speaker, why are governments upset?
71	1.29	76	22	0.26	1.10	0.95	1.12	0.91	41b Which surveillance example was described by the speaker?

Table 1 Cont.

Entry	Measure	Count	Score	Error	IN MSQ	IN ZSTD	OUT MSQ	OUT ZSTD	Item
73	1.22	76	23	0.25	1.06	0.62	1.10	0.82	43b According to the speaker, what is the best way to communicate?
58	1.16	76	24	0.25	1.08	0.87	1.12	1.08	28b According to the speaker, her brother Samuel…
72	1.16	76	24	0.25	1.08	0.86	1.08	0.76	42b What does the speaker suggest for the future?
75	1.16	76	24	0.25	1.00	-0.01	1.01	0.13	45b What is the main problem with using pills?
22	1.13	45	13	0.34	0.95	-0.29	1.08	0.46	22a What was NOT an example of ingenuity by the prisoners?
69	1.09	76	25	0.25	0.97	-0.31	1.00	0.04	39b What are the two main opposing forces identified by the speaker?
23	1.01	45	14	0.33	1.06	0.51	1.11	0.71	23a What is the speaker's reason for many released criminals going back to prison?
63	0.97	76	27	0.24	0.97	-0.32	0.98	-0.14	33b The air inside buildings…
25	0.90	45	15	0.33	1.02	0.23	1.08	0.54	25a Why should society help prisoners more?
39	0.90	45	15	0.33	0.85	-1.19	0.83	-1.16	39a What experience does the speaker describe at the beginning of his lecture?

Table 1 Cont.

Entry	Measure	Count	Score	Error	IN MSQ	IN ZSTD	OUT MSQ	OUT ZSTD	Item
35	0.80	45	16	0.32	1.02	0.24	1.01	0.16	35a What is NOT mentioned as a symptom of Alzheimer's disease?
51	0.80	76	30	0.24	1.06	0.88	1.07	0.87	21b The speaker says that there are three ways to change the brain. What is NOT mentioned?
74	0.80	76	30	0.24	0.98	-0.35	0.97	-0.43	44b What was the main theme of this lecture?
37	0.70	45	17	0.32	1.09	0.87	1.14	1.12	37a According to the speaker, what is the challenge in curing Alzheimer's disease?
46	0.70	45	17	0.32	0.79	-2.12	0.76	-2.12	46a Which negative aspect of meetings is NOT mentioned by the speaker?
48	0.70	45	17	0.32	0.94	-0.60	0.97	-0.21	48a What does the speaker suggest that we do?
19	0.65	121	50	0.19	1.13	2.48	1.15	2.42	19 When mediating, the parties involved must...
49	0.60	45	18	0.32	0.90	-1.08	0.87	-1.20	49a What is NOT mentioned as a way to improve efficiency?

Table 1 Cont.

Entry	Measure	Count	Score	Error	IN MSQ	IN ZSTD	OUT MSQ	OUT ZSTD	Item
77	0.51	76	35	0.24	0.97	-0.51	0.97	-0.55	47b Which example of lasers is NOT mentioned by the speaker?
44	0.50	45	19	0.31	0.94	-0.64	0.93	-0.66	44a What was the main theme of this lecture?
9	0.47	121	55	0.19	0.94	-1.25	0.94	-1.13	9 Which even marked the beginning of mainstream acceptance of hip hop?
50	0.46	76	36	0.24	1.00	-0.07	0.99	-0.17	20b What was the main theme of this lecture?
4	0.40	121	57	0.19	0.90	-2.46	0.89	-2.25	4 pundit
13	0.40	121	57	0.19	1.00	-0.03	0.99	-0.15	13 According to Dr. Lee, hip hop culture has gone beyond the music to focus on a lifestyle which includes...
59	0.35	76	38	0.23	1.04	0.74	1.04	0.73	29b How does the speaker define autism?
10	0.33	121	59	0.19	1.02	0.49	1.02	0.45	10 Which fashion trend was NOT mentioned by Dr. Lee as part of hip hop fashion?
38	0.31	45	21	0.31	0.94	-0.74	0.92	-0.89	38a What was the main theme of this lecture?
28	0.21	45	22	0.31	1.15	1.95	1.18	2.02	28a What is a negative aspect to colonizing Mars?

Table 1 Cont.

Entry	Measure	Count	Score	Error	IN MSQ	IN ZSTD	OUT MSQ	OUT ZSTD	Item
43	0.21	45	22	0.31	0.89	-1.49	0.87	-1.55	43a What does the speaker say is the real challenge?
12	0.12	121	65	0.19	1.06	1.30	1.06	1.26	12 What is NOT mentioned by Dr. Lee when he explains the beginning of hip hop?
34	0.11	45	23	0.31	1.10	1.28	1.11	1.23	34a How much are Alzheimer's disease medical costs expected to increase by 2050?
40	0.11	45	23	0.31	1.05	0.63	1.04	0.48	40a What did the speaker realize after this experience?
61	0.07	76	43	0.24	1.04	0.71	1.04	0.64	31b What is the speaker's attitude towards autism?
29	0.02	45	24	0.31	0.98	-0.18	0.96	-0.37	29a How can we develop our understanding of planetary colonization?
3	-0.02	121	69	0.19	0.87	-2.78	0.86	-2.70	3 precursor
7	-0.02	121	69	0.19	0.90	-2.13	0.91	-1.74	7 well intentioned
82	-0.06	121	70	0.19	1.10	1.90	1.10	1.71	52 Contrived
30	-0.08	45	25	0.31	0.94	-0.73	0.94	-0.56	30a According to the speaker, which idea best represents Fermi's Paradox?

Table 1 Cont.

Entry	Measure	Count	Score	Error	IN MSQ	IN ZSTD	OUT MSQ	OUT ZSTD	Item
32	-0.08	45	25	0.31	1.09	1.20	1.18	1.81	32a What was the main theme of this lecture?
68	-0.10	76	46	0.24	1.00	0.02	1.01	0.20	38b What was the main theme of this lecture?
78	-0.10	76	46	0.24	1.00	-0.03	1.00	-0.01	48b Which process is NOT described as part of the three-headed device"?"
81	-0.13	121	72	0.19	1.04	0.69	1.06	0.97	51 Contingency
76	-0.16	76	47	0.24	0.95	-0.66	0.95	-0.66	46b According to the speakers, where are HIV reservoirs NOT located?
45	-0.17	45	26	0.31	1.02	0.24	1.01	0.10	45a What is the main purpose of the stolen chair example at the beginning of the lecture?
64	-0.22	76	48	0.24	1.01	0.20	1.01	0.15	34b Which activity is NOT mentioned as part of mechanical ventilation?
24	-0.27	45	27	0.31	1.01	0.19	1.03	0.31	24a How many criminals commit a crime within five years of being released?
26	-0.27	45	27	0.31	0.92	-0.88	0.91	-0.75	26a What was the main theme of this lecture?

Table 1 Cont.

Entry	Measure	Count	Score	Error	IN MSQ	IN ZSTD	OUT MSQ	OUT ZSTD	Item
57	-0.28	76	49	0.25	0.98	-0.28	0.96	-0.40	27b According the speaker, her brother Remi...
21	-0.37	45	28	0.32	1.08	0.84	1.09	0.77	21a Which business activity occurring in prison was NOT mentioned by the speaker?
18	-0.39	121	79	0.20	1.04	0.62	1.06	0.74	18 How much does a litigated divorce usually cost?
79	-0.46	76	52	0.25	0.96	-0.35	0.95	-0.41	49b What is the goal of the speaker's plan?
16	-0.47	121	81	0.20	1.05	0.76	1.09	1.03	16 According to Dr. Mayfield, what is the main difference between mediation and litigation?
42	-0.47	45	29	0.32	0.99	-0.07	0.98	-0.12	42a What was the point of the speaker's story about his research?
47	-0.47	45	29	0.32	0.84	-1.57	0.83	-1.24	47a How many views does the speaker's video have?
54	-0.53	76	53	0.26	1.10	0.94	1.13	1.07	24b What was the restriction mentioned by the speaker at the end of the lecture?

Table 1 Cont.

Entry	Measure	Count	Score	Error	IN MSQ	IN ZSTD	OUT MSQ	OUT ZSTD	Item
65	-0.59	76	54	0.26	1.02	0.25	1.02	0.23	35b According to the speaker, where does the healthcare industry rank in energy use?
67	-0.59	76	54	0.26	0.96	-0.29	0.94	-0.44	37b Which government department did the speaker compare hospitals to?
11	-0.67	121	86	0.21	1.01	0.19	1.04	0.38	11 When was the best time for hip hop?
80	-0.67	121	86	0.21	1.04	0.47	1.02	0.23	50 Appalled
31	-0.69	45	31	0.33	1.03	0.27	1.01	0.11	31a How many planets does the speaker say are in our galaxy?
53	-0.73	76	56	0.27	1.00	0.07	0.97	-0.16	23b The speaker mentioned specific research involving the brain. How much was the decrease in pain for the people in the research study?
33	-0.91	45	33	0.35	1.10	0.63	1.12	0.63	33a Which medical problem does the speaker NOT use as an example of research progress?
1	-0.94	121	92	0.22	0.93	-0.60	0.89	-0.81	1 aspirations
6	-1.03	121	94	0.22	0.86	-1.23	0.77	-1.68	6 revenue

Table 1 Cont.

Entry	Measure	Count	Score	Error	IN MSQ	IN ZSTD	OUT MSQ	OUT ZSTD	Item
60	-1.03	76	60	0.29	0.94	-0.30	0.95	-0.22	30b Which area has the speaker NOT learned about through her brothers?
27	-1.04	45	34	0.36	0.95	-0.23	0.87	-0.52	27a What does the Kepler data NOT reveal about a distant planet?
2	-1.24	121	98	0.24	0.87	-0.95	0.76	-1.52	2 generate
5	-1.30	121	99	0.24	0.91	-0.56	0.83	-0.99	5 rage
83	-1.42	121	101	0.25	0.99	0.01	0.91	-0.40	53 Genre
8	-1.55	121	103	0.26	1.04	0.31	1.03	0.21	8 What was the main theme of this lecture?
17	-1.55	121	103	0.26	1.04	0.30	1.13	0.66	17 Which is NOT described as a benefit of mediation?
14	-1.62	121	104	0.27	1.02	0.16	0.96	-0.13	14 What was the main theme of this lecture?
15	-1.62	121	104	0.27	1.00	0.05	0.94	-0.18	15 How does the lecturer initially describe the mediation process?
86	-2.62	121	114	0.39	1.03	0.21	1.12	0.43	56 Wacky
56	-2.63	76	72	0.52	0.99	0.13	0.90	-0.03	26b What was the main theme of this lecture?
84	-2.98	121	116	0.46	0.99	0.11	1.04	0.23	54 Give-and-take
85	-4.63	121	120	1.00	0.96	0.28	0.27	-0.58	55 Trend

The first column is labelled *Entry,* and this represents the order that questions were entered into the command file. Recall that there were 86 total items in the command file, so the first row, labelled *52,* is the 52nd item entered into the command file.

The second column is labelled *Measure,* and this represents the difficulty level of each item. Because this study is attempting to make a more difficult test for the high-advanced group, this column's information is very important. In the first row, the 52nd item entered into the command file, which was question 22 on the low-advanced test, had a difficulty measure of 2.43. This was the highest difficulty measure for all of the items on both tests, which means it was the most difficult question. We can immediately see a problem in that the low-advanced test should not include the most difficult questions. Of the 13 most difficult questions, ten were from the low-advanced test (the numbers accompanied with a *b* in the tenth column *Item* indicate questions on the low-advanced test). When we modify this test, these items should either be made easier, deleted, or switched to the high-advanced test.

The third column is labelled *Count,* and this represents the number of students who answered this item. Items either had *45,* which was the number of students answering high-advanced questions, *76,* which was the number of students answering low-advanced questions, or *121,* which was the number of students answering shared questions.

The fourth column is labelled *Score,* and this represents the total number of students who answered this question correctly. For example, in the first row, the 52nd item, which was question 22 on the low-advanced test, was answered correctly by nine students. Conversely, in the third-last row, the 56nd item, which was question 26 on the low-advanced test, was answered correctly by 72 students. This column gives some indication of the difficulty of each item, however, this variable is not weighted and represents a CTT type of assessment.

The fifth column is labelled *Error* and this represents the accuracy of the difficulty measure variable (which is shown in column two). The greater the error in column five, the less precise the difficulty measure, and high error is usually more evident in items that are either very easy or very difficult (because these items tend to be below or above the ability of most people, and as a result, are more difficult to assess).

The sixth column is labelled *IN MSQ* and represents the infit mean square, which indicates how well the actual responses matched the predicted responses of the Rasch measurement model. Put more simply, the Rasch measurement model can predict how items will be answered based on the answer patterns within the entire group. For example, if person A is answering all items correctly, and item 1 is the easiest item (because everyone is answering it correctly), the Rasch measurement model will predict that person A has a very good chance of answering item 1 correctly. Infit and outfit indicate how closely person A's actual responses match the predicted responses; a value of 1.0 indicates perfect fit (the actual response matches the predicted response). However, if person A unexpectedly answers item 1 incorrectly, this will be represented with higher infit and outfit values. A high infit and/or outfit for a *person* means that the person is answering unpredictably (perhaps because they are cheating, guessing, or having a problem). A high infit or outfit for an *item* means that the item is being answered unpredictably (maybe the question is worded in a confusing way, which is causing students to answer it inconsistently). Basically, the item IN MSQ measures how reliably a question is being answered. If the item IN MSQ is within the recommended range of 0.70 to 1.30 (Bond & Fox, 2007), then it usually indicates that

people understood the item correctly. However, if the item IN MSQ was outside of the recommended range, it usually indicates that something strange was happening when people were answering this item.

The seventh column is labelled *IN ZSTD* and also represents the infit value of the item; however, it is standardized to minimize distortion that could occur because of the sample size. For example, fit problems are sometimes not obvious in the IN MSQ variable when the sample size is very large, while fit problems are always obvious in the IN ZSTD variable. IN ZSTD should fall within the range of -2 to +2 (Baghaei & Amrahi, 2011). If the IN ZSTD falls below this range, it is said to overfit the model, which indicates items that followed the Rasch model predictions too much (i.e. answer patterns were too predictable). If the IN ZSTD is above this range, it is said to underfit the model, which indicates items that did not follow the Rasch model predictions enough. Underfit is regarded as more of a problem than overfit.

The eighth column is labelled *OUT MSQ*, and the ninth column is labelled *OUT ZSTD*. Like infit, outfit gives an indication of how well the actual responses matched the Rasch model's predicted responses. The difference between outfit and infit is that outfit weighs all items equally, whereas infit more heavily weighs nearby items (Sadiq et al., 2015). As a result, researchers tend to prefer infit over outfit because infit is not as vulnerable to skewed data that stems from extreme unpredictability (such as a person with very high ability incorrectly answering a very easy question).

Finally, the tenth column is labelled *Item* and represents the label given to each item in the Winsteps command file. For the two tests in this study, shared items were labelled with a number, low-advanced test items were labelled with a number and a *b* (for example, the item in the first row is *22b* which represents question 22 on the low-advanced test), and high-advanced test items were labelled with a number and an *a*.

Results

To confirm that the tests were set at the appropriate difficulty level, it was necessary to compare the difficulty estimates of the low-advanced test sections to those of the high-advanced test. The average difficulty estimates for each section of each test are shown in Table 2 on p. 95, with higher difficulty estimates indicating more difficult sections, and lower difficulty estimates indicating easier sections.

Difficulty estimates of the shared item sections of vocabulary 1, listening comprehension 1, and listening comprehension 2 were relatively similar, at -0.59, -0.15, and -0.83, respectively. However, the difficulty estimates for the shared item section of vocabulary 2 was much lower at -2.09, indicating that the questions in this section might have been too easy.

Looking at the average difficulty estimates of the low-advanced sections, the listening comprehension 3 (0.69), listening comprehension 5 (0.53), and listening comprehension 6 (0.99) sections were more difficult than all but one of the high-advanced sections (listening comprehension 3 at 0.80). In particular, low-advanced's listening comprehension 6 section was the most difficult section on either test, and would need to be made easier, deleted, or switched to the high-advanced test.

Table 2
Average Item Difficulty by Test Section

Item entry numbers	Type of items	Test section	Average Difficulty Measure
1-7	Shared	vocabulary 1	-0.59
8-13	Shared	listening comprehension 1	-0.15
14-19	Shared	listening comprehension 2	-0.83
20-25	high-advanced	listening comprehension 3	0.80
26-31	high-advanced	listening comprehension 4	-0.31
32-37	high-advanced	listening comprehension 5	0.42
38-43	high-advanced	listening comprehension 6	0.45
44-49	high-advanced	listening comprehension 7	0.31
50-55	low-advanced	listening comprehension 3	0.69
56-61	low-advanced	listening comprehension 4	-0.39
62-67	low-advanced	listening comprehension 5	0.53
68-73	low-advanced	listening comprehension 6	0.99
74-79	low-advanced	listening comprehension 7	0.29
80-86	Shared	vocabulary 2	-2.09

Looking at the difficulty estimates of items on the low-advanced test, items with a difficulty measure of +1.0 were considered as being excessively difficult for that test, and any section with three or more excessively difficult items would need to be switched to the high-advanced test. In the listening comprehension 3 section, item 52 (2.43) and item 55 (1.73) were excessively difficult and would need to be made easier. In the low-advanced listening comprehension 4 section, item 58 (1.16) was excessively difficult and would need to be made easier. In the low-advanced listening comprehension 5 section, item 62 (1.81), item 66 (1.81), and item 63 (0.97) were excessively difficult and the entire section would need to be switched to the high-advanced test. In the low-advanced listening comprehension 6 section, item 70 (1.29), item 71 (1.29), item 73 (1.22), item 72 (1.16), and item 69 (1.09) were excessively difficult,

and the entire section would need to be switched to the high-advanced test. In the low-advanced listening comprehension 7 section, item 75 (1.16) was excessively difficult and would need to be made easier.

Looking at the average difficulty estimates of the high-advanced sections, the listening comprehension 4 (-0.31) section was easy when compared to the other sections. Also, while the listening comprehension 5, listening comprehension 6, and listening comprehension 7 sections were not easy, they were easier than several sections on the low-advanced test, and this would need to be corrected.

