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## **Who is the “public” when you make teaching public? Conceptions of audience in the scholarship of teaching and learning**

**Stanford T. Goto<sup>1</sup>**

*Abstract: This article considers how SoTL practitioners have addressed three types of audiences: personal, administrative, and discipline-based. The analysis draws on narrative data from a collaborative SoTL project at a community college. The findings are discussed in relation to broader trends across institutions and disciplines. It is argued that investigators should take into account the audience’s epistemology of teaching. This approach helps investigators to enter into the professional discourse of that audience. Five strategies are offered to help SoTL practitioners communicate effectively with audiences outside of their professional area.*

*Keywords: public teaching, classroom audience, discourse, epistemology*

We educators face many demands on our time: heavy teaching loads, promotion and tenure, publishing requirements - to name a few. Consequently, when we take the time to conduct teaching-related inquiry, we must be careful to design studies that yield the most benefit for ourselves, our students, and our profession. In calculating potential benefit, we must consider not only the intended outcomes of our scholarly work, but also the audiences who will review and employ our findings. In some ways, the most expedient approach would be to conduct investigations that are solely for our own consumption. However this sort of inquiry lacks a mechanism for accountability and dissemination. Ultimately, scholarly teaching becomes stronger and more widely useful when the work is shared with others (Bowden, 2007).

Whom should we address when we make our teaching public? This might seem like an obvious question, but, I would argue, the issue deserves further consideration. The notion of audience is both familiar and under-discussed among those who study teaching and learning. As Lucaites explains, “To address an audience is . . . to create a message that accounts for the character of a specific group of people who are imagined as the receivers of that message” (1999, p. 327). Quite often we assume that we are addressing an audience of disciplinary peers when we open our teaching to public scrutiny. Presumably, we contribute to “our collective knowledge about effective teaching and learning practice through . . . critical peer review” (O’Brien 2008, p. 2). When we conduct “scholarship of discovery” (Boyer, 1990) in our subject area, we are professionally conditioned to submit our work for review by other experts in our discipline. This may very well be the same audience that reviews our teaching-related scholarship. But this is not necessarily so. While scholarship of discovery tends to fit within recognizable disciplinary bounds, scholarship of teaching and learning exists in a hybrid space “at the crossroads of [the] institution and [the] discipline” to use Shulman’s phrase (2000, p. 12). Consequently, it is difficult to keep scholarship of teaching and learning confined within a discipline because the findings very often have extra-disciplinary implications at the institutional level. Given this

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likelihood, one would be wise to plan out how best to address audiences beyond one's disciplinary peers.

The trickiness of targeting one's audience became apparent to me as I co-facilitated a professional learning community in which participants conducted SoTL projects. While the investigators in this learning community intended to keep their projects focused, they found it necessary to address multiple audiences, which complicated the task of dissemination. These audiences fell into three broad categories: personal, administrative, and discipline-based. Each of these audiences had a distinct set of expectations that diverged in some circumstances.

This article examines how SoTL practitioners address these three audiences. My analysis draws on narrative data from my professional learning community, along with a review of literature. Central to this discussion is this question: How can scholarly educators present their teaching in ways that are comprehensible to personal, administrative, or discipline-based audiences? This challenge requires educators to consider the communicative expectations of those who review their work. I would suggest that each audience has a particular *epistemology*<sup>2</sup> of teaching, a way of interpreting and valuing what happens in instructional settings. This epistemology, in turn, shapes what the audience considers to be appropriate conventions of scholarly *discourse*.<sup>3</sup> Discourse conventions and epistemologies are compared across audiences. A central goal is to identify strategies for spanning discursive and epistemological differences to help SoTL practitioners to address their choice of audience(s).

## I. Study Background and Methodology.

The narrative portions of this article are drawn from my documentation of SoTL projects conducted within a professional learning community at Everett Community College in Washington State. For two years, an EvCC faculty member and I co-facilitated the Teaching and Learning Inquiry Lab (referred to in this article as the Inquiry Lab). The purpose of this learning community was to create a space where professionals at a public community college and a comprehensive regional university could collaborate in investigating issues of teaching and learning. The Inquiry Lab began with 17 participants, including faculty, administrators, staff, and graduate students (see Table 1). In general, individuals joined the Inquiry Lab because they wanted to engage in scholarly dialogue about teaching and learning. We met on a biweekly basis for six quarters to design and implement SoTL projects concerning student learning, teaching outcomes, or faculty development at EvCC.

