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Kalli F. Doubleday, Stacie A. Townsend

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Supplemental Instruction as a Resource for Graduate Student Pedagogical Development

KALLI F. DOUBLEDAY
University of Texas, Austin
and

STACIE A. TOWNSEND
University of California, Davis

ABSTRACT

Most literature on Supplemental Instruction (SI) programs focuses on the benefits to undergraduate students; this article addresses how such programs benefit the next generation of geography educators. We outline major differences between graduate teaching assistant (GTA) and SI work for graduate students, particularly those working with introductory-level geography classes. Pulling from our experiences working as SI instructors, GTAs, and instructors of record, we offer a more detailed description of an SI classroom and argue for its benefits in pedagogical training and preparation for academic careers in geography.

Keywords: *graduate education, pedagogical training, professional development, supplemental instruction*

Introduction

A CONSISTENT THEME in the graduate teaching assistantship (GTA) and graduate pedagogical literature is a call for appropriate professional development to elevate graduate students' current teaching success and to prepare them to teach effectively as professors (Park 2004; Solem and Foote 2004; Austin, Connolly, and Colbeck 2008). Research suggests that most graduate education does not adequately provide the necessary tools and experience for graduate students to segue into faculty-level positions (Golde and Dore 2001; Milner-Bolotin 2001; Smallwood 2001; Austin 2002; Jaschik 2008). Accordingly, stress, pressure, and uncertainty mark the experiences of new faculty (Rice, Sorcinelli, and Austin 2000; Solem and Foote 2004). Extensive pedagogical training is rare, and departments frequently hand doctoral students and recent graduates undergraduate courses with a "sink

or swim” approach (Kuther 2003; Foote 2010). Foote (2010) notes that this route inherently “propagates inequalities and inequities” among graduates who are not privy to information on successfully entering faculty positions (2010, 11). Predictably, Solem and Foote (2004) found teaching to be the primary source of anxiety for new geography professors in America.

Accordingly, the development of geography faculty in higher education is a major challenge for the future of geography education (Healey 2003). Many universities in the United States conduct general graduate teaching training courses, while a limited number of universities with large geography graduate schools (e.g., Pennsylvania State, University of Wisconsin–Madison, and Michigan State) operate geography-specific training courses (Healey 2003; Austin, Connolly, and Colbeck 2008). While the landscape for graduate pedagogical training has greatly improved (e.g., NSF-funded projects such as the Center for the Integration of Research, Teaching, and Learning (CIRTL); the Innovation in Graduate Education Challenge; and the Enhancing Departments and Graduate Education (EDGE) research and action project), many departments are years away from their influence. This reality is most evident in geography departments not on campuses considered STEM colleges and/or non-Ph.D.-granting graduate programs, since the pedagogical training programs mentioned above primarily focus their resources on research-intensive universities.

The American Association of Geographers’ website discusses the EDGE project (sponsored by the National Science Foundation), citing fourteen peer-reviewed publications pertaining to its mission. The majority of articles focus on the issue of professional development for work outside academia. In contrast, Monk, Foote, and Schlemper (2012) explicitly discuss pedagogical development and point to “strengthening preparation for teaching” as an issue that still needs attention among future geographic educators (1447). This is especially true, as almost all doctoral students with academic pursuits included “teaching” as part of their career aspirations, yet find preparation is “spotty” (Monk, Foote, and Schlemper 2010, 1447). In response to this call for action, we recommend graduate students replace a semester or more of GTAing with a Supplemental Instruction (SI) position (where available) as a means to expand the pedagogical preparation of geography graduate students.

Scholars tend to consider GTAs a mode of professional development of graduate students, yet one can argue the majority of GTA-related duties concern only the basic responsibilities of teaching by overemphasizing

grading or similar logistical responsibilities (Foote 2010). GTAs are often “structured more to serve institutional or faculty needs than to ensure a high-quality learning experience for graduate students” (Austin 2002, 95). As higher education increasingly shifts emphasis away from one-way lecturing toward an active learning approach, graduate students and their departments should likewise seek diverse opportunities to engage in pedagogical training with similar learner-centered practices. We argue a Supplemental Instruction (SI) position is one such underestimated avenue.