Looking at the difficulty estimates of items on the high-advanced test, items with a difficulty measure of -1.0 were categorized as being excessively easy, and any section with three or more excessively easy items would need to be switched to the low-advanced test. In the listening comprehension 3 section, there were no excessively easy items. In the listening comprehension 4 section, item 27 (-1.04) was excessively easy. Despite having only one excessively easy item, the other five items were still easy when compared to items in other sections (as shown in Table 2), and thus, this section should be switched to the low-advanced test. In the listening comprehension 5 section, there were no excessively easy items. In the listening comprehension 6 section, there were no excessively easy items. Finally, in the listening comprehension 7 section, there were no excessively easy items.

A summary of item and section violations of difficulty estimate guidelines is shown in Table 3 on p. 97.

To confirm the validity of the items, one approach (among many) is to look at the fit value for each item and make sure that they fell within the recommended guidelines (0.70 to 1.30 for IN MSQ and OUT MSQ, or -2 to +2 for IN ZSTD and OUT ZSTD).

Looking at the infit of the items, there were no items that violated the guideline for IN MSQ; however, there were several items that violated the guideline for IN ZSTD, specifically, item 3 (-2.78), item 4 (-2.46), item 7 (-2.13), item 19 (2.48), and item 46 (-2.12).

Looking at the outfit of the items, two items violated the guideline for OUT MSQ, specifically, item 20 (1.49) and item 36 (1.30). There were several items that violated the guideline for OUT ZSTD, specifically, item 3 (-2.70), item 4 (-2.25), item 19 (2.42), item 28 (2.02), and item 46 (-2.12).

A summary of item violations of fit guidelines is shown in Table 3.

Discussion

The results of the analysis done on the two tests show why it is important for teachers to check the validity of their tests. Despite having experience in constructing listening exams over several years, the researcher still made several incorrect assumptions about the questions on both tests. The researcher misjudged the difficulty level of seven items, as well as three entire sections (18 items). Combined, this represents 25 out of a possible 86 items, almost a third of all items. Further to this point, the Rasch measurement model indicated that eight items had poor fit, likely indicating poorly-worded questions or answers. The Rasch measurement model identified these problems whereas CTT would not have, which should result in an improved second version of the test.

Table 3
Summary of Item and Section Violations

Item or Section	Violation	Course of Action
Item 84	Too easy	Make more difficult
Item 85	Too easy	Make more difficult
Item 86	Too easy	Make more difficult
Item 52	Too difficult	Make easier
Item 55	Too difficult	Make easier
Item 58	Too difficult	Make easier
Listening comprehension 5 section, low-advanced test	Too difficult	Switch to high-advanced test
Listening comprehension 6 section, low-advanced test	Too difficult	Switch to high-advanced test
Item 75	Too difficult	Make easier
Listening comprehension 4 section, high-advanced test	Too easy	Switch to low-advanced test
Item 3	Overfit the model	Improve wording of item and answers
Item 4	Overfit the model	Improve wording of item and answers
Item 7	Overfit the model	Improve wording of item and answers
Item 19	Underfit the model	Improve wording of item and answers
Item 46	Overfit the model	Improve wording of item and answers
Item 20	Underfit the model	Improve wording of item and answers
Item 36	Underfit the model	Improve wording of item and answers
Item 28	Underfit the model	Improve wording of item and answers

While this study focused on the Rasch data concerning items, the Rasch data concerning persons can also provide valuable insights. The information gleaned from person fit statistics can help teachers identify students who may be answering erratically, either in a way that lowers a student's grade (such as nervousness, carelessness, or lack of focus) or increases a student's grade (such as guessing or

cheating). This information can alert the teacher to a course of action that might be necessary to help the students. Additionally, a teacher might inspect the Wright Map and realize that several items are in the same location along the vertical axis. This would indicate redundant items, and the teacher could delete several extraneous items and still have a valid test. Shorter tests that maintain their validity are more efficient and can free up class time for other activities that help students learn.

Benefits are not limited to teachers. Rasch can benefit learners by placing them in a class that is appropriate to their ability level. As indicated earlier, there is research that has demonstrated that students might be put in a different class based on whether their placement exam was scored with CTT or the Rasch measurement model. Being in a class that is too difficult (or too easy) can have potentially negative effects on a student's confidence, anxiety, and motivation, so it is essential for placement to be as accurate as possible. Additionally, the Rasch measurement model makes it easy to customize tests to a specific ability level, as was illustrated in this article for low-advanced and high-advanced students. Occasionally, schools will create a single standardized exam that every student must take, but this can have a negative effect on lower-proficiency students as their confidence can be damaged when taking a test that is well-beyond their ability. Linking two tests that place all students on the same grading scale can help teachers preserve the confidence of lower-proficiency students by giving them a test in which they can succeed.

> **The information gleaned from person fit statistics can help teachers identify students who may be answering erratically…**

Finally, the research community can benefit from the Rasch measurement model. Many assumptions have been made about how motivation, anxiety, personality, and other affective variables relate to learning. However, if these assumptions are based on surveys and tests that had poor validity, then the conclusions drawn by this research may be false. For example, there has been relatively little research that has shown that personality influences language learning (Dewaele & Furnham, 1999), however if the personality surveys that were used to evaluate students had flawed items (indicated by item fit), or the language tests suffered from multidimensionality (and were not measuring what they were supposed to measure), then it is difficult to believe that personality really has no influence on language learning.

Suffice it to say, teachers, learners, and the research community can all benefit from greater use of the Rasch measurement model in education.

Conclusion

Testing is used in virtually all educational contexts around the world, in both limited (such as a class quiz) and broad ways (such as a common exam for an entire grade of students). With tests occupying such an important role in student assessment, it is essential that teachers ensure that their tests are as well-constructed as possible. When comparing raw scores (CTT) versus the information provided with the Rasch measurement model, there is so much to gain by using a Rasch approach. If it can be agreed upon that the Rasch measurement model provides better and more accurate

information than raw scores, then the only excuse for not using the Rasch measurement model is that the process might be too complicated. Hopefully, this paper has been able to simplify the process so teachers have a better understanding of how to conduct a basic Rasch analysis. The potential benefits of using the Rasch measurement model far outweigh the learning curve associated with the model.

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Mentoring International Teaching Assistants: A Case Study of Improving Teaching Practices

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While there exists a considerable body of research focusing on international teaching assistants' (ITAs') linguistic, sociocultural, and instructional challenges, less is known about the successful developmental trajectories of this group of international educators of American students. This research aims to fulfill this research gap using a case study approach (Yin, 2003). The study involved ITAs from STEM majors in six collaborative mentoring sessions prior and upon video recording of three lessons taught by the ITAs to undergraduate students. The mentoring sessions were designed to facilitate ITAs' reflections on their teaching with the use of structured protocols to help guide the discussions. All the collected data were analyzed using content analysis (Miles & Huberman, 1994). The results highlight the incidents of professional growth exhibited by the participating ITAs during their actual teaching. This study also tracks the ITAs' reflections on teaching through the mediational dialogues (Vygotsky, 1978) with the mentor. Finally, the paper discusses lessons learned through launching a mentoring project with a group of ITAs.

Despite the numerous efforts to support beginner teacher learning in the K-12 context through mentoring, less attention has been paid to promoting teacher learning via collaboration with more expert educators at the university level, particularly with the use of video in teacher training (Williams & Case, 2015). In order to facilitate this type of teacher development, a mentoring project involving video-recorded lessons was incorporated with a group of international teaching assistants (ITAs) at a U.S. university.

Over the past several years, U.S. higher education has employed an increasing number of international students to teach undergraduate courses in a variety of disciplines (Gorsuch, 2006; Jia & Bergerson, 2008). With 1.13 million international students in the U.S. higher education (U.S. Immigration and Customs Enforcement, 2015), U.S.-born faculty, students, and other stakeholders have raised concerns pertaining to ITAs' English-language skills, teaching skills, and sensitivity to the cultural issues in the classroom (Gorsuch, 2006).

Recent research discussing ITAs' experiences in the U.S. classrooms has uncovered the many challenges that the ITAs experience as instructors in a new educational context, such as instructional, social, linguistic, and cultural challenges (Kuo, 2002). In response, solutions addressing the challenges that the ITAs face have been proposed to the ITAs' preparation programs (e.g., Gorsuch, 2017). Responding to the need to further facilitate ITAs' growth as teachers, a mentoring project was introduced at a medium-size public U.S. university involving a group of ITAs who were mentored with the use of video-recorded lessons during their semester of teaching STEM subjects to undergraduate students. The paper discusses the results of this mentoring project and the lessons learned when implementing it.

While there exists a considerable body of research focusing on ITAs' professional development through established ITA preparation programs, less is known about ITAs' engagement (or lack of engagement) in professional development activities upon exiting these programs. Moreover, the benefits of continuing professional development are well-known in teacher education. Yet, less attention has been paid to both providing and investigating ITAs' opportunities to engage in continuing professional development upon exiting ITAs' preparation programs, which is due to the difficulties of launching and carrying out these pedagogical initiatives (e.g., Gorsuch, 2017). This research makes a unique contribution by addressing the need to further support ITAs' development of instructional expertise and by shedding light on the developmental trajectories of international educators of American students, as these unfold in a series of continuing professional development activities.

Literature Review

Theoretical Foundations

This study is grounded in Vygotskyan sociocultural perspective (Vygotsky, 1978). Vygotskyan sociocultural theory holds that all human cognitive development is mediated by human engagement in the social activities of a given society (Vygotsky, 1981). Vygotsky (1981) wrote that "all higher mental functions are internalized social relationships" (p. 164). In other words, human cognition develops through concrete social contexts and interactions among people.

During the activities of mentoring, novice teachers are engaged in actual teaching and also in teaching-related discussions with a more expert other (a mentor). During these discussions, novice teachers externalize their understanding of teaching and thus open their minds for social mediation from a mentor. The mentor, by externalizing more expert ways of thinking about teaching, makes them visible to a novice. Among the tools that mediate such interactions are lesson plans, supplementary materials, and other symbolic mediational means. As teachers gain greater instructional expertise, some of these tools may be less useful. For example, while beginning teachers oftentimes write detailed lesson plans, more experienced teachers prefer brief outlines or no lesson plans (Tasker, Davies, & Johnson, 2010).

Another relevant concept is the zone of proximal development (ZPD). From a sociocultural theoretical perspective, the ZPD is defined as "an interaction during which, through mediation, an individual achieves more than she could have achieved if she had been working alone. During the ZPD, learning leads development" (Swain, Kinner, & Steinman, 2011, p. 153). Ultimately, interactions within a learner's (in this case, a teacher's) ZPD may lead to the transformation of not only the learner (the teacher), but also of all other participants, the mediating tools, and the activity itself.

Mediation is "the process through which humans deploy culturally constructed artifacts, concepts, and activities to regulate…the material world or their own and each other's social and mental activity" (Lantolf & Thorne, 2006, p. 79). In the context of education, the goal of mediation inheres in promoting learners' cognitive development. Moreover, within this framework, special attention is paid to the quality of mediation (Aljaafreh & Lantolf, 1994). In the context of English teacher mentoring in South Korea, Ahn (2009) reports on the experiences of a mentor and a pair of pre-

service teachers assigned to her. In Ahn's account, the pre-service teachers are initially willing to teach English in more communicative ways (e.g., through discussion, games); however, the mentor is more focused on accuracy, repetition, and structure in her teaching, which has a major impact on how the two pre-service teachers begin to think about and practice teaching. While the mentor's approach to teaching English can benefit students in terms of being able to pass a standardized English test, students exposed to this method of teaching English may not be able to develop their ability to communicate. As a result, many international students from Asia find it difficult to speak and to take a proactive role in college classrooms in an English-speaking environment (Sawir, 2005). Overall, Ahn's (2009) research shows the important role mentors play in constructing pre-service teachers' conceptions of good teaching and their actual teaching practices.

A sociocultural perspective also argues that with proper mediation, contradictory experiences (e.g., differences in opinions of the mentor and the novice) can promote development of all participants. For example, according to this perspective, after-class discussions, which may involve co-teachers (or, a mentor and a novice teacher) and students from a particular class, can serve as a place where perceived contradictions are articulated and participants can work collaboratively to find solutions to problems (Roth & Tobin, 2004).

ITAs' experiences in the U.S. classrooms. ITAs, as new instructors in international contexts, often experience challenges relating to classroom management, content instruction, culture, societal norms, and language. Regarding classroom management issues, ITAs admit that a lack of information about the U.S. grading and testing system often makes them experience lack of control (Lin & Yi, 1997). Many ITAs also share the instructional challenges that they face in U.S. classrooms such as feeling frustrated over having to change their teaching style (Torkelson, 1992). In fact, Kim (2014) showed that many ITAs continue to practice a teacher-centered, rather than a student-centered, approach to teaching due to respective pedagogical beliefs. In relation to cultural challenges, ITAs admit feeling uncomfortable by the expectation that they call their professors by their first names (Bresnahan & Cai, 2000). In addition, many ITAs find it difficult to adapt to the more informal relationship characteristic of the U.S. students and faculty (Kuo, 2002). Regarding social challenges, some ITAs report that they find it difficult to make friends with Americans, as the ITAs may prioritize their obligations to the home communities and, therefore, have less time to develop relationships with U.S. peers (Smith, 1993). Lastly, in relation to linguistic challenges, many ITAs find it difficult to communicate effectively with their U.S. students both inside and outside the classroom (Li, Mazer, & Ju, 2011). More specifically, research shows that while many ITAs master discipline discourse, they may not be proficient in conversational English, which makes it difficult for them to communicate during office hours (Chiang, 2016).

In order to address the various challenges that ITAs encounter, ITA preparation programs have employed a number of different approaches. For example, to address social and cultural challenges, a buddy program for ITAs, which involves pairing an ITA and a U.S. undergraduate student for the duration of one academic semester with the purpose of fostering informal social interactions, has been successful at the Michigan State University (Altinsel & Rittenberg, 1996). Staples, Kang, and

Wittner (2014) found that informal interactions between U.S. undergraduate students and ITAs positively impact undergraduate students' perceptions of ITAs' comprehensibility and teaching ability. In a similar vein, Kang, Rubin, and Lindemann (2015) reported that U.S. undergraduate students rated ITAs higher in terms of instructional competence and comprehensibility upon engaging in a series of cooperative problem-solving exercises. In addition, some U.S. universities engage U.S. undergraduate students in an intercultural training course (Ross, 2007) with the goal of fostering a sense of openness toward other cultures on the part of this group of students. In order to help ITAs improve their ability to clearly communicate course content to their U.S. students, researchers encourage ITAs to use a dialogic approach during class meetings (Li et al., 2011). In particular, while an ITA's self-disclosure of language inadequacy in the classroom has negative effects on students' perceptions of the ITA's clarity as an instructor, the students perceive the ITA's attempts to resolve his/her language inadequacy in the classroom through a dialogue with them as a genuine effort to achieve mutual understanding, with the result that the ITA's overall instructional credibility is supported. Lastly, some ITAs' preparation programs establish collaborative relationships with the ITAs' discipline departments and offer discipline-specific practica (Gorsuch, 2006, 2017). Despite many difficulties associated with launching such a course, the positive effects on ITAs' discourse intonation and teaching strategies make such endeavors worthwhile to implement (Gorsuch, 2017).

To summarize, research shows that ITAs oftentimes experience certain instructional, socio-cultural, and linguistic challenges while teaching in the U.S., prompting ITA- preparation programs to extend the support offered to this group of international educators by organizing informal encounters with U.S. undergraduate students, discipline-specific mentoring, and others.

Facilitating teacher development. One of the many ways to facilitate teacher development of instructional expertise lies in creating mediational spaces (e.g., teaching journals, mentoring sessions) wherein teachers can reflect on their teaching practices and consider alternative modes of engagement in the classroom. Verity (2001) reports on her own developmental journey as a language teacher in a new cultural environment (Japan) and her ability to mediate herself towards new, more effective modes of engagement in the classroom through externalizing her thoughts and feelings in a teaching journal. In another study, Tasker et al. (2010) demonstrate how an experienced language teacher was able to clarify his concerns related to teaching and develop an idealized conception of a classroom with a commitment to action through dialogues with a colleague. In this case, the colleague oftentimes served as a "sounding board" who was able to listen and ask probing questions in order to prompt the teacher to formulate his own solutions to the instructional problems he encountered.

Another way to promote teacher reflection involves the use of video-recorded lessons taught by a novice and a subsequent co-reflection on these videos in collaboration with a more expert other. For example, Golombek (2011) showed how a teacher educator shifted her mediation from implicit to more explicit in response to a pre-service teacher's needs during their interaction in regard to the video recording of a class the latter had taught. Through analysis of the transcripts of her conversation with a language pre-service teacher, Golombek (2011) explored the quality and character of this interaction. In particular, she demonstrated how the teacher

educator's and the pre-service teacher's engagement in this dialogic activity had enabled the former to understand the latter's thinking and modify mediation accordingly. In this interaction, the teacher educator fostered the novice's ability to think about why she had made certain choices in the classroom. In other words, the teacher educator engaged the novice in reasoning teaching (Johnson, 1999) and articulating alternative instructional solutions to various classroom situations.

Less is known about the impact of video on the development of ITAs' professional expertise (Williams & Case, 2015). Also, the majority of previous research focuses on ITAs' teaching in somewhat artificial settings, i.e., simulated teaching sessions (LeGros & Faez, 2012), rather than in a real classroom. Following a recent call to use videos as a basis for ITAs' training (Williams & Case, 2015), this study investigates the impact of video on ITAs' developmental trajectories. Unlike previous research (e.g., Williams & Case, 2015), this study relies on several teaching and reflection sessions with ITAs, which allows for a more in-depth investigation of successful developmental trajectories of the participating students.

Summary. Overall, research on teacher learning suggests various ways to promote teacher development of professional expertise. One of the ways is to employ video-recorded lessons and after-lesson reflection sessions facilitated by a mentor or a colleague. However, research on the use of video in ITAs' training is only beginning to emerge (Williams & Case, 2015). Following this emergent body of research, this study involved ITAs in a mentoring project with the use of video implemented at a U.S. university upon their completion of the ITAs preparation program with the goal of further supporting ITAs' development of teaching expertise.

Methodology

Research Design

The project involved two ITAs participating in mentoring encompassing reflection sessions before and after each of their three lessons taught to U.S. undergraduate students. The data collected included: (1) six video-recorded mentoring sessions with each of the participants, (2) three video-recorded lessons taught by each of the participating ITAs, and (3) short reflection papers where the participants reflected on their overall experience in the project. The protocols developed for this project and used to guide mentoring sessions are presented in Appendix A.