As co-facilitator of the Inquiry Lab, I set out to analyze how participants approached the scholarship of teaching and learning. Most had little or no prior training in educational research methods. My objective was to document, not only the steps that they took, but also their evolving perceptions of scholarly inquiry. To do this, I used a process of narrative analysis (Riessman, 1993). I kept an audio journal which I used to record my reflections after each two-hour meeting. Periodically, I conducted group interviews with participants and administered questionnaires. In

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<sup>2</sup> Epistemology is the study (or awareness of) how knowledge is created and disseminated in particular areas of inquiry (Stanford Encyclopedia of Philosophy, 2005. See also Feldman, 2003, Fumerton, 2006). The epistemological task for SoTL practitioners is to analyze how we come to know what we think we know about phenomena in the classroom. This is the essence of what Hutchings and Shulman (1999) describe as "going meta."

<sup>3</sup> Bazerman (1994) points out that every research discipline codifies its knowledge through its use of language. Each discipline, in other words, has its own discourse. Gee defines discourse as an "association among ways of using language, of thinking, and of acting that can be used to identify oneself as a member of a socially meaningful group" (1989, p. 18).

addition, some meetings were audio-recorded and transcribed. Drafts of my notes and writings were shown to participants, who were encouraged to provide feedback. Using a multi-stage coding process, I sorted the narrative data into inductively derived categories defined by common themes (Miles and Huberman, 1984). To maintain the confidentiality of individual participants, I removed real names and, in some cases, listed the person's disciplinary affiliation, instead. The process of data analysis revealed frequent references to audience. Investigators in the Inquiry Lab grappled with how they would present their scholarly work, and this often depended on whom they intended to address. Their comments regarding audience generally fell into these categories: personal, administrative, or discipline-based. Once I identified these categories, I turned to the SoTL literature to see how other investigators addressed these audiences.

**Table 1. Inquiry Lab Participants.**

EvCC Faculty (8)	EvCC Administrators and Staff (5)	WWU Participants (4)
Admin. Justice (1) Biology (1) Chemistry (2) Math (1) Psychology (1) Reading and Study Skills (2)	Business (1) Facilities (1) Institutional Research (1) Instructional Tech. (2)	Faculty (1) Graduate Students (3)

## II. Personal Audiences.

### A. Existing Scholarship.

Presumably, those who study their own teaching do so to improve their pedagogical practice. Every teaching situation is unique; therefore, it is important for educators to determine what works best in their particular setting (Mettetal, 2001). This is the aim of scholarly teaching (as distinct from scholarship of teaching - see Bowden, 2007). Scholarly teachers make informed decisions by systematically assessing the outcomes of instructional practices. This is also the focus of self-study research, a term sometimes used as a generic synonym for SoTL (Louie, Drevdahl, Purdy, and Stackman 2003). One might argue that the audience for self-study is primarily intra-personal (i.e., directed to the person conducting the inquiry). The context-specific nature of self-study ensures that the resulting knowledge is relevant and applicable. However, the potential downside is that the knowledge may be idiosyncratic. In Bakhtin's terms (1982), the discourse of self-study is monologic (i.e., monologue directed to oneself). Self-study findings might be generalizable; however, efforts to glean broader significance are typically *post hoc*, which might limit the usefulness of the findings beyond the investigator's classroom. Louie et al. contend that these challenges "reflect an underlying epistemological question about whether researchers can create useful knowledge when they are their own research subjects" (2003, p. 157).

Proponents of SoTL argue convincingly that scholarly inquiry should not be limited to monologue. This argument underlies the discussion of scholarly teaching versus scholarship of teaching (Bowden, 2007, Shulman, 2000). One distinction has to do with the ultimate uses of scholarly knowledge. Scholarly teachers focus on generating findings for their own use, whereas

SoTL practitioners work on generating and disseminating findings. The added step of dissemination requires SoTL practitioners to frame their findings within some context (Kreber, 2001). Investigators must explain how conditions in a particular learning environment are situated in broader patterns, structures, or historical trends. While findings need not be generalizable, they must at least be comprehensible to audience members. Contextualized discussion creates a bridge between the specifics of one person's classroom and phenomena that are recognized by other educators. By contextualizing their analysis, SoTL practitioners move beyond what Louie et al. refer to as "emic knowledge" of scholarly teaching to create "a more widely shared etic idiom" (2003, p. 156). Etic knowledge, by definition, is shared understanding generated by outsiders (or in the case of SoTL inquiry, by the investigator in collaboration with outside observers). The discourse of SoTL is dialogic (see Bakhtin, 1982) in as much as practitioners are engaged in dialogue with one another. In this respect, audiences for scholarship of teaching are inter-personal, as well as intra-personal.