Valuations of SI programs primarily focus on the benefits to undergraduate students¹ (Dawson et al. 2014), but this article addresses how SI positions advance the next generation of geographic educators as well. Coming from varied experiences across four separate campuses as instructors of record, GTAs, and SI, we propose the latter as a means for geography graduates to increase pedagogical training in preparation for faculty positions. Here, we explore this assertion as follows: First, we offer a more detailed description of what SI consists of as well as the demands of an SI classroom. Second, we seek to clarify SI’s distinction from a more traditional GTA position, with particular emphasis on the differing responsibilities and classroom techniques. We also dedicate a discussion to the importance of facilitation in an SI classroom. Finally, the article discusses SI’s pedagogical training component, and the special skill set that the program can offer graduate students poised to become future geographic educators. SI programs develop sought-after and essential skills for early-career educators, and are well suited to do so. Geography programs and their graduate students would benefit greatly from connecting to established SI opportunities on their campuses and adding introductory geography classes to offered SI instruction.

What is Supplemental Instruction?

Deanna Martin developed Supplemental Instruction in 1973 (Burmeister 1996) in response to college-level courses that have a history of “higher-than-desirable rates of Ds, Fs, and withdrawal” (Latino and Unite 2012). These courses traditionally operated as gatekeepers for continued progress in a degree sequence. Dr. Martin designed the SI program to improve the performance and retention of students at risk of failing these courses and withdrawing from the institution. SI sessions are a “supplement” to the primary course. These sessions are not intended to be a recitation of the content of the primary course’s lectures; rather, they serve as a space where

the course content is put into context, and learning skills are developed and put into active practice. Accordingly, SI instructors do not replace the work of a GTA for any given course, as the responsibilities of the two positions vary significantly, which we discuss below. The goal of SI sessions is to improve undergraduate performance in gatekeeper courses by improving learning skills in a system of peer-to-peer teaching. SI is thus not a departmental prerogative, but a university-wide approach to improving retention and comprehension for students (Latino and Unite 2012, 35).²

Geography-specific literature has explored versions of peer-to-peer learning (e.g., Deakin, Wakefield, and Gregorius 2012), but not specifically the SI model. Peer-to-peer learning is an educational framework in which students interact with one another to achieve educational goals (O'Donnell and King 1999). In peer-to-peer learning, professors may engage in periodic training with graduate students, but without extensive training in different pedagogical formats. With the SI model, there is extensive training and supervision led by SI supervisor(s). SI represents a more institutional model, with a constant peer-to-peer educational interaction with the added benefit of a trained SI leader. Accordingly, SI instructors benefit from the development of leadership skills, personal competence, empathy, as well as auxiliary aids of maturation, anxiety reduction, teamwork, and a sense of personal responsibility (Hill and Helburn 1981, 150). Such pedagogical training in this model also leads to the adoption of individual, personal, and active learning strategies (Worthington et al. 1997) that then become easily implemented in independent teaching positions.

It is for these reasons that we argue for the need and benefit for geography graduate students to have opportunities in SI positions, separate and distinct from more traditional GTAs. We assert that SI uniquely positions itself to be an asset for graduate students in developing their skills as current and future geographic educators, providing a combination of skill sets that make for dynamic, engaged, and effective geography classrooms for undergraduate education.

Pedagogical Development

Internalizing Teaching Techniques

GTA and SI positions are different jobs, each with different outcomes for graduate students. There is no one-to-one equivalency to make by those with an interest in pedagogy, but as two of the most common ways that graduate

students acquire teaching experience, comparison and analysis of their varied offerings is worthwhile. In general, the geography-specific literature provides little data on GTAs or the benefits of GTAing for graduate students, instead focusing on undergraduate students. However, scholars make several generalizations through the geography-specific professional development literature. While SI sessions do not integrate within the course and do not necessarily involve the faculty member, GTA discussion sections are typically an elemental part of the actual course. However, GTAs leading discussion sections often find themselves unprepared to execute the variety of learning strategies necessary to compete on the academic job market. Instead, GTAs often become an echo of the professor, presenting the same information in lectures in discussion sections. This method maintains a dependency of students on the professor and the GTA for that knowledge. Consequently, across disciplines, a lack of training and supervision in pedagogical learning and implementation is an increasing concern of early career academics. GTAs with intentions of collegiate teaching post-graduation may thus become discouraged and lose interest in teaching because they do not have enough training (Prieto 2003); many feel their graduate education has left them ill-prepared for the rigors of an already-difficult path to the professoriate.