Also, for triangulation purposes, the research utilizes data from a focus-group discussion. All the ITAs enrolled in the ITA preparation course in a subsequent academic semester at the same university were asked via email to participate in a focus-group discussion. Several students replied. A moderator facilitated the focus group, which was conducted in a university classroom. The focus group session lasted approximately 1 hour. The researcher attended the session but did not participate. At the end of the session, which was audio-recorded for transcription purposes, the participants were asked to complete a questionnaire (see Appendix B).

Responding to the need to support ITAs' development of instructional expertise, the paper's primary goal is to examine the developmental trajectories of two ITAs in the continuing professional development context at a U.S. university. This qualitative research study pursued the following research question: How do the

mentoring sessions with the use of video-recorded classes taught by ITAs mediate their development of teaching expertise?

Population and Sample Selection

The study involved two ITAs upon their completion of the ITAs' preparation course at a U.S. university in a mentoring project with the use of video and reflection sessions. In this study, the names of the two focal participants were replaced by pseudonyms to protect their privacy.

One of the participants, Tao (from China), pursued a doctoral degree program majoring in engineering education at the time of the data collection. Prior to the start of the project, he taught for one year overall both in his home country and in the U.S., which involved a number of introductory courses for engineering students. The other participant, Arash (from Jordan), also a doctoral student, as well majored in engineering education. He had taught in his home country for five years prior to pursuing a doctoral degree program in the U.S. His prior teaching experience involved a number of college-level courses such as computer-assisted graphics, engineering economics, dynamics, and statics.

Additionally, several ITAs agreed to participate in a focus-group discussion related to this group of students' attitudes toward continuing professional development opportunities overall. This data was collected to inform this study as well as to serve for triangulation purposes.

Data Collection

The ITAs were recruited upon their completion of the ITAs' preparation course offered at a southwestern public U.S. university. Out of a cohort of 45 students, only two students who majored in engineering education volunteered to participate in the project. At the beginning of the project, the participants filled out a short background questionnaire (see Appendix C).

In addition, in a subsequent academic semester, several ITAs were recruited via an email to participate in a focus-group discussion.

Data Analysis

The data analysis focused on the contents of the ITAs' interactions with the mentor (also, the researcher and the author of this article) and their perceptions of the mentoring experience with the use of grounded theory (Glaser & Strauss, 1967). The data sources were transcribed and then read and re-read by the researcher multiple times in order to identify the most salient themes that emerged in the participants' classroom interactions, reflection sessions with the mentor, and final (after-project) reflection papers. The data from the focus-group discussion was approached in the same manner.

Results

The study shows that the mentoring approach applied to both ITAs allowed them to improve their teaching as well as to exhibit a certain extent of teacher reflection

during one-on-one mentoring sessions and achieve a greater level of student engagement in the classroom towards the end of the semester.

Following conventional qualitative methods, the researcher identified two themes as the most salient in the data of the participating teachers, Tao and Arash. Each participant focused on (1) personal limitations as a teacher and possible solutions and (2) strategies that ensured their success in the classroom.

From the start of the project, both ITAs were aware of certain shortcomings they had as instructors. Thus, while Tao admitted that he sometimes experienced some miscommunication with English native speakers due to his accent, Arash was aware of his tendency to talk too fast, which posed a problem in his interacting with students who could not always follow his fast explanations during instruction. Such awareness constitutes the first step towards developing as a teacher.

At the same time, the two ITAs also exhibited many other qualities that helped them to gradually become more successful in the classroom. First, both the ITAs were collaborating with their advisors and students in order to improve their teaching. Second, they were particularly attentive to the levels of student engagement in their classes and implemented several instructional strategies to increase student participation, as the project unfolded. Third, they were both aware of some institutional constraints and were able to reflect on them. Lastly, both the ITAs were aware of the importance of a positive student–teacher relationship and found ways to improve it. In addition, one of the participants (Arash) demonstrated a certain extent of cultural sensitivity as a teacher and reflected on the ways to become more successful in this new cultural environment in the future.

In the paragraphs that follow, the main findings are explained in greater detail with the use of relevant data excerpts.

Mentor as a "Sounding Board" in Mediational Dialogues with ITAs

As mentioned earlier, both Tao and Arash were aware of certain personal limitations as instructors and on this basis, were able to externalize concrete professional goals to achieve by the end of the project. Thus, Arash externalized his concern about talking too fast during the first mentoring session (prior to teaching his first class) after being prompted by the mentor.

Excerpt 1.

Mentor: So, for your first lesson, can you choose any topic…or anything we can focus on?...There are some examples here, like student motivation, what kinds of questions you use to engage them. Or, anything about your presentation.

Arash: Yeah, ok. So, well, probably, talking too fast. I usually talk too fast. Just the rate of speech. (Mentoring session 1)

In the excerpt above, the mentor prompts the ITA to identify a certain aspect of his teaching that seems problematic to the latter. While the mentor does offer some topics, Arash chooses a topic of his own. Here and hereafter, the mentor mostly serves as a "sounding board" prompting the ITAs' reflection on teaching during their mediational dialogues, which signals a certain extent of teacher autonomy on the part of the participating ITAs.

While at the end of the semester Arash admits that his rate of speech is still fast, he also acknowledges that he was able to slightly overcome this issue by slowing down and asking more questions during the classes he had taught during the project. In fact, whereas he finished his first lesson twenty minutes earlier, he was able to finish two other classes he had taught as part of the mentoring project on time.

Excerpt 2.

Arash: I've learned that I need more preparation and to practice a bit more in order to have a better grasp on time and not take more than I should or less than I should which is what was happening during those lectures. I took about 70% of the class time, and while students like getting off early, the additional time could have been used to reiterate or explain at a slower pace or for the sake of a more interactive class. (Final reflection paper)

In a similar vein, during a mentoring session at the start of the semester, Tao admitted that he had talked too fast during his first lesson.

Excerpt 3.

Mentor: So, what went well and why?

Tao: I think everything went well since I felt most students understood what I taught. The only thing is that I speak too fast. Yeah, that is part of my classroom management skills. I still need to improve that part. (Mentoring session 2)

In fact, Tao finished his first lesson ten minutes earlier. To compensate for this, Tao planned to implement the following strategies in his subsequent teaching: slowing down and using wait time.

Excerpt 4.

Mentor: So, maybe you can slow down next time?

Tao: Yeah, slow down and sometimes I'm just not very patient to wait for five minutes for them, but I should do that, give them time, more time to them. (Mentoring session 2)

In the excerpt above, the mentor suggests a possible solution to the problem externalized by the ITA (slowing down), and the ITA continues the discussion by offering his own strategy to address the issue (using wait time). And indeed, Tao was able to use better classroom management skills during the second and third lessons he had taught as part of the project. Furthermore, in his final reflection paper, Tao identified better classroom management skills as a major "gain" from his participating in the project, as the following excerpt illustrates.

Excerpt 5.

Tao: At the first lecture in a real classroom facing about 100 students, I was a little bit nervous, which I noticed in the video. Under the pressure, I spoke pretty fast, also confirmed from the students' feedback, so the consequence is I finished the lecture content 10 minutes early than expected. So, next time I tried my best to calm down and slow my speaking and at the same time prepared more content for the students, which gave me flexibility to manage the lecture time. (Final reflection paper)

Previous research shows that clear goal setting constitutes the first step to success (Smith, 1993), particularly as it relates to teacher professional development. In the interactions above, both the ITAs were able to identify an instructional concern and frame it as a goal to achieve. In her turn, the mentor served as a "sounding board" who asked probing questions and mainly facilitated a space to reflect on one's teaching rather than provide solutions. While working within the participants' ZPD, the mentor was not necessitated to use a more directive style of mentoring. From a sociocultural perspective, it shows the necessity to dynamically scaffold students' (in this case, ITAs') learning while using less explicit mediation first on the teacher's or mentor's part (Aljaafreh & Lantolf, 1994; Lantolf & Thorne, 2006).

Mediational Tools that Ensured ITAs' Gradual Success in the Classroom

As mentioned earlier, both the ITAs utilized a number of strategies (or, mediational tools) that ensured their success both in the classroom and during the mentoring sessions. The excerpts below illustrate this claim.

First of all, both the ITAs were collaborating with their advisors and students in order to improve their teaching. For example, both Tao and Arash sought feedback from their advisors upon their teaching by sharing video recordings of each lesson and discussing their teaching. In addition, they interacted informally with their students during office hours and laboratory sessions in order to receive another perspective on their teaching. Moreover, they were both interested in exploring these additional perspectives in greater depth in the future, as the following excerpt demonstrates.

Excerpt 6.

Arash: Sending brief questionnaires to the advisor of the participating ITA as well as to the students attending the class to see the perspective of an expert in the field as well as the recipients of the lecture whose feedback is extremely important to improvement. I have tried to get feedback from students, but didn't get much, but I am sure that anonymous surveys or questionnaires would yield more honest input. (Final reflection paper)

As the excerpt above shows, while Arash was able to utilize his advisor's and students' feedback as a helpful mediational tool, he also externalized a desire to use it at a greater depth in his subsequent teaching practice. The latter was not feasible during the project due to the fact that ITAs were not instructors of record, and therefore, the institutional student evaluations of their teaching were not available.

Second, both the ITAs were particularly attentive to the levels of student engagement in their classes and implemented several instructional strategies to increase student participation, as the project unfolded. First, both Tao and Arash incorporated more questions to the students during their second and third lessons, as compared to the first lessons they taught. They also increased their wait time to let students process the information and develop solutions. In addition, both the ITAs were aware of the importance of a positive student–teacher relationship and found ways to improve it. For example, Tao arrived earlier to the second lesson he had taught during the project and engaged students in some small talk in order to establish a more positive atmosphere in the classroom.

Excerpt 7.

Tao: Then, this time I tried to involve the students a little more. This time I arrived a little bit earlier and I just talked to some students there. I think that let them warm up. So, they are not afraid to ask questions….So, when we started the class and I asked them a content question, these guys just answered this. I think I should involve more students before the class, talking to them, walking around. There was more participation this time. (Mentoring session 4)

Third, both the ITAs were aware of certain institutional constraints and were able to reflect on them. For example, Tao admitted that the curriculum was not as flexible as to allow him to explain some of the problems in greater detail in the class. In the future, if he has a full control over course schedule and assignments, he would prefer to make it more flexible. Also, Arash admitted that the institutional constraints did not allow him to make his presentation more interactive, i.e., the students could not directly engage with the software he was using during instruction due to a limited number of computers. Instead, the students had to wait till the laboratory time or to try it at home by themselves.

Lastly, one of the participants (Arash) demonstrated a certain extent of cultural sensitivity as a teacher and reflected on the ways to become more successful in a new cultural environment in the future. Thus, he admitted that in the U.S., students were more reluctant to ask questions than in his home country. Also, he was interested in finding ways to make his lesson beginnings more engaging by learning more about U.S. humor, as the excerpt below shows.

Excerpt 8.

Arash: My intros…to lectures could also use some work as I start the class suddenly and end it as abruptly as I had started it, while I do a good job in the middle, I think I need some transition phase before the class starts and at the end of it. I used to do that in Jordan, but still can't do that here as I need some time to adjust to the environment and know how to open with an appropriate joke or small talk or something to get the students to notice class has begun. It is definitely something I used to do, and should get back into the habit of doing again once I get more comfortable to what is appropriate and what isn't in this culture. (Final reflection paper)

Overall, while some of the mediational tools the ITAs employed helped make their instruction more successful by, for example, increasing levels of student engagement, some of the mediational tools were not available to the ITAs during the course of this project (e.g., anonymous feedback from students), a limitation that can be addressed in subsequent studies. Also, both the ITAs were aware of certain institutional constraints, which as well could not be addressed within the context of this research (e.g., a limited number of computers for students).

Finally, in order to gain insights into ITAs' motivation (or lack of thereof) to participate in continuing professional development, focus-group data were collected in a subsequent semester. The focus-group data shows that ITAs would gladly participate in professional development activities upon completing the university training program. Out of a cohort of 35 ITAs in a subsequent semester, all of them

showed potential interest in this project. For example, one ITA noted that "he would participate in additional mentoring since he wants to be a better teacher". Another ITA admitted that this "seems as a great opportunity" and that she "would gladly participate in the following semester as she gains "a bit more experience". However, not all the ITAs are able to receive teaching assistantships (TAs). Furthermore, even if they receive TAs, they are mainly assigned to grade student work rather than hold lab sessions or even give classes. This institutional constraint appears to be a key factor to impact ITAs' actual willingness to engage in continuing professional development.

Discussion

This study has a range of implications for future research, particularly in the context of ITAs' training. First, the study confirms an earlier research finding (Poehner, 2011; Tasker et al., 2010) according to which interactions with colleagues and mentoring can be a significant tool in mediating teachers' development of instructional expertise. In this study, both the ITAs were able to externalize certain concerns relating to a number of aspects of their teaching (e.g., student participation) and formulate and even implement some of the solutions. For example, after externalizing a desire to engage in new modes of engagement in the classroom, Tao was able to establish a closer and more positive student–teacher relationship by holding some informal interactions with his students prior to his class.

At the same time, given the participating ITAs' prior experience in teaching and corresponding background (i.e., majoring in engineering education), it is possible that solely the mediational spaces created through the project were of key importance to the ITAs' development. Similarly to Verity (2001), the two teachers were able to self-mediate themselves towards embracing new ways of teaching. Here, the concept of ZPD seems particularly relevant, i.e., while some new teachers may require a more direct style of mentoring, the participating instructors' ZPD allowed the mentor to mainly serve as a "sounding board." Consequently, one of the practical implications of this research lies in its highlighting the importance of providing beginning teachers (in this case, ITAs) opportunities to "see" their teaching (video-recorded lessons) and to have spaces to reflect on what they "saw." While the major thrust of existing research on ITAs does not utilize videos (Williams & Case, 2015), this study shows its potential benefits for ITAs' development of professional expertise overall.

In addition, the study confirms Vygotskian sociocultural theory (Vygotsky, 1978) by showing that through mediational dialogues, learners (in this case, teachers) can develop further by, for example, externalizing their concerns and formulating certain solutions to implement in subsequent lessons. In particular, during the mediational dialogues, the mentor's working within the participants' ZPD prompted the ITAs to formulate instructional concerns and to suggest solutions. Among other mediational tools that the ITAs found particularly useful were the interactions with their advisors and students, using wait time, and incorporating more questions to make their instruction more interactive. At the same time, some of the mediational tools in which the ITAs were interested (e.g., anonymous feedback from students) were not available during the project and could, therefore, be implemented in future research.

Next, the study findings show that both the ITAs were able to demonstrate a certain level of autonomy and reflection during the provided mentoring sessions and to exhibit some instructional success in the classroom. This success can be due to the fact that both the ITAs had taught prior to the start of the project. In this way, they were somewhat familiar with the instructional context and student population. Also, both the ITAs were engineering education majors, which can account for their professional interest in becoming a better teacher. On this basis, the article challenges certain biases that educators may hold of this group of students (i.e., their lack of success as instructors in a new educational context), which may prevent us from tailoring our instruction to better meet these students' needs. A similar claim has been made with regard to writing instruction to bilingual students (Riazantseva, 2012). While it seems impossible to generalize the findings of this article to larger populations of students, this article represents some of these voices. Moreover, unlike previous research (Williams & Case, 2015), this study utilizes several teaching and reflection sessions with ITAs supported by the use of video. This resulted in a more in-depth investigation illustrating successful developmental trajectories of the participating ITAs. Also, while Williams and Case (2015) report that the participating ITAs through discussing the videos of their teaching expressed a commitment to enhance their instructional practices in various ways, this study showed the complex ways in which the ITAs' teaching practices actually developed overtime. For example, both Arash and Tao were able to increase student participation as the project unfolded; however, the cultural component of instruction remained an issue (i.e., Arash's desire to learn more about U.S. humor in the context of a college classroom).

The study findings also agree with Vygotskian ideas about the nature of transformative experiences in the context of education. Within this framework, it is suggested that through mediational experiences all the participants become transformed. In this study, both participating ITAs re-framed certain aspects of their teaching whereby Arash and Tao developed better classroom management skills and learned to make their teaching more interactive. The sociocultural theory, therefore, represents a useful analytical tool that researchers can draw on in examining teachers' transformative experiences in teacher preparation programs more generally.

Finally, the paper raises questions relating to the ITAs' motivation to engage in continuing professional development. Out of a cohort of 45 students, only two ITAs majoring in engineering education agreed to participate in this research. Yet, during a subsequent academic semester, all 35 enrolled ITAs' expressed potential interest in participating in continuing professional development. This discrepancy may be due to certain institutional limitations discussed earlier (i.e., many ITAs are assigned to grade student work rather than actually teach). However, the limited sample does not allow to make major generalizations at this point and can be addressed in further research.

Conclusion

While the use of mentoring to support teacher learning continues to grow in the U.S. and worldwide, particularly in K-12 contexts, more research is needed to understand the affordances and constraints of the learning environments at the

university level, particularly with the use of video. This study revealed that mentoring allowed the participants to externalize their thoughts and feelings about their teaching and implement some of the strategies to enhance it. The mentoring sessions allowed ITAs to realize their limitations (e.g., talking too fast) and the ways to overcome these limitations (e.g., developing awareness of cultural differences in the classroom, having

…mentoring allowed the participants to externalize their thoughts and feelings about their teaching and implement some of the strategies to enhance it.

willingness to collaborate with students and advisors, and others). Such mentoring endeavors can also help teachers gain confidence and exchange teaching strategies. In the future, this process could involve an extended use of the mediational tools that the ITAs found particularly effective (e.g., anonymous feedback from their students). Furthermore, given that both the ITAs were relatively experienced teachers majoring in engineering education, future investigations could involve a larger and perhaps more diverse pool of participants sufficient to draw general inferences. Lastly, surveying the ITAs regarding motivational factors in future studies seems a worthwhile endeavor. In particular, it would be interesting to explore whether ITAs will rely on informal methods for improving teaching (e.g., peer interactions) in the absence of a formal mentoring program.

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Appendices
Appendix A[1]
Mentoring Session Protocols

General Comments
1. How do you feel about the lesson overall?
2. What went well? Why?
3. What did not go well? Why (not)?
4. If you teach this lesson again, what aspects would you change and why (not)?

Students
5. How engaged were the students? How do you know? How could you increase student participation if you taught this lesson again?
6. Were any parts of the lesson challenging to the students? If yes, how did you address these challenges? If you teach this lesson again, what would you do differently in terms of facilitating student understanding?

Teacher
7. How was the rate of your speech? How about pronunciation, grammar, and vocabulary?
8. How clear were your explanations? If you teach this lesson again, what would you do differently in terms of making your explanations more clear?
9. How effective were the visual aids you used, if any?