### *B. EvCC Inquiry Lab.*

Participants in the Inquiry Lab wanted to address both types of audiences (inter-personal and intra-personal). Initially, most had their own agendas to learn something that would benefit them in their individual classrooms. In general, faculty wanted to investigate effective teaching methods, as illustrated by a chemistry instructor's comment: "I want to gain greater insight into how what I do in the classroom either helps or hinders my students' learning processes. . . . I want to learn a [teaching] method that I can use for further exploration." Participants also wanted to learn about methods of scholarly investigation. As one instructor put it, "I wanted to see if I can conduct classroom research for my own consumption. How can I become a better instructor?" Whether they were interested in research or teaching methods, participants saw themselves as the producers and consumers of their own work. They saw scholarly investigation as a way to interrogate their beliefs and develop new skills. In this respect, the participants were engaged in their own intra-personal discourses.

This is not to say, however, that they wanted to work in isolation. On the contrary, the opportunity to collaborate with peers in other areas was a strong motivator for many. One faculty member put it succinctly: "I want to work with colleagues in a process of inquiry." Most saw this as a welcome opportunity to talk outside of regular departmental circles about issues of teaching and learning. In addition, many appreciated having collegial support as they waded into the unfamiliar waters of teaching-related scholarship. Participants were eager to engage in inter-personal dialogue. This was especially appealing to newer instructors, who appreciated "networking and meet[ing] new people." The interaction was not just for social purposes. Many saw inter-personal dialogue as a necessary component of scholarly inquiry. "I don't know how you can do research and expect to be able to do it in a vacuum," explained one participant. "It just seems to me that it is something that you automatically are going to share."

A central challenge for Inquiry Lab participants was to establish a "shared etic idiom" (Louie et al. 2003) to talk about scholarship and teaching. The term "research," for example, proved to be a highly contested term. Some felt that "research" referred only to analytical procedures that could be strictly controlled and replicated. In their view, the notion of social research was nearly an oxymoron. Others took a broader view, defining research as any sort of systematic inquiry. An instructor in the latter camp commented, "I never thought of anybody having trouble with the idea of measuring people." Working through these differences was

painstaking and, in some ways, frustrating for participants. At the same time, some saw benefits to the process, as evident in one administrator's comments:

We are always talking to others who share the same ways of knowing. So when we have a different view, someone says, "No, this word means 'X.' All of a sudden you go, "Oh well, I didn't realize I was inflexible in my understanding of my use of that word."

This example illustrates some benefits and shortcomings of dialogic exchange in a heterogeneous group. As one participant put it, intellectual "side trips" that spontaneously emerge from scholarly discussions quite often generate insights that are more profound than what one might achieve working in isolation. However, the process of repeatedly proposing, discussing, and revising one's scholarly work can be circuitous. This can be frustrating for educators who want to achieve a specific outcome such as refining an instructional technique. The process can be especially challenging when the conversation occurs among colleagues who don't share a common scholarly idiom. In some circumstances, an investigator might have to re-invent the wheel, justifying basic concepts that are commonly accepted in her or his professional area. It is important for SoTL practitioners to be patient with miscommunications and apparent missteps. These may be opportunities for serendipitous discovery.

### **III. Administrative Audiences.**

#### *A. Existing Scholarship.*

It is becoming increasingly common for colleges and universities to offer supports for the scholarly study of classroom practice. This has been a major area of emphasis for the Carnegie Academy for the Scholarship of Teaching and Learning (CASTL). Among other things, CASTL promotes "teaching academies" to institutionalize and sustain teaching-related scholarship (Hutchings and Shulman, 1999). As administrators build supportive infrastructure, they become an increasingly important audience for SoTL work. Many recognize the potential for teaching-related scholarship to benefit classroom practice. At the same time, they see broader implications for documenting teaching and learning outcomes. These views are suggested by K. Patricia Cross (1996), who makes an epistemological distinction between "assessment for accountability" and "assessment for improvement."