SI, in contrast, is explicitly structured to train its leaders to facilitate active involvement, participatory classroom structure, critical thinking, and collaborative peer learning (Zerger 1994) [Table 1]. SI leaders achieve this skill development and pedagogical outcomes via weekly training³ from learning specialists. SI for World Regional Geography (WRG) at California State University, Long Beach (CSULB), for example, organizes itself through the learning specialists at the campus' Beach Learning Community program. CSULB SI instructors follow national SI guidelines by participating in weekly training sessions under the direction of the Learning Community center. These sessions involve writing learning objectives, developing instructor confidence, and learning various techniques to incorporate technology and nontraditional learning materials into the classroom. Additional training consists of lessons in managing time, writing effective lesson plans, using best practices for active learning, and meeting other learner-centered teaching goals.

Table. 1.—Differing Responsibilities of Graduate Teaching Assistants and Supplemental Instructors

Graduate Teaching Assistants (GTA)	Supplemental Instructors (SI)
Teaching content determined by professor	Content created without professor consultation
Lecture review and recitation, rehash course content and expand or explain further	Focus on learning skills development, using lecture materials as examples to relate to
Answers student questions about course topics, expected to be secondary expert on information	Facilitates discussion to greater understanding, expected to be expert in learning techniques and course content
Teaching bound by lecture content	Teaching guided by learning objectives and focused on skill development
Grades course materials and proctors exams	Does not grade course materials or proctor exams
Perhaps university-wide GTA training (varies from institution-to-institution), or occasional, informal consultation with course professor	Formal, scheduled training sessions with specialists throughout academic year, individual consultation available with pedagogical experts

For the authors, SI was an opportunity to bring geography to a class of eighteen to twenty Beach Learning Community freshman students, for three hours a week. Specifically, SI instructors helped explain challenging concepts and provide “problem-solving strategies, content mastery, and course language and skills” (Etter et al. 2000, 365). At the center of these active learning strategies was the preparation to facilitate learning purposefully; SI instructors not only prepare lesson plans but also act as facilitators, thinking through the questions to ask at each stage of the learning objectives. Whereas GTAs answer questions and are responsible for knowing what course material to expect students to know, SI instructors have no evaluative role with the students they help and thus can provide a classroom structure that is quite different from what professors and GTAs can offer.⁴

An important part of training was formulating tangible, relevant, and important learning objectives. “The SI instructors emphasize the process of finding the answer more than merely explaining the actual answer and

on organizing the material so that the students can make connections, comparisons, and see the big picture” (CSULB 2013). So instead of answering student questions directly, SI instructors ideally redirect questions to the whole group or ask further questions to facilitate students’ working through the question to an answer. This is not a natural response to student questions, but a learned, practiced teaching method.

As SI instructors, on a weekly basis, we developed and implemented pedagogical practices, including using active learning in the classroom and creating in-class activities that engage diverse learning styles. Though these dynamics can occur in non-SI courses, we assert that the SI model requires this engagement, rather than leaving it to chance. Neither author, working as GTAs over six years at three different universities and under thirteen different professors’ supervision, was trained in developing or implementing guided pedagogical practices (outside of SI). As an SI, the primary objectives are to facilitate discussion through developing critical-thinking activities, build students’ study skills, and design efficient learning activities such as group work and problem-solving exercises to cement lecture and reading material for the attached, high-risk course. As such, an SI position provides graduate students the experience to develop pedagogical skills using disciplinary information with which they are already familiar. This experience is a logical first step in the progression toward independently teaching introductory courses: first learning how to teach, then later deciding what to teach.