Classroom Facilities
10. What about the classroom facilities? If you teach this lesson again, what aspects of the classroom facilities would you change and why (not)?

Appendix B
Focus-Group Questionnaire

1. How did you feel about the ITAs' training course in terms of preparing you to teach U.S. students at this university (e.g., sufficient/insufficient, etc.)?
2. What topics and/or activities discussed in the course were necessary and, on the opposite, not presented in depth or even omitted?
3. If you are given your TA-ship for this academic semester, would you allow the ITA instructor to record and subsequently analyze and co-reflect on three of your teaching sessions for the purpose of continuing professional development? Why (not)?

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[1] Based on Morford, M. (October 12, 2006) and Lesson Reflection Checklist (n.d.).

Appendix C

Background Questionnaire

Personal Information

1. Full name:
2. Nationality:
3. Native language(s):
4. Knowledge of other languages:
5. Major:
6. Degree sought:

Teaching Experience

7. Please specify the department you have worked for/are working for:
   a. Which courses have you taught?
   b. What are/were your specific responsibilities?
   c. How long have you been teaching?
8. Did you have teaching experience before coming to the U.S.? If so, please describe.
   a. Where did you teach (country, institution)?
   b. How long did you teach (time, semesters)?
   c. Please describe your students (gender, backgrounds, etc.).

Proficiency in English

9. How do you feel about communicating in English (e.g., confident, nervous, fluent)?
10. How do you feel about your proficiency in English? Please be specific. Evaluate your writing, reading, speaking, and listening skills.

Mentoring Project

11. What professional goals do you pursue by participating in this project (e.g., improve classroom management skills, develop a more confident teacher persona, collect data on student off-task behaviors and implement measures to address these behaviors, etc.)?
12. How do you feel about discussing your lessons and receiving feedback on your teaching? What should I consider when discussing your teaching sessions with you? (Adapted from Trebing, 2007)

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How Age, Gender, and Class Format Relate to Undergraduate Students' Perceptions of Effective Course Assessments

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Students' perceptions of assessment used within the learning environment greatly influence their approach to learning. Therefore, this study aims to explore whether various student or course characteristics (age, gender, course format) impact perceptions regarding effectiveness of assessment type (e.g., exam, participation, presentation) and question format. As faculty develop their courses they may wish to consider these perceptions in order to better facilitate learning and to clearly articulate to their students the benefits of the assessment types that the students see as less effective.

Every semester, as faculty are putting together their syllabi, they undoubtedly include various assessment activities for their course (e.g., exams, presentations, writing assignments). They may include specific assignments for a variety of reasons: to promote critical thinking, to assess knowledge retention, to be consistent with common practices within the discipline, or to assess certain learning outcomes. They may also exclude assignments for other reasons, including previous negative outcomes, poor student learning, or a change in available resources. Reasons for selecting certain assignments for courses are likely to vary across disciplines and faculty.

When building course assignments and developing teaching strategies, instructors often look to best practices (Alexander, 2017; Kibble, 2017) and commonly followed guidelines (e.g., Bloom's Taxonomy). Faculty have the challenge of aligning instruction, learning, and assessment, and sometimes, faculty and students may perceive different instructional methods (e.g., lecture, flipped class room) as more or

less effective for achieving learning outcomes (Wright, Shumway, Terry, & Bartholomew, 2012). They may also differ regarding preference for course assessments (e.g., test, paper). More research is needed in this area because only scant research has been done to look at what types of assignments or questions students perceive effectively assess what they have learned in the class (Lizzio & Wilson, 2013). Perceptions about assessments are related to the learning process, which is linked to academic success (Struyven, Dochy, & Janssen, 2006). Another factor related to student performance is gender (Devaraj & Raman, 2014). In fact, Millian, Villasenor, de la Escalera, and Carrillo (2012) stated, "It is unquestionable that gender plays a complex role in academic expectations and achievements…" (p. 152).

This study aims to further explore students' perception of assessment effectiveness concerning course assignments and question type on quizzes/exams related to student learning among different groups (male/female, traditional-/nontraditional-aged, f2f/online). In the current study, the researchers specifically focused on two student characteristics, age and gender, that are generally easily accessible to the instructor prior to the start of class when syllabi are being finalized. Personal factors such as age and gender, together with the learning environment (course format), may

> **If different groups of students…favor different assessment types that achieve the same learning outcome, knowing that preference can more clearly inform faculty decisions regarding which types of assessment activities to include.**

impact perceptions of assessment effectiveness. Some of the research on adult learning has suggested adult learners have different learning strategies (Reynolds, Stevens, & West, 2013). If different groups of students (i.e., nontraditional-aged students; students older than 24) favor different assessment types that achieve the same learning outcome, knowing that preference can more clearly inform faculty decisions regarding which types of assessment activities to include.

Literature Review
Quizzes, Exams, and Question Format

One of the most basic ways to assess student learning in the classroom is through quizzes and exams. Testing serves multiples functions: motivates student learning, conveys instructor priorities, assesses student knowledge and comprehension, and serves as a way to assign course grades (Laprise, 2012). Middle school and high school students are known to perform better if they are given frequent quizzes over less material rather than taking fewer quizzes over more material as this gives more opportunity for feedback from the instructor (McDermott, Agarwal, D'Antonio, Roediger, & McDaniel, 2014). It is likely this is also the case for college students.

A common question format used on both quizzes and exams is multiple-choice. Advantages of the concise, decontextualized multiple-choice questions over more complex formats, such as essays or constructed responses, are vast for both the instructor and student. In addition to the advantages, research consistently shows that students are more comfortable with this question format than essay and short answer questions (Sommer & Sommer, 2009). There is also perceived objectivity in the grading

process, reduced test anxiety, and increased probability of guessing that makes it a preferred assessment method for students and instructors alike (Simkin & Kuechler, 2005; Xu, Kauer, & Tupy, 2016). For decades, it has been suggested that students respond more favorably to multiple-choice questions compared to other types of assessments (Traub & MacRury, 1990). However, some suggest multiple-choice questions are limited in their ability to assess comprehension or higher- order thinking (Ozuru, Briner, Kurby, & McNamara, 2013). Others argue deeper understanding can be assessed using multiple-choice questions (Briggs, Alonzo, Schwab, & Wilson, 2006; Crowe, Dirks, & Wenderoth, 2008).

Oral Presentations

Another way to assess student learning is though oral presentations. Oral presentations allow students to demonstrate cognitive skills (Maes, Weldy, & Icenogle, 1997), knowledge of course material, and ability to engage with an audience (Joughin, 2007). However, it is not uncommon for students to feel anxious or experience communication apprehension, which is defined as "an individual's level of fear or anxiety associated with either real or anticipated communication with another person or persons" (McCroskey, 1977, p. 78). Research in this area suggests that female students tend to report higher levels of public speaking anxiety than males (Shi, Brinthaupt, & McCree, 2015). Although anxiety is associated with oral presentations, students found oral presentations valuable because it developed their professional identity and skillset (Turner, Roberts, Heal, & Wright, 2013).

Research Projects, Writing Assignments, and Participation Points

Along with quizzes, exams, and oral presentations, it is common for faculty to include other types of assignments to gather information about student learning. However, evaluating students' perception about other assessment formats, such as research projects, writing assignments, and participation points, are less prolific. A recent posting on *Faculty Focus* explored the importance of appropriate distribution of points across a variety of assignments to give ample and different opportunities for students with different learning styles but did not offer empirical support for the preferences of students (Weimer, 2012). Rather, the aforementioned article offered suggestions about the importance of consulting with other faculty and students themselves about point distributions and assessment strategies.

While there is support for the benefits of research projects from both the faculty and students (Hunter, Laursen, & Seymour, 2007), what is less clear is if students perceive this type of assessment as measuring what they have learned in a specific course. Similarly, research on students' beliefs about perceived effectiveness of written assignments is also limited.

Participation points are also often included as assessment activities for undergraduate courses as they provides important feedback to the instructor about student learning and the effectiveness of instruction (Clayton & Woodard, 2007). Previous research has noted that students generally do believe that participation in class is an essential part of effective learning (Fritschner, 2000), but there are many

reasons why students do not participate or participate less frequently than perhaps they should (Rocca, 2010). While there has been some research about certain personality qualities of students that may make them more or less likely to participate in class (Sidelinger, 2010), there is little, if any, research about students' beliefs that this is an effective way to measure learning.

Beyond assessment type, no formal research could be found on what students believe should be the breakdown of points awarded for various assignments. This information is important for both students and faculty to gain understanding of where students place the most value, and possibly effort. This understanding may further help faculty engage students in learning if assessments are weighted in such a way that they align with student expectations.

Therefore, the current study aims to better understand students' perceptions of effective assessments for measuring student learning and desired point distribution across assignments. The literature on student age, gender, and course format regarding student preferences for course assessment is inconsistent and somewhat lacking; therefore, we put forth the following research questions:

> *RQ1: Are there differences between men and women in their perception of effectiveness of various academic assessments?*
> *RQ2: Are there differences between traditional- and nontraditional-aged students and perception of effective academic assessments?*
> *RQ3: Are there differences between course format (online, face-to-face, hybrid) and perception of effective academic assessments?*
> *RQ4: What do students desire regarding point distribution across class assessments?*

Method

Participants

The sample was composed of 121 participants, 82 females (67.8%) and 39 males (32.2%), ranging in age from 18 to 52 (*M*=24.18, *SD*=7.61). The majority of the sample was Caucasian (*n* = 115, 95%). Students answered the question, "Do you take more in-person classes, online, or hybrid classes?" Of the participants, 58 (47.9%) took more on-campus classes, 48 (39.7%) took more online classes, and 14 (11.6%) were enrolled mostly in hybrid classes. Eighty participants were identified as "traditional-aged" in the 18-23 year-old age group (*M*=3.89, *SD*=.99) and 36 were identified as "non-traditional-aged" in the 24 years-old and older age group (*M*=3.86, *SD*=.76).

Procedures

This study was approved by the university's Institutional Review Board. Participation was voluntary. Undergraduate students at a regional Midwest university participated in an online survey to fulfill a course research requirement where an alternative assignment was available if they chose not to participate. Other students participated to receive extra credit (this distinction depended on the course instructor). Participants did not receive compensation. The participants were instructed to visit a web address where they completed informed consent and an online survey.

Instrumentation

Participants were asked to respond to 18 questions that centered on what the student believed was the most effective way of assessing student learning. First, participants were asked to respond to the following two questions on a 5-point Likert scale ranging from strongly disagree to strongly agree: "Exams are an effective means of assessing what a student has learned in the course" and "Quizzes are an effective means of assessing what a student has learned in the course." Next, participants were asked to answer questions on a 5-point Likert scale ranging from strongly disagree to strongly agree about the types of questions effective exams and quizzes have. For example, "The most effective exams have essay questions." Specifically, the question types that were identified were essay questions, short answer, multiple-choice, fill-in-the blank, and true/false. Students were next asked to identify which course assignments do the best job of showing what they have learned on a 5-point Likert scale ranging from strongly disagree to strongly agree. The specific assignments were research projects, oral presentations, weekly journals, small writing assignments (under two pages), longer writing assignments (more than 2 pages), and participation points. Next, students identified the weighting they would prefer to be given to exams, quizzes, and course work and together the percentage had to equal 100 in order to move on. Finally, demographic data was collected.

Results

In order to test *RQ1: Are there differences between men and women in their perception of effectiveness of various academic assessments?*, first a one-way analysis of variance (ANOVA) was used to determine if males and females differed in their belief that exams and quizzes are effective. There was no significant difference between how males (*M*=3.76, *SD*=.97) and females (*M*=3.95, SD=.84) viewed quizzes $F(1, 116)=1.15$, *p*=.29 and exams $F(1, 116)=.07$, *p*=.80 (males, *M*=3.76, *SD*=1.05; females, *M*=3.81, SD=.92). Additionally, because all means were above the mid-point, this suggests that both males and females view quizzes and exams as effective measures of what a student has learned in the course.

To determine if males and females differed in what types of questions they believe are effective on quizzes, a one-way ANOVA was conducted. There were no significant differences between males and females and the types of questions they believe are effective on quizzes (see Table 1 on p. 123). There were, however, two significant differences between males and females regarding the types of questions they believe are effective on exams: 1) females (*M*=3.61, *SD*=1.09) thought effective exams include essay questions, $F(1, 116)=8.22$, *p*<.01, whereas males did not (*M*=2.95, *SD*=1.36); and 2) females (*M*=4.06, *SD*=.86) thought short answer questions on exams were more effective, $F(1, 116)=11.30$, *p*<.001 than males (*M*=3.45, *SD*=1.10).

Again, a one-way ANOVA was conducted to examine if males and females differed in what assignments they believe effectively do the best job of demonstrating student learning. There was one significant difference between males (*M*=4.11, *SD*=.86) and females (*M*=3.56, *SD*=1.10) for participation points, $F(1, 116)=7.14$, *p*<.01. There were also two assignments approaching significance: 1) weekly journals, $F(1, 116)=3.24$, *p*=.07, with females finding them more effective (*M*=3.44, *SD*=.97); and 2) research

projects, $F(1, 116)=3.66$, $p=.06$, with males ($M=3.71$, $SD=.90$) finding them more effective than females ($M=3.34$, $SD=1.03$).

Table 1
ANOVA Results for Effective Question Types on Quizzes

Question Type	df1	df2	F	p	Mean	SD
Essay Questions	1	116	1.53	.22	Male, M=2.84	.21
					Female, M=3.14	.13
Short Answer	1	116	2.80	.10	Male, M=2.84	.21
					Female, M=3.14	.13
Multiple-Choice	1	116	.16	.69	Male, M=4.21	1.07
					Female, M=4.28	.66
Fill-in the Blank	1	116	2.39	.13	Male, M=3.47	1.25
					Female, M=3.81	1.05
True/False	1	116	.47	.49	Male, M=3.82	1.23
					Female, M=3.96	1.01

To test *RQ2: Are there differences between traditional- and nontraditional-aged students and perception of effective academic assessments?*, a one-way ANOVA examined whether there were any differences between traditional- and nontraditional-aged students in their beliefs regarding the effectiveness of quizzes and exams to assess student learning. There was not a significant difference between traditional ($M=3.89$, $SD=.94$) and nontraditional ($M=3.94$, $SD=.58$) students. Both groups reported quizzes as an effective way to assess student learning, $F(1, 114)=.08$, $p=.74$. There was also not a significant difference between the two groups regarding the effectiveness of exams, $F(1, 114)=.11$, $p=.75$, traditional ($M=3.80$, $SD=1.00$), nontraditional ($M=3.86$, $SD=.76$).

Next, a one-way ANOVA tested group differences to determine if traditional- and nontraditional-aged students preferred different types of questions on quizzes. There were significant differences for two of the five question types: essay questions, $F(1, 114)=4.18$, $p<.05$, traditional ($M=2.90$, $SD=1.23$), nontraditional ($M=3.39$, $SD=1.10$); multiple-choice questions, $F(1, 114)=4.96$, $p<.05$, traditional ($M=4.39$, $SD=.72$), nontraditional ($M=4.06$, $SD=.79$). Nontraditional-aged students thought essay questions were somewhat effective at assessing learning where traditional-aged students did not. While both nontraditional and traditional students believed multiple-choice questions were effective ways to assess learning, traditional-aged students rated them as more effective than nontraditional-aged students.

Again, a one-way ANOVA was used to assess if there was a difference between traditional and nontraditional students and types of questions they see as effective on exams. There were no significant differences found although the same two question formats that were significant for quizzes (essay and multiple-choice) were

approaching significance for exams; essay questions, $F(1, 114)=2.89$, $p=.09$, traditional ($M=3.29$, $SD=1.23$), nontraditional ($M=3.69$, $SD=1.09$).

Finally, coursework preferences were examined to determine if there were group differences between traditional- and nontraditional-aged students using a one-way ANOVA. There was a significant difference between traditional ($M=3.70$, $SD=.96$) and nontraditional students ($M=4.08$, $SD=.60$), $F(1, 114)=4.86$, $p <.05$ related to small writing assignments, where nontraditional students more strongly agreed that shorter writing assignments (less than 2 pages) are effective at showing what students learned. A second significant difference existed for longer writing assignments, defined as more than 2 pages, $F(1, 113)=7.25$, $p<.01$. Traditional students ($M=3.10$, $SD=1.05$) again did not feel as strongly as nontraditional students ($M=3.64$, $SD=.87$) that longer writing assignments best assessed student learning.

To address *RQ3: Are there differences between course format (online, face-to-face, hybrid) and perception of effective academic assessments?*, a one-way ANOVA was used to determine if there was a difference between f2f ($n=56$), online ($n=48$), and hybrid ($n=14$) courses and student beliefs about quiz and exam effectiveness for measuring student learning. No significant differences were found for quizzes, $F(2, 115)=.80$, $p=.45$, f2f($M=3.88$, $SD=.90$), online ($M=3.98$, $SD=.86$), and hybrid ($M=3.57$, $SD=.96$). Students in all formats found quizzes as a moderately effective way to assess student learning. The same was conducted for exams, and again no significant differences were found, $F(2, 115)=.67$, $p=.52$, f2f($M=3.77$, $SD=1.01$), online ($M=3.90$, $SD=.88$), hybrid ($M=3.57$, $SD=1.02$). Again, students across formats found exams moderately effective at assessing student learning.

Differences between f2f, online, and hybrid in relation to question type on quizzes and exams was tested with a one-way ANOVA. There were no significant differences found for quizzes or exams for any of the question types (essay, short answer, multiple-choice, fill-in the blank, true/false).

A one-way ANOVA was conducted to compare the course format and type of assessment students see as effective. The only significant difference was for oral presentation, $F(2, 114)=4.10$, $p<.05$. Follow-up comparisons using the Tukey HSD test on the oral presentation item indicated that the mean score for the hybrid class format ($M=2.36$, $SD=1.01$) significantly differed from the on-campus class format ($M=3.33$, $SD=1.11$), $p<.01$. No other significant differences were found for course format and assessment preference to show student learning.

In order to address *RQ4: What do students desire regarding point distribution across class assessments?*, frequencies were calculated. See Table 2 where mean, median, mode, and standard deviation are presented. Overall, students would prefer that course work count for more of their overall grade than exams or quizzes.