To some extent, administrators are concerned with the documentation of teaching and learning outcomes for purposes of accountability. Cross (1996) traces this concern to the 1980s when *A Nation at Risk* (National Commission on Excellence in Education, 1983) and other reports prompted policy makers to call for the establishment of standards in public education, coupled with increased scrutiny of educational outcomes. Fortunately, postsecondary systems did not rush to adopt a top-down approach to enforcing educational standards, as was the case in K-12 education. However, the language of accountability and outcomes-based assessment filtered into the administrative discourse of higher education during the 1990s. This is evident in the ERIC database. Of all ERIC submissions using "accountability" and "postsecondary" as keywords, 75 documents were published between 1985 and 1989, compared to 128 published between 1990 and 1994 (a 70 percent increase). The literature suggests that postsecondary administrators are under some obligation to provide evidence of learning outcomes to outside

stakeholders, such as state government (Washington HECB, 2006), industry (Aragon, Woo, and Mavel, 2004) and parents (MacAllum and Johnson, 2002). At the same time, administrators recognize that faculty are typically less than eager to participate in externally mandated measures of accountability (Litterst and Tompkins, 2000). To promote faculty buy-in, some have suggested linking institutional assessment with scholarship of teaching and learning. Litterst and Tompkins (2000) argue that faculty should be rewarded for taking scholarly approaches to assessment, just as they should be rewarded for taking scholarly approaches to the study of teaching and learning. A case study by Goto and Davis (2009) suggests that some programs have used institutional assessment funds to sponsor learning communities engaged in teaching-related scholarship.

While administrators are concerned with accountability, they are also thinking about how the documentation of teaching and learning can ultimately lead to better instruction. Cross (1996) predicted that assessment for purposes of improvement would eventually subsume the goal of assessment for accountability. "I believe that the power to drive education will shift back onto the campus," observed Cross. "People will conclude that good strong education is run from the inside - not from outside the institution" (p. 403). Litterst and Tompkins similarly argue that instructional assessments should be used "not to punish teachers, but to aid their critical reflection" on teaching (2000, p. 8). These principles clearly align with the purposes of teaching-related scholarship as articulated by many advocates (e.g., Boyer, 1990, Hutchings and Shulman, 1999).

This is not to say, however, that a new age of scholarly assessment has supplanted the old. Huber reminds us that those who engage in teaching-related scholarship still face an uphill battle in trying to get their work recognized by their institutions: "[T]hese extraordinary efforts are not always rewarded when it is time for a tenure, promotion, or merit review. . . . Scholarship may be changing, but evaluation continues to reward most readily work that conforms to older norms" (2004, p. 2). Huber's comment raises an important point about potentially conflicting interests among administrative audiences for teaching-related scholarship. On one hand, many administrators would be inclined to reward faculty who use scholarly inquiry to identify and rectify challenges in their classrooms. At the same time, under traditional criteria for promotion and tenure, they might feel compelled to penalize faculty who document classroom problems.

### *B. EvCC Inquiry Lab.*

The Inquiry Lab caught the attention of administrators as well as faculty at EvCC. Of the thirteen original EvCC participants, five were administrators or staff (see Table 1). Several saw the Inquiry Lab as an "opportunity to interact with faculty" and a chance to "learn something about research." More broadly, some were curious about how this group would address the institutional mandate for outcomes assessment. The college encourages departments and individual instructors to implement assessments to determine if students are meeting the college's six "Core Learning Outcomes" (<http://www.everettcc.edu/programs/index.cfm?id=5548&linkFrom=Search>). According to one participant, it has been difficult to get instructors involved with the assessment of learning outcomes. The Inquiry Lab, in his view, was one way to foster sustained faculty involvement. "I think the purpose of the lab was to expand the college focus on outcomes assessment," he explained. "If regional creditors say we are not doing a good job of this, [the Inquiry Lab] is an illustration of something we are doing that supports assessment. That becomes an institutional evaluation issue."



The participating administrators had a distinct impact on the direction of Inquiry Lab projects. This was particularly evident in one project that examined students who were deemed “under-prepared” for regular college-level work. Originally, the participants wanted to examine students in their own classes. The agenda soon expanded, in part, through the urgings of one of the participating administrators. This individual suggested that the group add a college-wide survey of faculty and staff. The idea soon caught on with group members, who began to think of this project as service to the college. “We started looking at it as sharing the classroom research with those (on campus) here,” explained one developmental education instructor. “[We started to think] ‘That’s wonderful information. Why don’t we share that with administrators or with the institution?’”