In a course structured on an SI model, lectures provide the details and the test material, and the SI sessions focus on student comprehension of key concepts, or what Meyer and Land (2003) call threshold concepts: “breakthrough concepts, which once learned, open the door to understanding in a discipline, in this case to thinking like a geographer” (Fouberg 2013, 66). These can include geographical concepts such as scale, human-environment dynamics, region, or density, fundamental building blocks to a geographer’s perspective on the world. This process reflects the SI program’s emphasis on Piaget’s learning cycle theory,⁵ where the SI leader facilitates student exploration of concepts introduced in lecture and then applies the concepts to current events or problems for students to work through. This emphasis on conceptual learning allows students to understand new information more easily because they start to look for “patterns, relationships, or discrepancies” (Bransford, Brown, and Cocking 2000, 17), namely, essential tools for exploring geographical thinking. SI leaders follow constructivist theory, building on Piaget’s learning cycle by developing

activities⁶ that often depend on personalized concepts to promote deeper understanding alongside activities that require students to use geographic concepts (Blumenfeld 1992; Fouberg 2000). SI instructors organize their sessions not to memorize definitions or facts but to provide a means for knowledge building, recognizing that “one does not understand a concept adequately until it becomes clear how it is used and how it relates to other concepts” (Stanley and Mathews 1985, 70). As a takeaway, SI instructors become more aware of the need to teach these concepts, which can translate into other disciplines as well as facilitate geographic thinking.

The relevance of this kind of teacher preparation is evident by the outcome of a four-year-long study of graduate students (Austin 2002), which culminated in five participant recommendations for improving graduate school preparation for faculty careers. One recommendation is for graduate programs to include more “Diverse, developmentally oriented teaching opportunities. Participants praised the value of diverse teaching experiences and urged systematic attention to providing graduate students with opportunities to take on increasingly complex and more autonomous teaching responsibilities” (Austin 2002, 111).

This study’s findings put the benefits of SI training in another light; effectively, SI positions instill desired pedagogy principles in graduate students without burdening them with the full responsibilities of a teacher. Unlike the experience of GTAs, an SI leader works without the stress and pressure of disseminating lecture material and issuing course content, but instead practicing active learning pedagogy and helping students to build knowledge rather than just presenting it unchallenged. Instructing in this manner becomes ingrained in SI facilitators, leading to more active learning classrooms later in their career paths when the responsibilities of more traditional teaching appointments are involved. Overall, these techniques create a more interactive and engaging classroom, with instructors keyed into an experienced, active background in practiced pedagogy. This is not to say that instructors without SI training cannot achieve this through other means, but rather that SI positions are a proven path to this result.

Active Learning Training

As a GTA, a graduate student will primarily be concerned with course logistics; he or she likely has responsibilities such as uploading content to the Web, creating PowerPoint slides, writing exam questions, and grading. SI and GTA positions have more overlap in responsibility when GTAs

also independently lead discussion sections. However, GTAs are not often provided pedagogical training, especially training related to the ability to develop and independently implement weekly classroom content, as is the case of SI leaders. For an SI, the primary focus is creating activities that encourage student participation, thinking, and reflection on course material, all of which are components of active learning (Bonwell and Eison 1991). As Bonwell and Eison (1991) outline, there are several key characteristics of active learning, including (1) students doing more than just listening to lecture; (2) emphasis placed on developing students' skills instead of merely transmitting facts and information; (3) students demonstrating higher-order thinking such as analysis, synthesis, and evaluation; (4) students engaging in processes of reading, discussion, or writing; and (5) students actively exploring their own ideas and application of the course concepts. In active learning, students take responsibility for their own learning, often in the form of working directly with materials either in pairs or groups.