Table 2
Frequencies for Desired Percentage Distribution of Graded Assessments

	Mean	SD	Median	Mode
Exams	31.86%	13.15	30	25
Quizzes	24.34%	10.27	25	25
Course Work	44.01%	17.87	50	50

Discussion

This study examined students' perceptions of the effectiveness of various assessments across groups. Students' perceptions of assessments are important as they can influence learning and student engagement with the course material (Gibbs, 2006). Implications of this are particularly interesting for faculty members that teach classes that are male- or female-dominated. Results from our gender analysis suggest females believe exams that allow further explanation of the response (essay and short answer questions) are more effective, whereas males believe this to be less true. Males believed participation points were more effective. This difference could be conceptualized as females preferring to express their knowledge in writing, whereas males may be more likely to show their knowledge (Birenbaum & Feldman, 1998). Some research suggests this difference exists because of the tendency for male students to dominate the classroom discussion (Caspi, Chajut, & Saporta, 2008; Crombie, Pyke, Silverthron, Jones, & Piccinin, 2003), allowing them the opportunity to adequately demonstrate knowledge and learning, and providing less of a chance for female students to do the same. A third explanation may be related to public speaking anxiety. As mentioned in the literature review, female students reported experiencing higher levels of public speaking anxiety than males (Shi et al., 2015) and participating in class discussions is an informal form of public speaking. There are likely other factors such as course level, course content, instructor personality, etc. that contribute to these findings, which seems ripe for further exploration.

When exploring traditional- and nontraditional-aged students, traditional students did not perceive writing assignments to be as effective as nontraditional students. This may be related to nontraditional students having more experience with writing, both in academic settings and professional ones, than traditional students, who in more recent years have focused much of their secondary education preparing for and taking standardized tests. Students reported that only 9% of their university and 13% of their high school tests were essay tests, and a majority of their tests were all multiple-choice (Sommer & Sommer, 2009). This perception difference between traditional and nontraditional students regarding how well writing assignments assess what the student has learned is an interesting one and should be explored further in future research.

Both traditional and nontraditional students found multiple-choice questions to be effective measurement of learning. However, traditional students indicated they found these types of questions to be more effective at measuring student learning than nontraditional students. Previous research supports that students prefer multiple-choice questions (Simkin & Kuechler, 2005; Xu, et al., 2016), and this study goes a step further indicating students of all ages, perceive multiple-choice questions to be an effective measurement of their learning.

When exploring class format (online, f2f, hybrid), the researchers only found one significant difference - f2f students believed oral presentations were more effective to show learning in a course than those in a hybrid class format. This may suggest those students who engage in online learning (hybrid or all online) formats have personal characteristics (e.g., high communication apprehension) that differ from those students who take f2f courses. Another plausible explanation might be that some

online learners who have low technology self-efficacy struggle to produce high quality presentations (e.g., content rich, visually/audio poor); therefore, feeling the oral presentation was not an effective measure of what they learned. An additional potential factor for this difference may be that students are unaware of online presentations as an option through online or hybrid learning. In fact, students, and even faculty, may believe that the course modality (online/hybrid) eliminates oral presentations as a possibility. This is another area that should be looked at further.

Faculty members may consider the differences that emerged in this study to guide their teaching and/or course design. One potential way to match students' assessment preferences with course learning outcomes is to offer the students choice of assessment type. For example, the purpose of an assignment is the same for all (e.g., presentation introducing self to the class), but the students are given choices of how to achieve the objectives (e.g., speech, video with photos or videos set to music, multimedia poster).

This is clearly not an option for every learning assessment, nor is it practical to align every assessment with students' preferences. Additionally, it is not beneficial to students as they may prefer assessments they are used to, not good at, or even what best measures learning. It becomes a balance between student preferences and expectations and best practices for measuring student learning.

This study has several limitations. Due to the disproportionate number of female (67.8%) and Caucasian student respondents (95%), a limitation of the study includes low external validity of the results. As with many survey studies, a sample was used and data was collected at only one point in time. It would be beneficial to collect data from a randomly selected sample and follow them longitudinally through their college careers to examine if their perceptions about assessment effectiveness shift over time or across courses. When asked about point distribution, students were only asked to rate quizzes, exams, and other coursework. Further investigation is needed to examine how students may prefer that "other" coursework (e.g., presentations, writing assignments) to be distributed as well. There were many types of assessment not addressed in this survey, such as case studies and/or problem scenarios. It will be important for future researchers to clearly define each assessment type, although most terms used here seem self-evident (e.g., multiple-choice question), others may not (e.g., exam vs. quiz). It is important for students to be able to understand the distinction while answering the survey questions. This is an exploratory study and other types of assessments should be defined and examined in future studies.

Despite the described shortcomings, this study aims to fill a gap in the scarcity of research exploring differences in student perception of assessment methods from different student groups (i.e. traditional vs. nontraditional) enrolled in different class formats (f2f, online, hybrid), with different student characteristics in terms of gender and age. Further research is necessary to expand these results beyond our limited sample and provide additional insights about students' assessment expectations and preferences.

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Pedagogical Practices of Teaching Assistants in Polysynchronous Classrooms: The Role of Professional Autonomy

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Polysynchronous learning involves the use of educational technologies to enable remote and face-to-face students to simultaneously participate in live classes. This article uses teaching observation and focus group data to explore the perspectives and instructional practices employed by teaching assistants tasked with facilitating polysynchronous classes. This study's findings suggest that without a sufficient knowledge base, community, and structure to facilitate a teaching environment that extended beyond lecturing, the assistants adopted a knowledge transmission perspective. Based on these findings we discuss teaching practices that could be addressed to train and support instruction in polysynchronous environments.

Educational programs and courses that provide synchronous instruction simultaneously to face-to-face and distance students allow for greater access equity for those students who are geographically isolated or cannot physically attend lectures (Bower, Kenney, Dalgarno, Lee, & Kennedy, 2014; Li, Amin, & Uvah, 2011; Morely, Usselman, Clark, & Baker, 2009). Some research findings suggest that this particular form of blended synchronous learning (BSL) leads to improved course and program completion rates for students who participate in synchronous sessions rather than relying solely on asynchronous communication (Norberg, 2012; Power, 2008; Power & Vaughan, 2010). This format can also allow participants to experience an instructor's live lesson, ask and answer questions, offer comments in class and allow engagement "in a similar manner to on-campus students" (White, Ramirez, Smith, & Plonowski, 2010, p. 35). BSL has also been used to promote in-class discussion and cooperative learning (Roseth, Akcaoglu, & Zellner, 2013; Stewart, Harlow, & DeBacco, 2011; Szeto & Cheng, 2016).

One of the challenges related to this particular format which has not been extensively studied pertains to the teaching practices of teaching assistants who are tasked with facilitating live instruction to both local and distance learners at the same time. Teaching assistants who are assigned to facilitate instruction in this environment are tasked with simultaneously meeting the needs of their local students, their distance students, and the instructor. Moreover, as Norberg (2012) pointed out, in these environments, "teaching demands increase exponentially" (p. 330). This is consistent with the findings that instructors in BSL greatly benefit from having instructional training and support in the classroom during live sessions (Bower et al., 2014; White et al., 2010). Yet at some of the largest higher education institutions in the U.S.A., educational development for TAs tends to focus on acclimating them to the

institutional culture, active learning, and other practical matters such as grading (Harris, Forman, & Surles, 2009). In our ever technologically evolving world with increasing availability of blended, polysynchronous, and online formats, TA training that covers the nuances of online instructional delivery is still the exception and not the rule.

Literature Review

Simultaneously teaching remote and face-to-face students in synchronous live classes is referred to as BSL, but has also been defined as polysynchronous learning (Dalgarno, 2014), and multi-access learning (Irvine, Code, & Richards, 2013). BSL environments present unique challenges to instructors, both pedagogically and technologically (Norberg, 2012). Educators have made a number of recommendations regarding effective facilitation in these environments, including limiting student enrollment (White et al., 2010) and offering additional technical pedagogical support to both instructors and students during such classes (Bower et al., 2014).

Swan et al. (2000) suggest three important elements of a successful online course: (1) a transparent and high quality interface; (2) an interactive and high quality instructor; and (3) dynamic instruction with authentic and valuable discussion between faculty and students and among the students. This review of the literature will focus on elements 2 and 3. This paper applies Swan's discussion of the instructor's role in the success of an online course to that of the Teaching Assistants, who have full responsibility for the delivery of instruction in a distance education program. The literature review culminates with a discussion of the theoretical framework through which the data are interpreted.

Blended and BSL Environments

BSL is a form of blended learning, which currently plays a significant and promising role in higher education and has been the focus of several reviews in the distance education literature (Allen, Seaman, & Garrett, 2007; Drysdale, Graham, Spring, & Halverson, 2013; Garrison & Kanuka, 2004; Graham, Woodfield, & Harrison, 2013). The existing literature has focused on comparisons between blended learning and other modalities, on higher education, and on practical and logistical matters. These reviews call for further research on blended learning in areas involving student engagement, K-12 environments, and professional development and training. Moreover, the existing literature on blended learning suggests that although teaching assistants play a vital role in undergraduate instruction, very little research has been conducted on the role and preparation of teaching assistants in blended learning, let alone BSL settings.

The role of TAs has been explored in case studies involving BSL environments. For example, Bower et al. (2014) describe seven case studies where levels of student interactions in a blended synchronous environment varied from "lightweight to tightly coupled" (p. 261). While there were clearly benefits to instructor-student and student-student interaction, the intensity of a blended synchronous structure challenged even the most experienced teachers. Bower (2014) describes how managing the various aspects of such a class, such as attending the

needs to multiple groups of learners and the technology simultaneously, can be psychologically draining. The majority of the instructors in their study said that they benefited from having a teaching assistant in the room while they were facilitating instruction.

White et al. (2010) described a case study that explored the implementation of an undergraduate course that offered lectures to roughly 100 distance and local students at the same time. Study findings relied on interviews with students, a TA, an instructor, and support staff. The teaching assistant was in the room during lectures to help answer questions that students might have. The researchers found that student participation in this blended format increased when comparing to a similar face-to-face course, and the "most challenging aspect of the project for the TA was when technical issues arose"(p. 38). In both of these case studies however, TAs supported synchronous instruction with the presence of a faculty member in the classroom. Morley et al. (2009) reviewed the first four years of a blended synchronous program for advanced high school students at the Georgia Institute of Technology. The report stated that teaching assistants are responsible for facilitating instruction for roughly 40% of the learning sessions, but the experiences and perspectives of teaching assistants were not characterized. The paper summarized some of the technical aspects of the program and its success in offering higher education courses to remote students spread across Georgia. However, given the direction of blended learning in higher education, further research on the role of TAs tasked with facilitating instruction in BSL environments is needed.

Interactive and High Quality Instruction

Kester, Kirschner, and Corbalan (2006) found that the quality of interaction is an important component in the online learning environment. The quality of the instruction is impacted by the instructor's level of comfort with the task. Effective face-to-face instructors, even experienced ones, need educational development related to virtual pedagogical strategies. Bower (2011) posits that "teaching effectively in web-conferencing environments is not a simple matter of transferring face-to-face approaches" (p. 262). Though Bower writes specifically about instruction facilitated through web-conferencing software, the same can be said for any instruction that is not face-to-face. Technical proficiency alone is not sufficient; effective instructors must be taught how to blend pedagogical skills with the technology (Reushle & Locke, 2008).

Instructor-Student and Student-Student Interaction

Students want the face-to-face element of their interaction to be thoughtful, substantive and well integrated into the course (Stewart et al., 2011). While there are clearly benefits to instructor-student and student-student interaction, the intensity of a polysynchronous structure can challenge even the most experienced teachers. Managing the various aspects of a polysynchronous class, such as attending the needs to multiple groups of learners and the technology simultaneously, can be psychologically draining. The implications for this "cognitive overload" described by Bower et al. (2014) would certainly have even greater implications for teaching

assistants (TAs), particularly those who have not been exposed to explicit pedagogical training for the technology in use.

TAs Status and Perspectives as Teaching Professionals

TAs are not teaching professionals in the strictest sense of the term. Literature describing teaching professional development and challenges K12 teachers or college faculty encounter in traditional face-to-face and all other varieties of online, blended, and polysynchronous learning environments indirectly, and sometimes directly, presume the professionalism of the instructor. Shanker (1985) defines the true teacher professional as "a person who is an expert, and by virtue of that expertise is permitted to operate fairly independently, to make decisions, to exercise discretion, to be free of most direct supervision" (pp. 10, 12). Despite a fair amount of control over what happens in a recitation, the larger structure of the class from which the recitation emanates is out of the hands of the TA.

TAs and faculty are similar with regard to their perspectives of online and hybrid teaching. Allen and Seaman (2013) report that though the number of students taking online courses has steadily increased, faculty confidence in online and hybrid approaches to teaching has not changed significantly since 2002. Sheffield, McSweeney, and Panych (2015) write that even after engaging in professional development related to online and blended learning, TAs in their study still strongly prefer face-to-face experiences in both their instructional and student roles.

…motivations for teaching can stand as the primary difference between the TAs and faculty.

While there are many similarities between faculty and TAs, motivations for teaching can stand as the primary difference between the TAs and faculty. In the context of the present study, faculty are driven by pressure (and desire) for high scholarly productivity in the form of grants, journal articles, patents, and conference presentations. While most students are largely focused on their own research, with particular focus on the requirements for degree completion, their teaching experience is often either required as departmental service or is the only source of funding available to them.

The present research highlights TAs because they have the most frequent contact with the students enrolled in the classes and through their role as TAs, may have more pedagogical training than faculty, who are not typically required to participate in this kind of professional development. Philipp, Tredder, and Rich (2016) report that though faculty and graduate teaching assistants have deeper content knowledge, UTAs often have more formal pedagogical training. The TAs in this study are experienced TAs who enjoy teaching and take their roles quite seriously; their perspectives are uncommon and worthy of focus within the context of this study.

Theoretical Framework

Ryan and Deci's (2000) self-determination theory (SDT) provides a structure through which the findings of this study can be interpreted. SDT is organized around the constructs of competence (the possession of relevant knowledge), relatedness (a

sense of community), and autonomy (a sense of agency). These three categories play a role in the enhancement or undermining of motivation and the resulting performance. In the discussion that follows, we provide evidence that TAs who participated in this study experienced gaps in relevant knowledge related to instructional delivery in an unfamiliar class structure. Furthermore, they desired a sense of community with other TAs and proactive involvement of more experienced faculty and staff to support active learning. Finally, to mitigate classroom challenges, they exercised pedagogical autonomy.

Methodology

A mixed methods approach was used to answer the following research questions.

1. What teaching practices do TAs, who facilitate in polysynchronous environments, use in their recitations?
2. How do TAs describe their experience facilitating recitation sessions in a polysynchronous learning environment?

This study employs qualitative hypotheses as the first stage of the modified analytic induction process used in the analysis; the hypotheses were informed by the literature and the investigators' experience with the program under study and are included in the Appendix. The qualitative piece for this mixed-methods study involved the use of focus group interviews. The quantitative component of this study involved the use of a modified version of an established framework for the collection of teaching observation data: COPUS. The aim of exploring the above research questions is to help identify strategies to better support teaching assistants, both pedagogically and technologically, who navigate a complex instructional environment.

Context and Sample

The context of this study is a distance education program that offers semester-long multi-section mathematics courses to high school students (Morley et al., 2009; Mayer, 2016). These courses are simultaneously offered to undergraduate students and to high school students who are located throughout a southeastern state in the USA. High school students are unable to attend lectures on campus and participate in this program through distance education. This study pertains to a mathematics course that explored Linear Algebra and Integral Calculus that is offered as synchronous 50-minute sessions five mornings per week for sixteen consecutive weeks. Local undergraduate students participated in this course through a live face-to-face format. All students view live lectures that are facilitated by an instructor on three of these mornings. On the other two mornings, students are divided into smaller sections for recitations that are facilitated by a TA.

All TAs were either graduate or undergraduate students and were employed by an academic unit that sponsors its own course-based training. The unit also requires TAs to participate in university-wide training hosted by the campus teaching and learning center (Utschig, Carnasciali, & Sullivan, 2014). What is covered in their TA

training is a variety of instructional strategies for face-to-face learning environments. Taken together with a group of bright and creative TAs, the result is a sense of pedagogical autonomy that allows TAs to adapt their instruction to a challenging context. All TAs were given the autonomy to identify and facilitate learning activities for their sessions that are aligned with course objectives and assessments. TAs for this particular course had also attended an additional training session on how to communicate using web-conferencing technologies, although they were not offered training on teaching in a polysynchronous education environment.

Two recitation formats were offered in Fall 2015. One section used Adobe Connect to facilitate recitations with 25 remote high school students. These students were loaned Wacom Bamboo tablets in order to write on a shared white board, allowing frequent interaction with their TA.

The remaining seven recitation sections had a combination of undergraduate students who participated in recitations face-to-face and remote high school students who connected to recitations through video or web conferencing software. When a student at a remote site wanted to communicate with their TA during a recitation, the student could press a particular button on their equipment, at which point the student would be shown on large screens in the lecture hall and can converse with the TA. These TAs could see and interact with their local students, and could see only one high school - whichever school was the last to communicate with the TA. In previous iterations of these courses, teaching assistants have pointed out that students rarely exercise this option.

The researchers invited all TAs who were assigned to the course described above offered in Fall 2015 to participate in the study; four of the eight TAs agreed. The number of students who were assigned to each TA is shown in Table 1. TA names were replaced by letters to maintain confidentiality.

Table 1
Recitation Structure

TA	Participation format	Number of local students	Number of distance students
A	blended	22	51
B	blended	15	49
C	blended	9	76
D	online only	0	25

Data Collection Methods

Data collection methods included semi-structured focus group discussions with TAs and teaching observations data based on the COPUS framework (Smith, Jones, Gilbert, & Wieman, 2013). The COPUS protocol documents teaching behaviors in two-minute intervals throughout the duration of the observed class session. The original COPUS protocol is limited to 25 codes in only two categories ("What the students are doing" and "What the instructor is doing"). However, this study only

focused on teaching assistants: only the 11 codes that pertain to the actions of the instructor were used. This observation instrument was developed for face-to-face classes taught by an instructor. The COPUS was modified based on the observed dynamics in recitations. These modifications are discussed in the discussion section.

Focus group discussions were facilitated by one of the study investigators. The investigator who conducted the focus groups has more than 20 years of experience as a qualitative researcher; she has taught qualitative methodology, guided qualitative dissertations, and written and presented on the topic of qualitative methods. The focus groups were audio recorded, transcribed verbatim, and coded. Recitations were video-taped and archived using video archiving software. These videos were used to investigate what activities teaching assistants incorporated into their recitation sessions. Teaching observations were conducted using a modified version of the COPUS. Researchers used the COPUS to identify what activities the teaching assistants were implementing at two-minute intervals.