As Inquiry Lab participants adapted their projects to address administrative audiences, they had to deal with expanding goals and expectations. Originally, the group studying under-prepared students planned to gather data in several classes taught by group members. The prospect of reporting to executive administrators led members to consider whether they should collect data from more classes to increase the study’s validity. They wondered whether it was necessary to make the sample more broadly representative of the entire student body. While no administrators demanded or expected this, group members began to see this project as a *de facto* institutional assessment. This prospect began to feel a bit daunting for some. As one group member put it, “Our eyes got bigger; the pie got bigger, and we couldn’t eat it all.”

Another challenge faced by Inquiry Lab participants had to do with confidentiality and data integrity. Two of the projects involved collecting data from fellow instructors. In both cases, the investigators felt they should take care in revealing personally identifying information, particularly because supervisors might review the findings. The investigators realized that maintaining anonymity would be difficult in a small college. For example, using job titles without real names (e.g., “an oceanography instructor”) might leave a study participant identifiable if she or he were the sole faculty member in an area. The investigators decided that, whenever possible, they would report findings in aggregate so as to minimize individual exposure. They were also concerned about how questions of confidentiality might affect the way peers provided information. One Inquiry Lab member who was studying faculty participation in his program noted that participants in his study would most likely realize that their “anonymous” survey responses would be identifiable because the sample size was small. Consequently, he surmised, participants would be likely to “tell [him] what they think [he] wants to hear.” To minimize this possibility, he made it clear to participants that their information would be reviewed by an outside investigator (not associated with EvCC), who would aggregate data and remove identifying information.

In some respects, the EvCC example does not typify concerns raised in the SoTL literature regarding administrative issues. Inquiry Lab participants were not subject to the kinds of scholarly expectations described by Huber (2004). As community college educators, they were not required to conduct traditional research as defined by universities. Their scholarly output was not scrutinized for purposes of promotion and tenure. In this setting, administrators were not concerned about using scholarship of teaching and learning for purposes of accountability. The administrative role, however limited, was to support and possibly collaborate in assessment for improvement, to use Cross’s term (1996).

While EvCC is not representative of all institutions, the Inquiry Lab does yield some useful insights for SoTL investigators who wish to address administrative audiences. This example illustrates that administrators can play constructive roles in promoting teaching-related

scholarship, either as consumers, facilitating agents, or co-investigators. However, once administrators take on these roles, the focus of scholarly inquiry may very well change, as it did in the project examining under-prepared students. Traditionally, SoTL investigations have focused on the classroom as the unit of analysis. In other words, the analysis and findings are typically self-contained within individual classes. Administrators who read or conduct teaching-related research are likely to look for a unit of analysis that extends beyond the individual classroom. Administrative interests typically focus on departments, divisions, or institutions. Enlarging the unit of analysis may require investigators to consider sampling methods and other methodological issues that influence the validity of findings across multiple classes.

Taken in this direction, teaching-related scholarship begins to look suspiciously like traditional institutional research. Investigators must decide whether this sort of work should be classified as scholarship of teaching and learning or whether this falls within another scholarly genre in Boyer's taxonomy (1990). Bowden explains:

With the focal point on developing scholarly activity, the approach has been to establish empirical processes, design assessment methods, develop models, and appraise them as scholarship. . . . Thus scholars have intentionally, or unintentionally, redefined teaching as the discovery domain. Teaching has, essentially, become another research product. (2007, p. 9)

It would be sadly ironic if, in the process of making SoTL appear more legitimate by traditional research criteria, investigators quietly abandoned principles that make scholarship of teaching distinct from scholarship of discovery.

#### **IV. Discipline-Based Audiences.**

##### *A. Existing Scholarship.*

Postsecondary teaching is deeply informed by the academic disciplines. Indeed, some observers argue that instructional knowledge is best interpreted through the lens of the academic field in which that knowledge is applied (Trigwell, Martin, Benjamin and Prosser, 2000, Bowden, 2007). As Prosser puts it, "The scholarship of teaching and learning should be about individuals and groups . . . within disciplines engaged collegially in working to improve student learning in the disciplines" (2008, p. 1). An underlying assumption is that teaching methods differ from one discipline to another because educators in each discipline embrace a distinct set of beliefs and values (i.e., an epistemology) regarding instruction. Not surprisingly, proponents of discipline-specific investigation tend to advocate disseminating one's scholarship in discipline-specific venues. These include scholarly meetings (Hutchings and Shulman, 1999), disciplinary journals (Louie et al., 2003), and academic conferences (Mettetal, 2001). In each of these venues, producers and consumers of scholarly work are brought together by a shared academic affiliation that may be national or global.