PowerPoint presentations coupled with lecture material are a typical format in collegiate classes, particularly in large, lower-level geography courses with a diverse student body having limited exposure to the discipline. Without some type of pedagogical training in course design, the task of crafting an active learning environment is daunting. Although many agree they are an optimal learning environment, classrooms incorporating time for active learning are not the norm. Being an SI leader gives a graduate student concentrated time to focus his or her skills in creating active learning centered on geographic content. Spending time as a regular practitioner of such strategies enforces the ability to automatically include discussion questions, in-class group work, and outside class activities when creating lecture content later in their teaching careers.

Mastering the Implantation

Instead of a singular mentored relationship with a course professor, SI leaders have weekly or bimonthly space and time to discuss strategies, successes, and failures with other SI instructors, previous instructors, and SI program directors with extended pedagogical and learning strategies training. This provides an expanded feedback loop to improve and learn from others—a dynamic noticeably lacking in typical GTA positions. In addition, expert learning specialists with insight into different learning strategies and ways to address multiple learning styles lead weekly SI training. Conversely, many professors lack training in pedagogy and are not familiar with cur-

rent research about student learning and strategies/methods for improving classroom learning. SI leaders then continuously implement the methods and strategies from weekly trainings over the semester, an applied model unavailable in traditional GTA models. Furthermore, program directors and other SI leaders regularly assess implementation through in-class reviews, providing feedback and thus continuing the trajectory of training and implementation.

While not a one-to-one equivalency to SI, the GTA experience is worth examining for the strengths it can provide graduate students. A traditional GTA position is beneficial for becoming familiar with course development, textbook use, and grading. In these positions, students also have the opportunity to learn active learning techniques by observing the assigned professor's teaching methods. GTAs have many advantages, particularly access to the professor, which can constitute a mentoring relationship absent from the SI instructor experience. Though advisors can provide professional, research, and teaching guidance, when a course professor relies on his or her GTAs for the function of a class, the relationship and time spent together can bring more extensive, personalized pedagogical advice and a fruitful learning atmosphere. Namely, graduate students in these positions often benefit from the knowledge of the professors they work with, learning about discipline-specific approaches, skills, and lecture content, including in-class exercises that they can use or modify in their own classrooms.

SI instructors encounter many of the same broader challenges professors must address, including time management, dealing with inter-student conflict, and maintaining student attention in the course. Cuseo (2010b) expands the definition of an SI's functions to include that of role model, personal support agent, learning coach, and a source of referrals for academic and campus resources. The SI program's weekly training sessions provide perspective and allow for discussion of these and other challenges on a continual basis. This regular training and support develops SI leaders' professional skills in a classroom environment in a different manner than a more traditional GTA position.⁷

Facilitation

A classroom environment in which questions are encouraged is the most reliable way to promote a participatory style of learning. Bain (2004) and Chalkey et al. (2000) cite participation and facilitation as the critical components of a successful and effective instructor. Students who demonstrate

long-term retention and application often are those who ask questions, seek connections, and effectively change their knowledge construction. Asking questions in the classroom, an approach sometimes known as problem-based learning (PBL), hinges on an intriguing question or problem as “the first of five essential elements that make up the natural critical learning environment. The second crucial element is guidance in helping the students understand the significance of the question” (Bain 2004, 101). An SI position prepares graduate students to do just that. From personal experience, carrying this practice over into the classroom makes the class more relaxed and supports Bonwell and Eison’s (1991) first characteristic of active learning. This study indicates that students do more than listen; instead they actively ask questions and help one another as the SI instructor continues to lead them in the right direction. As a discipline that utilizes methods such as place investigation, inquiry-based learning, field research, and map analysis, geographers are well-positioned to utilize problem-based learning.

When graduate students gain experience facilitating smaller-scale active learning activities, it then becomes natural for them in future courses to create active learning exercises for a class instead of assigning a summary or rewriting of content. Once the semester ends and SI instructors move on to work as GTAs or teach their own courses, those facilitation skills can be integrated into their teaching style, and students will benefit from the enhanced quality of instruction they will receive. Perhaps most importantly, the SI leader creates an environment that challenges students to “tackle authentic and intriguing questions and tasks, to make decisions, to defend their choices, to come up short, to receive feedback on their efforts, and to try again” (Bain 2004, 100). For example, an SI might lead a class in a series of case studies, examining various geographic phenomena from areas both familiar and unknown. Approaches to understanding the initial locations would be developed on familiar places and then later applied to new locations. SI leaders can also work geographic information into a debate format, where students must prepare defensible, researched statements to withstand rebuttal and contradiction. This leads to better understanding of world patterns, differences, and inconsistencies. Overall, SI provides the environment to develop critical skills not provided to early-career educators through traditional GTA opportunities.