Data Analysis

In the next section we present the storyline or theory of the data. We arrived at the storyline via a convergence of two forms of analysis: (1) an abbreviated grounded theory process and (2) a process of modified analytic induction (MAI). We will first describe these processes and then present the resulting analysis.

We began our data reduction by using abbreviated Grounded Theory (Willig, 2013). Traditional Grounded Theory is an approach that combines data collection and analysis to arrive inductively at a theory grounded in the data. This approach is unique in the way it combines theoretical sampling and constant comparative analysis via the steps of open, axial, and selective coding. The open, axial, and selective coding steps are so useful that they are often borrowed and used as an effective way to organize and analyze data, therein an abbreviated version of the traditional approach. We made use of these steps in the present study since our main method of analysis does not provide its own structure for initial data reduction

After the application of open, axial, and selective coding, we employed the MAI process. This process is also used to generate a theory of the data. The name is somewhat deceiving as the process begins with working hypotheses or assumptions (WHA) about the data. The data are then held up to the working hypotheses and checked for alignment. Absent perfect alignment, either the hypotheses are modified to capture the data or new hypotheses are created to account for said data (Robinson, 1951).

The categories generated by open and axial coding are useful as a source for the development and revision of WHAs. Though we entered the data collection process with some WHAs from the literature and experience with the program under study (listed in the Appendix), other WHAs were identified during the data collection and analysis processes. Tables present the final list of hypotheses along with statements made during the focus group discussions. Taken together, the final hypotheses form the storyline of the data.

The Storyline

The final step of the coding process from the abbreviated version of grounded theory is selective coding. During this phase of the analysis we identified a single central theme that ties all of the data together (the storyline). The focus group and observation data suggest the following: TAs experience pedagogical challenges that stem from some combination of limitations in TA preparation for a hybrid program delivery, technologies used to deliver the program, and curriculum support TAs receive from distance and local faculty and staff once engaged in the program. Despite these challenges, TAs enacted pedagogical autonomy to facilitate their recitations in ways that met the needs of distance and face-to-face students based on their existing knowledge and the resources that were available to them.

Discussion of Findings

The TAs who participated in this study reported that they encountered challenges and frustration when facilitating their recitations. In this section we interpret our data using four categories; the first three correspond to the dimensions of Self Determination Theory.

- The knowledge dimension pertains to support provided in advance of the experience.
- The community dimension pertains to support provided during this teaching experience. This support can be offered through interactions between the TA and university faculty and staff, high school staff, or other TAs.
- The agency dimension pertains to how TAs enacted their autonomy to facilitate their recitations to meet the needs of local and/or distance students.
- The program structure dimension pertains to elements of course design that would have affected the facilitation of recitations.

Knowledge

The WHAs presented in Table 2 on p. 138, generated and refined based upon the data, are presented as documentation of TA knowledge. The variable N represents the number of TAs who made a statement during a focus group that was coded as one of the WHA's. Table 2 also provides example statements for each WHA.

With regard to K1, none of the TAs received pedagogical training on how to instruct with both distance and local students simultaneously. Yet during the focus group discussions, TAs expressed how prior training could impact their work. These findings are consistent with research on fully online environments mediated over web conferencing software. Kear, Chetwynd, Williams, and Donelan (2012) found that instructors "need practice to build the skills, knowledge and confidence to support their students in web conferencing environments" (p. 961).

Table 2

WHA Corresponding to the SDT Knowledge Dimension, and TA Focus Group Statements

Code	WHA	N	Examples
K1	The TAs that had both local and distance students struggled with finding ways to meet both the needs of both groups of students simultaneously based on variations in student location and ability.	3	"I think it was a hindrance having both, because I think they need to be interacted with differently." "Do I teach at this more basic level so that everyone can understand what I'm saying? Or do I teach at a more upper level so that I might lose a lot of people? That's probably the biggest challenge for me."
K2	TAs experienced frustration because they did not know how to foster a higher level of student participation/engagement.	3	"I think this semester personally was very frustrating, teaching it, because I have a certain teaching style, I'm very interactive" "I guess my experience this semester has been probably five questions all semester from the students in high schools"
K3	TAs believe that their prior training and experience impacts the quality of the courses they are assigned to.	3	"maybe a few mock sessions, something like that, because it is indeed different"
K4	TAs wanted to facilitate engaging classes.	4	"I guess ideal would be very obviously engaged in question-asking and understanding the material."

TAs in focus groups also described how they struggled with meeting the needs of both groups of students, as some of the active learning strategies they used in the past would not have worked well with a blended format. These findings may be related to, for example, the fact that admission requirements into the distance courses for high school students are more stringent than those for the university undergraduate program. High school students have been found to outperform their undergraduate level peers (Morley et al., 2009).

Community

Table 3 on p. 139 presents the WHAs that correspond to the SDT Community dimension and TA statements made during focus group discussions.

Table 3

WHA Corresponding to SDT Community Dimension and TA Statements

Code	WHA	N	Examples
C1	TAs want distance site and/or local faculty and staff to play a proactive role in facilitating recitations or supporting the TAs.	2	"I would really like to see the proctors be more involved" "I wish we did meet together more"
C2	TAs believe that the support they receive during course delivery impacts the quality of the courses they were assigned to.	4	"the technician was great. I think he was new but he got everything running perfectly" "the in-class support on the technology has been fantastic" "I had to solicit a lot of information from the professor to see how the class itself was doing. I was able to get help when asked"

TAs expressed that they want distance site and/or local faculty and staff to play a proactive role in facilitating recitations or supporting their live sessions. This finding is consistent with Bower et al. (2014), who found that instructors teaching in BSL environments expressed the desire for additional support for teachers during their classes to ensure that "the communication is flowing well through both environments" (p. 269). White et al. (2010) also found that having additional in-class support from someone "familiar with the structure of the course, required assignments, and course content" (p. 38) was vital. Assessing the feasibility of coordinating efforts with high school facilitators in the context of this study extends beyond the scope of this research. However, TAs did report that they received help any time they requested it and that it had an impact on the overall quality of the program.

Agency

Table 4 on p. 140 presents the WHA's and corresponding statements made during focus group discussions that correspond to the SDT Agency dimension.

The K12 education literature addresses the issue of teacher autonomy extensively; particularly as it relates to the challenges created by a context dominated by externally imposed curricular standards and classroom structure (Retsinas, 1983; Pearson, 1998; Webb, 2002). Course size, structure, and technology are all determined by faculty and administrators in the distance education program. This structure imposed by the university and the instructor of record regarding the courses for which TAs facilitate the recitations could pose a similar challenge to TA enactment of autonomy. Powell and Rouamba (2016) report that graduate teaching assistants have little control over the content and pace of their assigned courses. In the present study, the focus of TAs' work in recitations, while in some ways autonomous, is also dictated by the topics covered in the main course session taught by a faculty member.

Table 4

WHA Corresponding to the SDT Agency Dimension and TA Statements

Code	WHA	N	Examples
A1	Regardless of their personal teaching perspectives, TAs with both local and distance students spent most of their time, in recitation, lecturing to students; based on the structure of their course, moving beyond lecture was difficult.	3	"We have no idea how to actually work with them, so we just sit there and lecture." "the idea of doing things like do group work … were alien because I saw that I have no control over the students over there." "I feel like to properly interact with them, you would have to really sit down with someone and say ... and really learn the teaching techniques. We as grad students don't have time for that."
A2	The one TA who did not have local students facilitated more student-instructor interactions than those TAs teaching in a blended environment.	1	"I had a very, very close relationship with all my distance students and we talked all the time, because I don't get to see them, they don't come to school, I don't see, so we always text each other. It was a completely different experience for me."

Unsure of how to interact with their distance students and how to meet the needs of both local and distance students simultaneously, TAs A, B, and C enacted their autonomy by adopting a knowledge transmission teaching perspective. This is a very different situation than that described by other researchers (Bower et al., 2014; Roseth et al., 2013) who found that local and distance students could be engaged simultaneously in a variety of ways during synchronous sessions. This difference could be attributed to several factors, including differences in training, the capabilities of the technologies that were being used, or the comparative student-TA ratios. Indeed, TA D, who only had 25 distance students, described how student-TA interactions were a more frequent component of recitations and how that interaction enabled the development of online community. Web conferencing software that can facilitate breakout rooms and instant messaging has been found to be effective in fostering community among learners in the distance education literature (Martin & Parker, 2014).

Structure

WHAs S1, S2, and S3 captured data that described how TAs perceived the impact of the structural elements of the course on program quality (see Table 5 on p. 141).

Table 5

WHA Corresponding to SDT Program Structure Dimension and TA statements

Code	WHA	N	Examples
S1	TAs believe that improvements to the technologies they use during recitations are needed to engage all students.	4	"Maybe ability for us to be able to communicate, not just via voice or be able to write things, I think that would be really helpful" "Very often there a voice comes distorted, they have to repeat a few times."
S2	TAs believe that high school students and local undergraduate students should not be placed into the same recitation sections.	3	"Mixing live students and distance students is not appropriate because it's unfair for the live students." "It's not working. They need to be separated."

TAs narrated structural challenges throughout their focus group discussions. TAs described limitations in their ability to engage their distance student based on the particular technologies that were chosen to facilitate recitation sessions. Although they all felt that they had adequate technical support for the technologies they were using (C1), all of them felt that they were not able to adequately engage all students. To do so, they felt that improvements were needed in the technologies they were using or that the local and distance students should not be placed into the same recitation sections. This perspective is different from that reported by Bower et al. (2014), who did not recommend keeping distance and local students separate, but rather facilitating meaningful interactions with distance and local students simultaneously. These differences in perspectives might be explained by student enrollment numbers, training, or by the capabilities in the technologies that were being used.

Teaching Observation Data

Live classes and video of recitations were coded using a modified version of the COPUS. Codes that were added to the COPUS are defined in Table 6 on p. 142.

As there remains some debate in the education literature over how to best measure internal consistency (Bower & Hedberg, 2010, p. 469; De Wever, Schellens, Valcke, & Van Keer, 2006, p. 10), we calculated the percentage agreement and the Cohen's kappa inter-rater reliability score, which were 97% and 91%, respectively.

Results from the teaching observations for the three TAs that had both local and distance students are shown in Table 7 on p. 142. The table gives the number of sessions in which each action in the modified COPUS protocol was observed and a count of the times each action was observed in two-minute intervals across each recitation. As there were a total of 134 two-minute intervals among the six observed sessions, the final column gives the percentage of intervals among them that contained at least on instance of the corresponding action. For example, answering questions

posed by students was observed in three of the six observed sessions, during 4 two-minute intervals, or within 3% of the observed time intervals.

Table 6

Teaching Observation Codes Added to the COPUS Codes

Code	Code Name	Definition
TIP	Tip for students	TA states additional conceptual information that is not essential to the understanding of course material.
TOW	Talk about writing	TA discusses the process of writing, or is repeating what they are writing.
DSI	Discusses student input	Discusses statement made by student, in response to a question posed by the TA.
SQ	Solicit question	TA encourages or invites students to ask the TA questions.
RQ	Rhetorical question	TA asks question and does not expect answer from students

Table 7

Teaching Observation Results for TAs A, B, and C with Local and Distance Students in their Recitations

Code	Action	Sessions	TA	Count	Frequency
RtW	Real-time writing	6	3	127	95%
Lec	Lecturing	6	3	122	91%
SQ	TA solicited questions from students	6	3	25	19%
NPQ	TA asked their students a question	6	3	19	14%
W	Waiting	6	3	17	13%
TIP	TA verbally described a tip to their students	5	3	32	24%
ADM	Administration	5	3	10	7%
TOW	Talking about writing	3	2	32	24%
APK	Activated prior knowledge	3	3	10	7%
AnQ	TA answered a question posed by a student	3	2	4	3%
1o1	TA engaged in one-on-one conversation with student	1	1	5	4%
MG	Moved about the room	1	1	4	3%
FUp	Follow-Up to a question posed by a student	1	1	1	1%
DV	Showing or conducting a demo, experiment, simulation, etc.	0	0	0	0%

Table 7 suggests that, among those recitations that were observed in person, TAs A, B, and C spent most of their time lecturing to their students and writing on the board. Moving about the room to engage with students and one-on-one conversations

were only observed in one recitation. And although soliciting questions in 19% of the two-minute intervals, only 3% of them contained instances of answering questions posed by students. Altogether, we found that the TAs put forth effort to engage their students primarily by soliciting questions, but little TA-student interaction was observed.

Figure 1 below gives the percentages of the two-minute intervals among all eight observed sessions among them that contained at least one instance of the corresponding teaching activity. For example, all TAs were lecturing over 80% of the time intervals. Meanwhile, TA D spent significantly more time asking and answering questions posed by students.
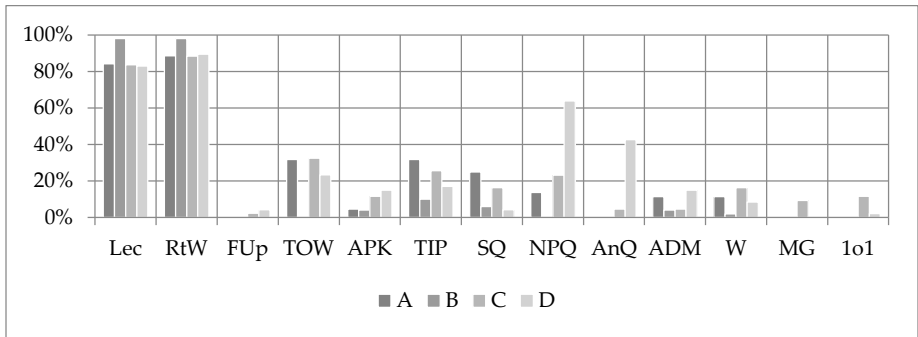

Figure 1. Percentage of Time Spent on Teaching Activities

The observed sessions that were facilitated by TA D contained relatively more questions posed by the TA to students and answers to questions posed by students. Results presented in Figure 1 confirm hypothesis A2: the TA that did not have local students was able to interact more frequently with her distance students.

Transferability

Merriam (1998) presents transferability as the qualitative response to generalizability. While qualitative research is designed to study the nuances of the sample selected for any given study and is not intended to be generalizable, it is safe to say the most researchers want the findings of their research to be meaningful. While one should not expect statistical generalizability from this study, the findings have the potential to be useful in other similar settings. The researchers' contribution to transferability is the presentation of a detailed description of the case at hand so that readers can determine the applicability of the findings to their settings.

Limitations

The results of this study are based on a small group of teaching assistants, and as such, the observed group dynamics lie in the particular activities and structures that these teaching assistants facilitated. While it was the intention of the researchers to study all eight TAs working with the program during the semester of the study, there was no ethical way to compel their participation. To enhance the credibility of the

analysis and transferability of study findings, the researchers collected data from as many TAs who were willing to participate and are currently refining the working hypotheses by conducting a follow-up study with additional participants. Teaching practices in this study were also constrained by the features afforded by particular technologies that were used. Also, the courses under consideration were mathematics courses, and it is possible that the subject matter influences the strategy that engages students during recitations. Finally, admission requirements for the high school students participating in this program were more stringent than for the local undergraduate students. Past studies have found that the high school students consistently outperform the local students in these courses (Mayer, 2016; Morley et al., 2009). Further work would be needed to enhance the transferability the results of this study. Despite these limitations, TA training programs might apply these findings when developing or revising their curricula. Specific pedagogical practices for polysynchronous teaching should certainly be included in the curriculum if TAs are expected to teach in non-traditionally structured classrooms.

Conclusions

The exercise of TA autonomy is a notable finding. Without a sufficient knowledge base, community, and structure to facilitate a teaching environment that extended beyond lecturing, the TAs in this study chose to adopt a pedagogy based on knowledge transmission. Although the COPUS does not measure TA satisfaction, focus group data suggest that participants A, B, and C experienced frustration with their transmission and lecture-focused teaching practices.

Although it was not the intention of this study to identify and evaluate interventions that may address some of the frustrations and challenges that were identified by the TAs, connections can nonetheless be drawn between these challenges and findings that were summarized in the literature review section above. The university-wide TA training that all participants in this study participated in focused on active learning in face-to-face settings (Utschig et al., 2014). Teaching strategies for online and polysynchronous learning could be accommodated into the university-wide training as in Sheffield et al. (2015), or as a separate training session for those who are teaching assistants for these environments.

Adaptations to the Teaching Assistant training program should include research based content on how learning online is similar to and different from classroom learning. In addition to the enhanced content, TAs should have the opportunity to practice teaching online as they do face-to-face. In order to achieve mastery, guided practice with constructive feedback is key (Ambrose, Bridges, DiPietro, Lovett, & Norman (2010). Microteaching is already part of the advanced pedagogical training at this institution; similar opportunities for application in an online setting would be worthwhile for all TAs.

Utschig et al. (2014) found that TAs feel more valued when faculty support departmental TA programming (p. 19). Sheffield et al. also found that given the opportunity to learn, with support and experience gained through online training, graduate students and future faculty can gain awareness, competence, and confidence regarding teaching and learning online (2015, p. 10). This may also be the case for the

web conferencing format that TA D employed which did not have local students. Bower (2011) found that more active learning approaches required a range of new competencies relating to managing group work and designing the learning environment (p. 79).

In addition to more support in advance of their teaching sessions, future iterations of this distance education program could also explore changes to the support structures that TAs have while the program is running. For example, TAs and distance students could be provided worksheets that might help TAs focus more time on developing their teaching practices rather than on developing curriculum. TAs could also be encouraged in their training to encourage students to work on problems individually or in groups before discussing their solutions and walking around the classroom to assist local students as they are working on problems. These adjustments may help foster a learning environment that supports some of the elements described in the literature review, including the fostering of active learning, rapport between local students and TAs, and authentic and valuable discussion between instructors and students (Philip et al., 2016; Swan et al., 2000). Further developing the community that supports TAs facilitating learning in a polysynchronous environment may help them better meet the needs of their instructor and the two groups of students simultaneously and address their frustration.

Ultimately the findings presented in this study suggest TA training and support, as well as program structure, can play a role in shaping the teaching practices that are used by TAs during recitations. Educators setting up or revising similarly structured blended learning courses may wish to carefully consider how local and distance students and their instructors could be supported in ways that would best meet the needs of both groups of students simultaneously.