In this respect, disciplinary audiences tend to differ from inter-personal and administrative audiences. Personal audiences tend to be based in the investigator's institution (e.g., Sperling, 2003). The same is often true of administrative audiences (e.g., Litterst and Tompkins, 2000) even though administrators have their own national venues, such as the American Association for Higher Education and Accreditation. In addressing disciplinary

audiences, investigators assume that shared disciplinary knowledge will unify the scholarly discourse, whereas those who address personal or administrative audiences tend to rely more on shared institutional knowledge.

What happens if the discipline as a whole does not place a high priority on the scholarly study of teaching? This is an on-going challenge for those who address disciplinary audiences. Louie et al. (2003) note that faculty who are not in education departments are likely to face skepticism in trying to convince disciplinary peers that the study of one's own teaching is not a weak substitute for "real" research in one's subject area. Hutchings and Shulman (1999) similarly warn that scholarly educators are likely to face doubts about methods of investigation and rules of evidence that are not deemed credible in their discipline. Weimer puts it bluntly, "If the standards of the discipline are used to assess practitioner scholarship, it will never measure up" (2008, p. 3).

Some observers go further in critiquing discipline-based approaches to SoTL. A common argument is that disciplinary segregation unnecessarily balkanizes discussions of teaching and learning. While Kreber acknowledges the contribution of discipline-specific inquiry, she argues that "it is equally important that SoTL engage with broader agenda" (2001, p. 1). Weimer (2008) points out that broadly applicable instructional approaches and research methods will receive limited exposure if they stay within disciplinary venues. Furthermore, she argues, a restricted inflow of ideas can also hurt faculty in a disciplinary cloister. This can lead to "a good deal of wheel reinvention," as she puts it (p. 1).

There is an alternative (or perhaps a supplement) to the discipline-based model of scholarly dissemination. Scholarship of teaching and learning is emerging as a discipline in its own right. This is evident in the existence of multiple journals (e.g., *JoSoTL*, *IJ-SoTL*), professional conferences (e.g., ISSOTL, ICTR), and organizations (e.g., CASTL) in multiple countries. In these venues, educators are not obligated to justify the legitimacy of teaching-related scholarship. This has already been established as part of the shared epistemology of the field. It would be fair to say that participants have established an inter-disciplinary discourse of postsecondary teaching.

### *B. EvCC Inquiry Lab.*

The Inquiry Lab was inter-disciplinary by design. Faculty and staff from all areas of the college were invited to participate. Some participants had years of experience talking to colleagues in other disciplines about college teaching. Others were relatively new instructors who wanted to explore teaching from different perspectives. While participants were eager to work across disciplines, they came to the Inquiry Lab with different expectations of what the dialogue would produce. "It seemed like we were going down two different paths," observed one instructor. Some wanted the inter-disciplinary work to yield insights that would be useful across subject areas. Meanwhile, others wanted to tailor the work to their own disciplines. As one participant put it, the latter group was thinking, "How is this going to help us conduct or improve teaching in that particular area?" One instructor noted a tension between inter-disciplinary objectives and discipline-specific objectives. This, he observed, is a perennial challenge for any faculty group that attempts to work across subject areas: "If you narrowly define a topic (in a single discipline), people (outside of that discipline) self select out. If you define it generally to include a cross-disciplinary audience, then you have to reckon with the confusion that comes from people working at different levels."

The “two different paths” became apparent as participants discussed how they would disseminate findings. Some faculty wanted to conduct studies that they could present to their respective departments. In addition, there was some talk of publishing findings in academic journals. Either way, faculty were concerned about how peers in their discipline would view their scholarly work. This was particularly a concern among science instructors, who worried that findings from uncontrolled studies would have no validity in the eyes of other scientists. The best solution, in their view, was to design experimental studies that controlled out confounding variables. Meanwhile, other participants wanted to present findings to general audiences of college educators. Members of the latter camp felt that interdisciplinary audiences would focus more on the research findings rather than on the methodology. They surmised that experimental designs that focused narrowly on one independent variable would not appeal to a wide range of readers. Consequently, they opted for naturalistic designs that described learning broadly.