SI Techniques: A Path to Successful Early-Career Faculty

Now that we have discussed the ways in which SI roles contribute to graduate students' pedagogical development and skills in facilitation, we now turn to an analysis of how mastering SI techniques contributes to successful career paths for future geographic educators. We specifically detail two areas of skills that lead to effective geographic education in the classroom: sensitivity to diverse student populations, and an ability to foster quick connections to explain geographic patterns.

Inclusion in the Classroom

The classroom teaching experience as an SI leader likely highlights experiences of minority groups (ethnic, cultural, economic) with course content, whereas in a typical classroom the size may be too large to “see” these perspectives or students with these viewpoints may be less outspoken. SI leaders learn techniques that encourage such students to engage in discussion and voice their concerns. In other words, SI instructors learn how to work with diverse student populations.

This capability is critical as higher education is increasingly focused on diversity and inclusion and the percentage of undergraduate courses taught by GTAs increases. SI enhances awareness that historically underrepresented and economically disadvantaged groups have confronted obstacles accessing higher education and have often been disenfranchised by traditional academic curricula. An awareness of these types of barriers is particularly important in geography, as it may appear an area of study only available to those with adequate resources to fund extensive travel or other worldly pursuits. An inattentive instructor may substantiate this notion, one we confronted on several occasions in our time at CSULB.

Being in a small-group setting with the diverse students usually present in SI courses requires SI leaders to reconfigure the study of geography as an accessible pursuit, open to anyone from anywhere. This adds emphasis to the perpetual cry of geographers that the discipline is a lens of study, a way of seeing the world, not merely a list of countries visited or locales known or memorized. In this context, we as SI leaders had to refocus student concerns over being unable to relate to all the “facts” of “foreign places” to instead encourage the ability to make educated assumptions and deductions by thinking like a geographer. This also highlighted the need to explain the variety of people who can be geographers, be scientists, or apply geographic thinking in other realms beyond the academy.

SI for introductory geography classes forces SI leaders to reconsider geographic concepts they believe to be easy or intuitive to grasp, and then acknowledge they may be based on their own cultural and educational background, not that of their students. SI instructors become aware of these differences with small classrooms full of students not as well prepared for college courses or with limited primary education in their SI subject. Accordingly, SI influences instructors' approach to teaching geography and how to better support students going forward.

Identifying Patterns, Fostering, and Teaching

In addition to skill sets fostering sensitivity to diverse student populations, SI preparation enhances the ability of early career geography faculty to make quick connections in explaining geographic patterns. Much of this ability becomes apparent in an instructor's ability to put together cohesive course content. The purposeful planning of questions, information review, and breaks and transitions between activities that encompass SI training aims to avoid redundancies and gaps in content. This training translates into more-organized lectures when SI instructors become professors, and the difference in instructional quality can go a long way toward making a particular class stand out from other lower-level courses. This quality is important for most introductory geography courses, as university students are often not readily seeking geography degrees; rather, they frequently "discover" geography haphazardly as an elective or fulfillment course (e.g., Baerwald 2008).

Teaching an introductory geography course can be a shock for many first-time instructors since they must cover a wide range of geographical concepts with which they may be unfamiliar, regardless of their level of preparation. The balance of finding the right example, photograph, or case study in conjunction with the time needed to practice lectures and be knowledgeable on a region is one of the most difficult tasks for new professors (in our experience), and one we have experienced as independent instructors.