While the findings are not particularly surprising, the process was thorough and perhaps worthy of replication. The researchers collected focus group and observation data (COPUS). The researchers used a process of modified analytic induction which begins with a set of working hypotheses that were developed using the literature and the researchers' experience with the program under study. The data were initially reduced using abbreviated grounded theory, then the process of hypothesis (working assumption) revision was employed. All data were meticulously considered and integrated into the hypotheses to arrive at the storyline of the data. The researchers were able to explore the experiences and practices of teaching assistants from multiple vantage points that included TA self-report, external observations, and program documents. Other investigators might find this research model useful.

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Place-Based Learning across the Disciplines: A Living Laboratory Approach to Pedagogy

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Faculty participants in a fellowship designed to engage students at an urban commuter college of technology in their general education curriculum evaluated and redesigned their courses to include place-based learning (PBL) using the Living Laboratory model of pedagogy. Focused on faculty perception of the relationship between PBL and its influence on general education, the study illustrates how faculty from across disciplines apply PBL techniques to revitalize general education learning outcomes. Findings include the influence of the fellowship on the design of PBL activities and perceived levels of student engagement, especially when compared to more traditional classroom instruction.

Through a reflective interview process and a survey, participants in a fellowship shared the results of their revitalized pedagogical practices designed to include place-based learning (PBL) as a means to engage students in the general education learning outcomes of their courses. The study draws attention to a new pedagogical model we call the Living Lab. In addition to PBL, the Living Lab employed other proven student engagement practices to encourage active learning among students and supported the inclusion of place throughout the college's curriculum. Wurdinger and Carlson emphasize the shift "from far to near" in PBL; we found that making use of local conditions yielded complex and engaging learning opportunities, deeper than we might expect at an urban commuter college (2009, p. 83). Gruenewald acknowledges the lack of a theoretical tradition of PBL springing from a single discipline (2003a) and embraces a multidisciplinary approach, asserting that "places teach us about how the world works and how our lives fit into the spaces we occupy" (2003b, p. 621). The fellowship allowed for many interpretations of PBL to meet the needs of instructors in technical and professional disciplines as well as those in arts and sciences. After involvement in the seminar, survey and interview participants reported that inclusion of PBL changed their teaching practices.

History and Background

The pedagogical model of the Living Lab was developed at an urban commuter college of technology in Brooklyn, NY, employing 404 full-time and over 1000 part-time faculty with an enrollment that exceeds 17,000 students. The college offers 51 associate and baccalaureate degrees preparing students to enter the workforce with career skills to apply to their chosen profession. The college's mission includes a commitment to provide "broad access to high quality technological and professional

education for a diverse urban population" (New York City College of Technology, 2017). The college sought grant funding to develop a conceptual framework for student engagement and was awarded a five-year, $3.1 million grant from the U.S. Department of Education's Developing Hispanic-Serving Institutions Program, Title V (2017), to fund the project. Titled "A Living Laboratory: Revitalizing General Education for a 21st Century College of Technology," a faculty development seminar centered on the conceptual model of the Brooklyn waterfront as a living laboratory, engaged a multidisciplinary group of full and part-time faculty in an undertaking to implement general education learning outcomes across the curriculum. Between 2010 and 2015, participation in what became widely known around campus as the "Living Lab," afforded 177 full- and part-time faculty to work together in a multidisciplinary manner to accomplish the goal of making general education evident in their teaching and learning practices. Throughout the life of the grant, faculty fellows participated in one of two seminars integrating (1) George Kuh's *High-impact Educational Practices* (2008); (2) the college's OpenLab, an open source platform for teaching and learning; (3) PBL activities through a partnership with the College's newly-established Brooklyn Waterfront Research Center; and (4) culture of general education assessment. Faculty facilitators of the seminar insisted that fellows rigorously evaluate general education learning outcomes before selecting a high-impact educational practice (Kuh, 2008), developing open pedagogy and place-based activities, and assessment measures. Facilitating the seminar this way recognized the importance of the general education and discipline-specific learning outcomes of the course when designing the learning activities.

Fellows participated in one of two seminars; the full-time fellowship required a two-year commitment while an associate fellowship, open to both full and part-time faculty, lasted for one year. Through workshops, presentations, shared readings, and field visits, faculty learned about various forms of PBL and developed a contextual working definition. An ongoing partnership with the college's Brooklyn Waterfront Research Center for waterfront-related programming afforded field learning opportunities that aligned with their discipline-specific and general education learning outcomes.

The Living Lab model provided a foundation upon which faculty designed innovative teaching and learning practices. With the interdependent nature of the Living Lab pedagogical model in mind, this study examines the model, specifically focusing on the development and implementation of PBL. In the first semester of the seminar, the work of the fellows was to take on the role of learner. Later, fellows demonstrated and implemented PBL activities. Generating or adopting one single definition of PBL, whether it is associated with experiential learning or community learning, was not a goal of the seminar; rather, a straightforward interpretation of the concept in practice opened the possibility of multiple examples. The questions that guided the investigation of the development and practice of PBL focused on the pedagogical use of the college's immediate environment, specifically the historic and rapidly changing Brooklyn waterfront. Ever pragmatic, fellows designed PBL activities that capitalized on the assets of the dynamic neighborhoods surrounding the campus. At about the same time the grant-funded fellowship ended, the mission of the college changed to include "distinctive emphasis on applied skills and place-based

learning built upon a vibrant general education foundation." The change in executing the mission is supported through institutional funding for the ideas and concepts developed through the grant, extending the reach and impact of the Living Lab model of pedagogy.

Literature Review

Educators at all levels have used PBL with the goal of deepening engagement (Smith 2002). While many early important writings identified the practice – engage students with out-of-classroom issues and problems, the means – immersive experience in remote backcountry or wilderness – is distant from cities, the "cultural realm," and the complex problems such places invite students to reckon with (Gruenewald, 2003b). Yet at an urban commuter school, a common sense of place is often lacking or underdeveloped, especially at an institution that lacks physical resources such as a student union, campus grounds or other unprogrammed spaces that encourage spontaneous interactions. Without 24-hour campus life that exists at primarily residential institutions, students may not experience informal contact with peers or instructors as frequently or as intensely; commuter students may experience feelings of isolation that interfere with academic success (Clark, 2006, p. 4). Writing about campus as place in the *Chronicle of Higher Education*, Aoun (2011) emphasizes how sharing a place in common strengthens community engagement, exposure to diversity, research opportunities, and peer learning environments.

Dewey (1938) introduces the foundations of PBL in *Experience and Education*, emphasizing rich student experience in environments beyond the classroom. Newmann and Oliver propose an early definition of place-based education in their *Harvard Educational Review* article "Education and Community." They find that formal schooling "destroy[s] . . . opportunities for random, exploratory work and play outside of a formal educational setting" (1967, p. 81), which emphasizes the valuable learning that arises from experiences beyond classroom walls and outside of formal settings. Newmann and Oliver assert that the traditional, classroom-centric educational system has failed to nourish a plurality of programs or options for learners by narrowly defining education as "formal instruction" (p. 100). Among the solutions they offer is a "proposal for education in community" (p. 93), in which "laboratory-studio-work" and community contexts are on equal footing with a formal educational setting. Faculty in a professional and technical academic environment are particularly receptive to an approach that integrates a laboratory, studio, or hands-on approach with a more traditional classroom setting. The four components of Kolb and Kolb's (2012) experiential learning spiral – experiencing, reflecting, thinking, and acting – describe the structures of learning experiences that fellows learned to design. Learning is conceptualized as a spiral, rather than a cycle, as the learner's development deepens with each successive experience and resulting reflection, thought, and action.

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By the 2000s a documented theory and practice of education grounded in the understanding of place appears in both K-12 and postsecondary literature in education.

Knapp (2014) relies upon Sobel's 2004 definition of PBL, which speaks to all departments, subjects, and areas of the curriculum. It emphasizes hands-on learning experiences, increased (measurable) academic achievement, and strengthening ties between communities and institutions as students' commitment to the community is increased through active engagement. Knapp finds that a place-based pedagogy, in which students inventory community resources through fieldwork and interviews, effectively accomplishes the course goals while encouraging students' investment in and ownership of community issues. While many approaches to PBL explore an issue or problem inherent in wilderness or an unfamiliar, remote, wild place, Sarkar and Frazier (2008) recognize the value in urban, interstitial, and overlooked places. Their place-based science inquiries exploit local conditions, even those as mundane as a persistent sidewalk puddle. Ambrose et al. (2010) offer principles about learning, including reflection, assessment of prior knowledge, and application of knowledge and skills. Wurdinger and Carlson offer PBL as one of "five approaches [to experiential learning] that work" (2009, pp. 84-85) and list tenets of place-based education that emphasize the local and function as a working definition of the concept and practice. Interestingly, Wurdinger and Carlson detect a shift in place-based education towards the local and away from distant, wilderness, remote places, and recognize the importance of a local place for the learner. Henthorn (2014) complicates and expands the definition of PBL in a way that is relevant to teaching across disciplines, not just humanities or social sciences. The study of place in the discipline of urban history is foundational; adding an experiential element to course content gives students the opportunity to learn by engaging in community service, thus learning what it is to be an active participant in a community. Ball and Lai's (2006) review article also takes an approach informed by specific disciplines, in this case, literature and art. They locate the intersection of critical pedagogy and place-driven pedagogy, offering that the teaching of local cultural production circumvents the larger processes through which certain creative output is privileged with an "art" or "literature" label and is therefore appropriate course material. While Jensen (2015) emphasizes the positive outcomes on student engagement in a religious studies course grounded in place-based assignments, she notes that teaching practices benefit also: "students and teachers alike…develop an attachment to place" (2015, p. 17) that lasts beyond academic milestones such as tenure or graduation. Developing that attachment suggests that place-based teaching and learning is a regenerative approach with the potential to sustain a passion for teaching as well as a deep interest in and commitment to a place.

More useful strategies to implement PBL appear in Smith (2002), where he invokes Dewey's ideas about the disconnection between the mediated environment of school and students' direct experience of the world. Pointing out how PBL acknowledges the lived experiences of students in ways that classroom learning does not, he invites educators to address this discrepancy through rich and appealing examples of successful place-focused educational experiences. Approaching PBL tactically and applying it incrementally, rather than via drastic curricular change, is a useful strategy that permits instructors and administrators to learn along with their students.

Methodology

The participants in this study, both for the survey and the interviews, were all fellows in the grant-funded fellowship and represent over thirty academic departments. We designed the survey and interview questions to investigate how participation in the Living Lab General Education Seminar influenced the use of PBL to meet general education learning outcomes.

Survey Methodology

During the spring and summer of 2015, we distributed an electronic survey by email to 172 participants in the Living Lab seminar. A total of 27 fellows participated in the survey; four incomplete responses were discarded. Their responses were voluntary and de-identified, and the college's office of Assessment and Institutional Research ensured that faculty members were able to complete the survey only once. The survey consisted of multiple choice questions with the option to comment on their responses. The survey asked faculty if they utilized PBL on the Brooklyn waterfront prior to, during, and after their participation in the seminar, and why they did or did not use this teaching practice with their students.

Interview Methodology

The information gathered through interviews was then aggregated into four areas of influence and focused on the use of PBL activities to achieve a range of outcomes. We conducted interviews during the summer and fall of 2015. All interviews took place on campus. We contacted fellows by email to request participation and scheduled one on one interviews. The interviews were voluntary, performed in a private location, auto-recorded and de-identified. The names of interview participants were withheld by mutual agreement. Eleven fellows participated in interviews; each interview participant was identified with an alphanumeric code of P1 through P11. We used an open-ended, semi-structured interview model based on seven questions relating to PBL and experience participating in the seminar. Each interview lasted between 20 and 40 minutes. We transcribed all interviews verbatim, omitting non-essential words and non-word vocalizations. We then read and reviewed the interview transcripts, drawing from the interview questions to identify possible themes. We then searched the transcripts for prominent themes and patterns in the interview responses and analyzed the responses using thematic analysis. We searched interview transcripts for particular words, word variations, and phrases, including "influence," "surprise," "challenge," "reflection," "community," "community partner," "impact," "learning," "learning outcomes," "general education," and "engagement" to study how interview participants spoke to these themes. Common themes that emerged from several interview texts include a faculty perception of the relationship between PBL and general education learning outcomes, influence of seminar participation on applying PBL techniques in teaching, challenges and surprises encountered when implementing PBL assignments and

activities, and the perceived effect of PBL on student engagement, especially compared to traditional, classroom-bound learning modes.

Survey Analysis

The seminar clearly influenced the use of PBL in the respondents' teaching practices. Before participation in the Living Lab general education seminar, only 30% of the respondents included PBL in their assignments. Upon completion of the seminar, 70% of respondents reported that they continue to include PBL as part of their teaching practice (see Table 1 and Table 2). Survey respondents stated their use of PBL has been directly influenced by participation in the seminar: "after the seminar I expanded by far the place-based educational modules in my syllabi" and "The experience taught me a tremendous amount about the power & potential benefits of place-based learning." Other faculty participants referred specifically to the benefit students received, making the effort worthwhile: "It also highlighted the need for careful (and extensive) preparation."

Table 1
Respondents' Use of PBL Before, During, and After Participation in the Living Lab General Education Seminar

| | Response | | | |
Questions	Yes		No	
Q1: Did you incorporate place-based learning on the Brooklyn Waterfront in your course prior to being a Living Lab Fellow?	7	30%	16	70%
Q2: Did you incorporate place-based learning on the Brooklyn Waterfront in your course during your time as a Living Lab General Education Fellowship?	16	70%	7	30%
Q3: Did you incorporate place-based learning on the Brooklyn Waterfront in your course since the Living Lab General Education Fellowship?	16	70%	7	30%

N=23

Table 2
Comparison of Responses to Question One and Question Two

Response to question 1 and 3	Number of Responses	Percentage of Responses	Impact of Fellowship
`"No" to Q1, "Yes" to Q3	9	40%	Positive impact of Fellowship
"Yes" to Q1 and Q3	7	30%	Positive impact of Fellowship
"No" to Q1 and Q3	7	30%	No impact of Fellowship

N=23

Of the 23 survey respondents who answered question four, 16 answered in the affirmative, stating they did continue PBL after the seminar was complete. The two

most prevalent reasons for including PBL were 4a: "The assignment accomplishes the intended student learning outcomes" and 4b: "The course content easily allows for PBL assignments" (see Table 3). Notably, survey respondents who conducted PBL activities in their classroom did so citing multiple reasons for including the activity (see Table 4). Ten of the 11 respondents who gave three or four reasons to include PBL sited 4b and 4e: "My department supported my efforts;" six of the 11 included both reasons. Six of the 11 respondents who gave three or four reasons selected both 4a and 4b.

Table 3
Number of "Yes" Responses to Each Question about Inclusion of PBL on the Brooklyn Waterfront as a Teaching Practice

Question	Number of "Yes" Responses
Q4a. The assignment accomplishes the intended student learning outcomes.	12
Q4b. The course content easily allows for place-based learning assignments.	12
Q4c. The effort required was in line with usual class preparation.	7
Q4d. The college supported my efforts.	6
Q4e. My department supported my efforts.	10
Q4f. There was adequate financial support	--
Q4g. Other	1

N=23

Table 4
Respondents' Choice for Inclusion of PBL on the Brooklyn Waterfront as a Teaching Practice

Number of Choices	Number of respondents	Q4a.	Q4b.	Q4c.	Q4d.	Q4e.	Q4f.	Q4g.
3 reasons	7	X		X		X		
		X	X	X				
		X	X	X				
		X	X			X		
		X			X	X		
			X	X		X		
			X	X		X		
4 reasons	4	X	X		X	X		
		X	X		X	X		
		X	X		X	X		
			X	X	X	X		
6 reasons	1	X	X	X	X	X		X
Total	12	9	10	7	6	10	--	1

N=23

Participant responses were equally distributed among all reasons for not including PBL in their teaching practices (see Table 5). Participants who did not include PBL activities made the decision based on only one or two factors, most often answering 5a: "The assignment did not accomplish the intended student learning outcomes" and stating that PBL did not support the content of the course (see Table 6). This implies that participants did not require multiple reasons not to engage in PBL, as was seen in choosing to participate in a PBL activity. One survey respondent mentioned, "It was just not necessary nor helpful." As might be expected at an institution focused on career and professional education, two of the survey participants responded that one (or more) of the reasons they did not use PBL was that the "course content was too restrictive," question 5b. No participant chose 5d: "The college did not support my efforts" or referred to the availability or lack of financial support, questions 4f and 5f, as a reason to include or to not include PBL in their teaching practices.

Table 5

Number of "No" Responses to Each Question about Inclusion of PBL on the Brooklyn Waterfront as a Teaching Practice

Question	Number of "No" Responses
Q5a. The assignment did not accomplish the intended student learning outcomes.	2
Q5b. The course content is too restrictive.	2
Q5c. The effort required too much additional preparation compared to usual class preparation.	1
Q5d. The college did not support my efforts.	--
Q5e. My department did not support my efforts.	1
Q5f. There was inadequate financial support	--
Q5g. Other	2

N=23

Table 6

Respondents' Choice for Not Including PBL on the Brooklyn Waterfront as a Teaching Practice

Number of Choices	Number of Respondents	Q5a.	Q5b.	Q5c.	Q5d.	Q5e.	Q5f.	Q5g.
1 reason	6	X						
			X					
			X					
				X				
								X
								X
2 reasons	1	X				X		
Total	7	2	2	1	--	1	--	2

N=23

Four broad themes emerged from the interviews: perception of the relationship between PBL and general education learning outcomes, influence of seminar participation on applying PBL techniques in the classroom, challenges and surprises encountered when implementing PBL assignments and activities, and the perceived effect of PBL on student engagement, especially compared to traditional, classroom-bound learning modes.

Relationship between PBL and General Education Learning Outcomes

The faculty participants revealed in interviews that their use of PBL was enhanced because the assignments were designed with general education outcomes in mind. Through the Living Lab General Education seminar, faculty were encouraged to develop assignments in a way that would maintain the discipline-specific content they need to convey and assess but also meet the college's general education learning outcomes.

Interviewees identified teamwork as a general education learning outcome that was enhanced by PBL activities and assignments. Interviewee P7 commented that teamwork was made visible in an architecture course through PBL, and this visibility allowed for the ability to "evaluate them in the context of their interactive working ability, how did they work in groups, what did they deliver?" While, for a survey course in art history, interviewee P4 commented that PBL

> helps enforce the practical part of it—they [students] can learn how to be communicators, be listeners, learn how to work in a group and go back and forth and share. I felt like that dynamic of group work is a major gen ed outcome—to work in groups and put into practice what they learned.