For introductory courses, student questions may be broad and without a pattern. With training during an SI program, new professors will find themselves well-equipped and well-practiced to handle these types of questions [Table 2]. In our experience, the breadth of these skills is difficult to develop in a traditional GTA position. The SI atmosphere is intentionally a question-driven exchange that is not practical in a lecture format or GTA sessions geared at specific content-based outcomes. As a result, teaching these topics in their own courses later on becomes more natural since SI-

trained educators have already previously addressed the issue from multiple perspectives in a practiced, purposeful environment. This practice corroborates findings by researchers such as Harmon, who found that peer-mentors serving first-year students cite improved self-reliance in their capability to facilitate learning, manage group dynamics, and empathize with their students (Harmon 2006).

SI roles provide the experiences to come up with examples, both local and global, to help students relate to content with which they are unfamiliar, and that requires further clarification. As an example, in the lecture adjacent to the SI course, the professor will commonly present a geographic concept through a globally oriented, challenging example. Later, during the SI session, students will frequently ask for examples more familiar to their own experience. For instance, when teaching nature-culture relations, instead of first using a more global example such as the network of Inuit, ice, and marine life and the reciprocal effects of each, SI leaders opened discussion with a local example, such as the relationships between off-shore drilling rigs, the shipping industry, and port workers in the Port of Los Angeles/Long Beach. Or, in addition to citing the textbook example of the National Mall in Washington, D.C., as a common example of a dramatic symbolic landscape, the SI leader also offers the example of the students' school campuses, with school colors painted on buildings. In this situation, linking global topics to more-familiar local examples is a valuable learning experience for SI leaders, as well as a means to achieve learning goals in the classroom. The practice of making new connections at various scales is a specific skill that, while not exclusive to an SI perspective, is nonetheless particularly prioritized and developed as a critical skill for educators through an SI program.

Table 2.—Graduate Student Skill Development in Supplemental Instructor Training

Pedagogical Training	Structured training sessions focused on teaching philosophy and practice. Techniques put into action among teaching peers before put into practice in classroom.
	Classes organized by pre-determined lesson plans, focus on upcoming class content and learning objectives/skill development.
Classroom Management	Developed expertise in classroom discussion facilitation.
	Sensitivity to diverse student populations and learning styles.
Learning Strategies	Confidence and skill in redirecting questions; in other words, reframing difficult queries and creating discussion areas around them in order to collectively create greater understanding.
	Active learning training, where an emphasis is placed on the benefits of a dynamic, engaged classroom environment.
	Extensive practice in leading students to higher-order thinking, such as analysis, synthesis, and evaluation.

Working toward the goal outlined above, of making connections and identifying patterns, geography professors often rely on an example or case study to give students a tangible place, phenomenon, or event to solidify the concept. This method opens up continual opportunities for student participation. Through continual honing of facilitation skills, SI instructors become indelibly aware of this diversity of perspectives. Subsequently, their first years as a professor will be defined by a growing emphasis on emergent knowledge rather than only reinforcing dominant narratives that may leave out minority voices. When teaching, rather than jumping right to standard examples of concepts such as site and situation, devolution, or culture hearths, it becomes second nature first to ask students for examples from their own experiences. Thus, SI approaches to inclusion in the classroom may also have the added benefit of enhancing diversity in disciplines that employ such strategies.

Conclusion

Geography graduate programs that include pedagogical training, development, and application are becoming more popular with the help of nationally funded programs such as the CIRTLL. However, the typical arrangement for most programs remains the offering of only a single class to develop a pedagogical philosophy (if any are offered at all) and reliance on GTA positions. SI programs are proven to provide effective instruction for undergraduates, as well as comprehensive teaching skills for graduate students. As such, they are a worthy pursuit of funding for pedagogical training, and universities would be wise to prioritize SI programs as their model of teaching effectiveness. Accordingly, where SI exists, geography programs would benefit greatly from connecting to established opportunities on their campuses and adding introductory geography classes to offered SI instruction. Encouraging graduate students to consider a semester as an SI rather than GTA provides potential geographic educators the opportunity to gain true teaching experience and training from outside their departments while remaining within their discipline. Undergraduates enrolled in SI programs build transferable study strategies and engage in proactive participation, thereby assembling, retaining, and transferring comprehension at greater levels (Dale 1969; Latino and Unite 2012). We would argue that SI positions offer the same skills, made applicable to building a strong pedagogical skill set for graduate students.

Through SI leadership, it becomes apparent that “good teaching is about the *facilitation* of learning and that the key measure of our success is our effectiveness in enhancing the quality of student learning” (Chalkley et al. 2000, 239, *emphasis added*). This knowledge is not always apparent in lecture halls, but the focus SI puts on *facilitating* highlights this often-overlooked tenet of good teaching. The steps to becoming a facilitator are vague, which presents a challenge, especially to graduate students and early-career professors. SI positions provide a unique environment to develop skills that encourage practical application in the classroom and for students to experience enhanced learning through exposure to new content. Through these methods, SI can better build students’ conceptual framework of the discipline, allowing them to “apply what was learned in new situations” and “learn related information more quickly” (Bransford et al. 2000, 17). An SI session acts as a space in which to build disciplinary knowledge while connecting lecture material to real-world examples, and while reinforcing SI leaders’ “own knowledge of fundamentals” and providing space for applied

review of course concepts (Latino and Unite 2012, 35). This unique position adds value to SI experiences for current graduate students and future geography faculty. As pedagogical thinking increasingly shifts from one-way lecturing to active learning, graduate students should likewise seek out opportunities for pedagogical training with similar learner-centered practices; an SI position is one such pathway.

SI programs build on the important work that other geography-specific initiatives have begun for the professional development of graduate students. These programs acknowledge the varied challenges that face early-career faculty in the discipline: “changing student demographics, new classroom technologies and course delivery systems, increasing reliance on part-time and adjunct instructors, shifting tenure policies, and pressures to hold higher education institutions more accountable for the quality of teaching and learning” (Solem and Foote 2009, 3). These are real trials for current graduate students aiming for academic careers, and extensive classroom and pedagogical training is becoming all the more necessary to succeed. Geography graduate students and departments would benefit from connecting to SI programs on their campuses and adding introductory geography classes to those programs.

Notes

1 Scholars have extensively documented SI and similar programs with peer leadership for their role in student success (e.g., Jacobs and Stone 2008; Ning and Downing 2010; Kuh et al. 2011). For instance, Ning and Downing found that “supplemental instruction” had a significant effect on academic performance, both directly and indirectly via enhancement of [undergraduate] student learning competence” (Ning and Downing 2010, 921). The U.S. Department of Education also commended SI as an exemplary higher-education academic-support program (Latino and Unite 2012); they detailed and analyzed these claims to a greater degree in 1992 (Martin and Arendale 1993; U.S. Department of Education 1995).

2 The SI model has been successfully implemented across the United States in numerous public and private universities (Martin and Arendale 1992). SI courses are growing in popularity and implementation, with more than 1,500 tertiary institutions across twenty-nine countries having implemented the program as of 2009 (Martin 2009).

3 The time commitment for these one-hour training sessions is comparable to or possibly less time-consuming than weekly GTA meetings, especially in the case of courses with multiple GTAs. Additionally, grading is minimal in an SI position

compared to typical GTA responsibilities.

4 This flexible classroom structure can be an asset to an SI leader, but it also comes with a caveat. While assuming a more facilitative role, SI leaders may have to struggle with misdirected expectations that they are acting as smaller-scale, less-qualified GTAs. Academic institutions must distinguish these roles from one another, not only to reduce the stress of SI instructors as they navigate their role but also to protect the status and funding of GTAs.

5 The learning cycle integrates the three phases of learning: exploration, conceptual invention, and discovery (see Allard and Barman [1994] for further description of the learning cycle in college education).

6 SI leaders can utilize the weekly one-hour training to brainstorm or finalize activities they have developed with the help of pedagogy experts.

7 While SI instructors do not typically work with the course professor in the same way that a GTA does, developing a relationship is of vital importance. In our experience, having the professor acknowledge the SI leader as a source of knowledge and having high in-class visibility gave students in our SI sessions assurance and confidence in our leadership. This visibility also increases awareness of SI programs for other students in the course.

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