Students worked to achieve the college's general education learning outcome of inquiry and analysis as they sought to derive meaning from experience and gather information from observation. PBL was not obvious for a discipline where most teaching is "lectures in a darkened room." A low-stakes place-based activity to study 19th century Greek Revival buildings adjacent to the campus resulted in an informal writing assignment. Students observed buildings to reinforce a classroom lesson about classical orders, a critical concept in the history of art and architecture. The group of students caught the attention of a passer-by, who noticed the class studying the columns of public buildings and exclaimed, "you're looking at [classical] orders, aren't you?" (P4). The validation of this experience would not have happened in the isolation of a traditional classroom setting. The shared knowledge of the students and the passerby helped students derive meaning from the PBL activity. Another participant described how PBL reinforced inquiry and analysis learning outcomes of a writing course that were difficult to approach in a traditional classroom, describing PBL as

> intended to bring students out of the classroom and to experience the complexity, and variability, and color of an educational experience that cannot be had whenever we are sitting in this

uncomfortable little chair facing a blackboard…[students] immediately have an answer, [they] have done important work with people that doing important things, and have … begun to create a narrative around your education and your role in it. (P1)

Interviewee P7 commented on PBL's impact on the general education learning outcome of civic engagement: "[PBL] makes them aware of their own neighborhood. The students enjoy learning how everyone has such a different perspective of their environment." Fellows who participated in the study reported that a place-based approach to designing assignments and activities that addressed the college's general education learning outcomes had a profound impact on their pedagogy.

Influence of Seminar Participation on Applying Place-based Learning

For most of the seminar, PBL practices were largely informed by the design of seminar activities. The incorporation of Kuh's (2008) *High Impact Educational Practices* of service learning and community-based learning became a focus of many activities. Faculty participants leveraged the lessons from the Living Lab General Education Seminars to break free from the constraints of the limited opportunities of our urban campus and designed PBL activities.

Interviewee P3 indicated that the Living Lab General Education Seminar was a great influence on implementation of PBL in a social science course, stating, "I am sure I would not have done [PBL] without that Living Lab experience. It is not something I ever really thought about." Another interview participant, P11, commented on how seminar participation influenced new practices in teaching architecture, saying, "discussions we had during [the] seminar made it utterly clear how important reflection was…made it clear how you can integrate these practices that are shown to be effective."

The multidisciplinary structure of the seminar made a critical impact. Interview participant P1 commented on the interaction with other faculty from across disciplines as a means to explore PBL. The experience helped model and design off-campus learning activities due to this interaction. The seminar

> put me in contact with colleagues, across a range of disciplines that I would never thought I would be interacting with as an educator…really brilliant, dedicated people that are able to change my thinking…and had put me in a very intense dialogue and collaboration, so it has given me a much broader perspective on the value of this work.

Interview participant P5 underscored the value of collaborating with other Living Lab participants in designing PBL activities in a humanities course:

> the most valuable part of the Living Lab fellowship for me was working with colleagues. I learned so much…the idea of incorporating [place-based activities] more rigorously with my curriculum came from a colleague's idea; to talk and sit down with

others and hear what they are doing in their classrooms, and then trying them and sharing.

Challenges and Surprises Encountered when implementing PBL Assignments and Activities

Seminar participants found that significantly changing teaching, assignment design, and assessment mechanisms was challenging and time-intensive, yet worth the effort. The Living Lab faculty seminars emphasized thorough preparation for PBL activities, yet some assignments that engage "real world" factors can be out of the faculty member's control. PBL can become, as one interview participant P10 stated, "messy." When explaining PBL in a design course, the interviewee went on to say, "the challenge of PBL is that you cannot control the environment well…but ultimately that messiness makes the experience rich, more unpredictable and made the students more on their toes. This was helpful."

Due to the highly technical nature of many departments and areas of study throughout the college, faculty drew attention to their lack of freedom to conduct PBL activities. Interview participant P9 commented, "we have extremely detailed course syllabi, day to day plans that lay out the pages in the book and examples for each day of the class." Furthermore, students "have uniform finals written by the department so you have to cover the material that is going to be on the exam." With this challenge in mind, this interview participant went on to say a "place based learning activity is a great way to go deeply into a small bit of math which is so important."

Interview participant P4 responded, "what surprised me…was how nervous our students were to go beyond the college campus." This interview participant thought of her students as "streetwise," yet "sheltered in how they approached and negotiated the city." Though students travel via subway and bus to campus daily, the neighborhoods and streets adjacent to the campus were unfamiliar to many, and a few students looked to the instructor for help reaching familiar territory adjacent to campus once the class had concluded.

The burden of administrative requirements to bring students off campus was also noted by interview participant P4 who stated "I was surprised by the number of signatures I needed to leave the building. I was surprised I had to check if any of my students were under 18 to get parental consent." Another interview participant, P2, was surprised to learn that the place-based assignment was among the students' favorite of all assignments in an allied health course:

> I know how much they love it because in one of the bonus questions on my final exam, I asked them to describe their favorite assignments of the four . . . [the] majority of them chose this…I was surprised, I didn't expect that they would like [the place-based assignment] so much.

Student Engagement

Interview participants indicated the place-based activity or assignment served as a means to understand students' lived experiences beyond the classroom and

often added a social dimension, fostering deeper interactions among students, thus building engagement. Interview participant P9 expected that the PBL activity would build community, but

> was really gratified and a little surprised to see the extent that was true. It was really nice to come to class. The next day I felt a different environment; they were in groups and chatting like that have not done before. You can feel a difference in the room.

An interview participant in the field of business, P6, noticed that while the place-based assignment was intended to be completed individually, through the assigned photo documentation she learned that students accompanied one another on the off-campus trips. The faculty member found that students who chose to work in groups (not an assignment requirement) proved to be more engaged: "I noticed that the students who [accompanied one another], they went really far with the assignment…they went further with it because they had their buddies with them, and I thought that was great."

> Students' eagerness to discuss and analyze an assigned text after a place-based activity was a pleasant surprise for interview participant P5: "the main [surprise] was how excited they [the students] were. They didn't want to stop talking about the connections they made [about the text]. They made many that I didn't catch myself and I read the [text] more times."

> Interview participant P4 compared student engagement in traditional classroom approaches to place-based approaches "…just a standard lecture or even a YouTube video is not enough—just too passive and I feel like with PBL, it forces students to be much less passive, be much more active and engaged in their learning." This participant went on to reflect on the pedagogical benefits yielded by introducing PBL:

> Students are more engaged ever since I started changing and applying all these exercises and activities I developed as a Living Lab fellow. It's more dynamic for them but also for me. It's encouraging for me to see that students are active.

Upon assigning students to create a project for a client, interview participant P10 commented that the "students were far more engaged, they were more nervous, more attentive" working on a project for an off-campus client than they typically were for assignments that did not go beyond the classroom.

> An off-campus experience that included reflection led to great student engagement. The interview participant noticed "before when I had them doing a journal it was very general." A shift in engagement due to the student contributing to the content of the lecture occurred:

> they already spent a lot of energy, not just one week but weeks prior to that preparing…they call it 'my week' and prior to that it was just this general thing. So yeah, I think it did add some ownership. (P6)

> Several faculty reported PBL deepened students' engagement with the course material, in both high-stakes and low-stakes assignments. Specifically mentioned by interview participant P11,

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The biggest surprise is when I'm really excited about something and think it's spectacular and students are yawning, on their phone, or chitchatting. Some things are definitely more special. I never saw a student yawn when we're at the Brooklyn Historical Society library.

When working with a community partner the engagement level of students increased. "[The client] would have serious questions about what they would see and the students need to be more serious." The fact that student work was being used for real-world application helped them understand that "they were responsible for their answers…I was impressed with their ability to stand up in front of the clients." (P10)

Discussion

Limitations

Participants in this study enrolled in the Living Lab seminar with the intent to change their pedagogical practices and, therefore, may have been predisposed toward incorporating new pedagogies such as PBL into their teaching. The results of the study are encouraging to those faculty seeking to revitalize their teaching practices by including PBL. Though the survey and interviews drew from a small sample size, participants in the study attended the seminar at different times over a five-year period, resulting in a long period of time between participation in the seminar and the completion of the survey and/or interview. If a larger proportion had responded to the survey and/or participated in the interviews, a larger study might yield results that portray a richer diversity of experiences implementing PBL.

Future Research

This study raised questions, not only about faculty implementation and perception of PBL but also about the students' attitudes about and experiences with PBL. Research on the student experience of PBL would shed light on students' perceptions of the impact of PBL on their developing knowledge of course content, proficiency meeting general education learning outcomes, and engagement with the college experience. Future research could also expand the study to a larger group of faculty participants and measure how participants shared their practices with colleagues over a longer period.

Conclusion

The Living Lab is a new pedagogical model that incorporates PBL assignments and activities designed to meet a range of general education learning outcomes. Our findings demonstrate that after participation in the Living Lab fellowship, participants perceive that PBL effectively meets general education learning outcomes, resulting in deeper engagement with the course material than through more traditional classroom approaches. Through this study we identified that as a result of the Living Lab general education seminar, participating faculty engage with the neighborhood beyond the classroom as a means to more deeply involve students in the general education learning outcomes of their courses. Institutionalization of these

teaching practices and creation of a meaningful, sustainable PBL program requires support from both administration and dedicated faculty leaders seeking to change their own teaching practices and, through example, those of their colleagues. Undergraduate institutions that rely on traditional, classroom-bound pedagogical practices should implement similar PBL practices for faculty development to better meet general education learning outcomes and engage students more deeply.

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<h1 style="text-align:center">Call for Papers</h1>

<p style="text-align:center">Volume 14: Scholarly Teaching and Learning</p>

InSight: A Journal of Scholarly Teaching is a scholarly publication designed to highlight the work of postsecondary faculty at colleges and universities across the United States. It is a refereed scholarly journal published annually by the Faculty Center for Innovation (FCI) at Park University that features theoretical and empirically-based research articles, critical reflection pieces, case studies, and classroom innovations relevant to teaching, learning, and assessment.

InSight articles focus broadly on Scholarly Teaching. Faculty are encouraged to submit original manuscripts that showcase scholarly teaching processes or critically discuss the scholarship of teaching and learning (SoTL) as a scholarship paradigm. While reports of scholarly teaching projects are welcome, *InSight* is also committed to continuing broader conversations about SoTL's value as a tool for advancing student learning and demonstrating faculty commitment to teaching.

Faculty are encouraged to submit manuscripts related to:

- Challenges/Responses to the SoTL paradigm
- Developing institution or discipline-specific understandings/definitions of SoTL
- Status reports of SoTL's role in a particular discipline (and what other disciplines might learn from the report)
- Guidance to faculty new to SoTL (on developing inquiry questions, determining methodologies, making SoTL work public, etc.)
- Examples of SoTL projects at the course or discipline-level
- Intersections of SoTL and service-learning, eLearning, learning communities, and other learning initiatives
- Future directions in SoTL
- Cross-disciplinary and cross-institutional collaborations for promoting SoTL

Submission Requirements

- STYLE - All manuscripts must be formatted in APA style.
- LENGTH - Manuscripts may range from 2,000 - 5,000 words (not including abstract, references or appendices). Authors are encouraged to include appendices that promote application and integration of materials (i.e., assignments, rubrics, examples, etc.).
- ABSTRACT - Each manuscript must be summarized in an abstract of 50 to 100 words.
- AUTHOR - Each author should provide his/her full name, title and departmental affiliation, campus address, telephone number, and email address. Each author must also include a brief biography (no more than 100 words per author).

- FORMAT - All manuscripts must be submitted in Microsoft Word or Rich Text Format. Do not include personal identifiers within the manuscript. Include contact information only on a separate cover sheet. Each manuscript will be assigned a unique identifier for blind review processes.

Submission Process

New for this edition is that manuscripts will be submitted via *InSight's* updated submission/editorial platform, Scholastica. Click on the "Submit via Scholastica" button, located on the *InSight* website at http://insightjournal.net/, or submit via the Scholastica website at https://submissions.scholasticahq.com.

Submission Deadline

All submissions must be received by 4:00pm on March 1, 2019 (CST) to be considered for inclusion in Volume 14. However, submissions are accepted on a rolling basis.

Review Procedures

Submissions will be subject to a double-blind peer review. A manuscript is evaluated based on relevance, practical utility, originality, generalizability, clarity, significance and the extent to which the subject matter contributes to the ongoing development of the scholarship of teaching and learning. Review process and publication decisions will require approximately 12 weeks. Referees' feedback and editorial comments will be provided to the author when revisions are requested. FCI retains the final authority to accept or reject all submitted manuscripts. The publication will be distributed both in print and online in fall 2019.

Copyright

Manuscript submissions are accepted with the assumption that they neither have been nor will be published elsewhere. Authors and FCI will hold joint copyright to all published manuscripts.

Contact

All inquiries should be directed to: innovate@park.edu.

Please visit our website at: http://insightjournal.net/

QUICK TIPS: PREPARING MANUSCRIPTS FOR *INSIGHT*

The following "Quick Tips" provide suggestions and guidance for preparing manuscripts for potential publication in *InSight: A Journal of Scholarly Teaching. InSight* is a peer-reviewed publication highlighting the scholarly contributions of postsecondary faculty. As is the nature of refereed journals, acceptance and publication of original manuscripts is a competitive process. The goal of the following information is to assist faculty in preparing manuscripts in a manner that maximizes the chances of publication.

Preparing the Manuscript

The organization and style your manuscript will be largely dictated by the type of submission (e.g., theoretical, empirical, critical reflection, case study, classroom innovation, etc.). Thus, while guidelines will follow to assist you in preparing your manuscript, the key to successful submission is clear, effective communication that highlights the significance and implications of your work to post-secondary teaching and learning in relation to the target topic. To prepare and effectively communicate your scholarly work, the American Psychological Association (2010) provides the following general guidelines:

- Present the problem, question or issue early in the manuscript.
- Show how the issue is grounded, shaped, and directed by theory.
- Connect the issue to previous work in a literature review that is pertinent and informative but not exhaustive.
- State explicitly the hypotheses under investigation or the target of the theoretical review.
- Keep the conclusions within the boundaries of the findings and/or scope of the theory.
- Demonstrate how the study or scholarly approach has helped to address the original issue.
- Identify and discuss what theoretical or practical implications can be drawn from this work.

There is no mandatory format for *InSight* articles; rather authors should organize and present information in a manner that promotes communication and understanding of key points. As you write your manuscript, keep the following points in mind:

- Title - Generally speaking, titles should not exceed 15 words and should provide a clear introduction to your article. While it is okay to incorporate "catchy" titles to pique interest, be sure that your title effectively captures the point of your manuscript.
- Abstract - Do not underestimate the importance of your abstract. While the abstract is simply a short summary (50-100 words) of your work, it is often the

only aspect of your article that individuals read. The abstract provides the basis from which individuals will decide whether or not to read your article, so be certain that your abstract is "accurate, self-contained, nonevaluative, coherent, and readable" (Calfee & Valencia, 2001).

- Body - Within the body of a manuscript, information should be organized and sub-headed in a structure that facilitates understanding of key issues. There is not a mandatory format for *InSight* articles; rather authors should use professional guidelines within their discipline to present information in a manner that is easily communicated to readers. For example:

    - *Empirical investigations* should be organized according to the traditional format that includes introduction (purpose, literature review, hypothesis), method (participants, materials, procedures), results, and discussion (implications). The following links provide general examples of this type of article:
        o http://www.thejeo.com/MandernachFinal.pdf
        o http://www.athleticInSight.com/Vol7Iss4/Selfesteem.htm
    - *Theoretical articles and literature reviews* should include an introduction (purpose), subheadings for the relevant perspectives and themes, and a detailed section(s) on conclusions (applications, recommendations, implications, etc.). The following links provide general examples of this type of article:
        o http://www.westga.edu/%7Edistance/ojdla/winter84/royal84.htm
        o http://www.westga.edu/%7Edistance/ojdla/winter84/mclean84.htm
    - *Classroom innovation and critical reflections* should be organized via an introduction (purpose, problem, or challenge), relevant background literature, project description, evaluation of effectiveness (may include student feedback, self-reflections, peer-insights, etc.), and conclusions (applications, implications, recommendations, etc.). If describing classroom-based work, please include copies of relevant assignments, handouts, rubrics, etc. as appendices. The following link provides a general example of a critical reflections article:
        o http://www.compositionstudies.tcu.edu/coursedesigns/online/33-2/ritter.htmlv

The limited length of *InSight* articles (manuscript should be no more than 5000 words, not including abstract, references or appendices) requires authors to focus on the most significant, relevant factors and implications.

- References - Select your references carefully to ensure that your citations include the most current and relevant sources. As you select your references, give preference to published sources that have proven pertinent and valuable to the relevant investigations. The goal is not to incorporate ALL relevant references, but rather to include the most important ones.
- Tables, Figures, Appendices & Graphics - Authors are encouraged to include supporting documents to illustrate the findings, relevance or utilization of

materials. Particularly relevant are documents that promote easy, efficient integration of suggestions, findings or techniques into the classroom (such as rubrics, assignments, etc.). Supplemental information should enhance, rather than duplicate, information in the text.

The importance of clear, effective communication cannot be highlighted enough. Many manuscripts with relevant, original, applicable ideas will be rejected because authors do not communicate the information in a manner that facilitates easy understanding and application of key points. The value of a manuscript is lost if readers are unable to overcome written communication barriers that prevent use of the knowledge. With this in mind, authors are strongly advised to seek informal feedback from peers and colleagues on manuscripts prior to submission to *InSight*. Requesting informal reviews from relevant professionals can highlight and correct many concerns prior to formal submission, thus improving chances of publication.

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"Student engagement, satisfaction, and learning outcomes are related yet distinct phenomena that contribute towards desirable results for students, universities, employers, and society in general. Just wanted it is that construes student academic engagement is a matter for discussion, but one that is increasingly on the radar of universities and policy makers."
~ Rosemary Fisher, Bella Ross, Richard LaFerriere, and Alex Maritz, *Flipped Learning, Flipped Satisfaction, Getting the Balance Right*

"Connectedness, from the students' perspective, consists of an overlapping network of connectedness with old, new, and different friends, as well as with other students and faculty. The formation of connectedness is not a linear process, but a function of relational development that occurs through a series of interrelated dynamic stages. Connectedness is achieved when students are able to fulfill task roles and simultaneously meet their interpersonal needs."
~ Derek A. Jorgenson, Laura C. Farrell, Julie L. Fudge, Andrew Pritchard, *College Connectedness: The Student Perspective*