To some extent, this methodological split reflected epistemological differences between disciplines. A member of the naturalistic camp put it this way: “I think something that attracted me to social sciences was the messiness of human nature. We can analyze it, but it is really messy compared to trying to measure things in a vacuum the way hard scientists are used to.” However, this was not a strict division between hard scientists on one side and everyone else on the other. Chemistry and math instructors joined the inter-disciplinary group and eventually went along with a naturalistic methodology, in part, to support a scholarly project that would appeal to inter-disciplinary audiences.

This example gives reason for optimism that crossover can occur between discipline-based and inter-disciplinary scholarship. In this instance, the math and chemistry instructors never abandoned their intentions to bring useful knowledge back to their disciplinary colleagues. Rather, they deferred this goal as they collaborated with peers from other disciplines. In the process, they expanded their understanding of scholarly inquiry into teaching and learning. In effect, this example is a microcosm of what is happening at the SoTL field. Discipline-based scholars contribute to the inter-disciplinary body of knowledge, and they take this understanding back to their disciplinary areas. It may be that the choice between doing discipline-based scholarship or inter-disciplinary scholarship is an artificial dichotomy.

## **V. Strategies for Addressing Audiences.**

Carrying out a SoTL project is not an incidental task. It takes a certain investment of time and resources. Typically, the most efficient approaches involve addressing a singular audience in one’s institution or field. A considerable advantage is that the investigator is already fluent in the professional discourse of her immediate peer group. She does not have to invent a language, as it were, to explain commonly understood concepts regarding teaching and learning. Addressing an audience of immediate peers is not always desirable or possible, however. Given the effort invested in the project, one would be wise to consider addressing audiences beyond one’s immediate circle in order to achieve broader goals. Generated by Inquiry Lab members, the following recommendations will help investigators to approach new audiences successfully:

*Make a deliberate choice about which audience(s) will be addressed.*

In the initial planning stages of a SoTL project, investigators should contemplate, not only what they want to accomplish, but also who will review the work. Weigh the potential benefits against the effort needed to communicate with this/these audience(s). If

time and resources are limited, consider a modular approach in which you conduct a limited project for presentation to a limited audience and, some time in the future, you customize the presentation for other audiences. This is likely to be more efficient than starting with a one-size-fits-all presentation that goes to many audiences.

*Consider how each audience currently understands the subject matter.*

Initial reconnaissance is an integral step in choosing one's audience(s). This could be as simple as talking informally to one or more members of the audience. A more involved approach would be to review similar scholarship that is well-regarded by this audience. The purpose is to tease out assumptions and attitudes held by audience members. If the work is targeted to more than one audience, consider whether the views of those audiences are sufficiently similar that they can be addressed in the same presentation. If they are not, consider developing separate presentations that are tailored to each audience.

*Define terminology and assumptions.*

As you develop your documentation, be sure to explain the assumptions that underlie your analysis. What led you to focus on "X" rather than on "Y" or "Z"? Why did you choose this instructional approach or that research methodology? This is sort of explanation is familiar to anyone who does scholarship of discovery. What may be unfamiliar is the need to explain assumptions about teaching and learning that you assume are common knowledge. Keep in mind that your epistemology does not necessarily match that of your audience.

*Make the familiar unfamiliar.*

Systematic investigation forces us to step outside of our everyday routines, giving us a fresh vantage point from which we can scrutinize beliefs and actions that we normally take for granted. Valuable and surprising insights often emerge. It is difficult enough to convince ourselves that questioning the "obvious" is a worthwhile venture. It is even more difficult to convince a skeptical audience. In addressing your audience, provide a tactful rationale explaining why you are interrogating conventional knowledge.

*Create a space for mutual discovery.*

In traditional approaches to research, the investigator acts as a scholarly expert who addresses other scholarly experts. The investigator presents new knowledge to peers and those peers, in turn, judge the veracity of the claims. In the scholarship of teaching and learning, the process of making one's teaching public is similar but, perhaps, more nuanced. While it is common for educators to present their practice for others to consider, it is potentially awkward to proselytize directly, especially when addressing educators outside of one's area. A more fruitful approach may be to present findings and limitations (as in any research tradition) and then to invite audience members to respond, drawing on their subject-area expertise to further shape the ideas.

A member of the Inquiry Lab offered insightful commentary about the importance and the challenge of discussing college instruction with peers who are outside of one's immediate

professional circle. In his view, the need to address diverse audiences is often an unavoidable consequence of working in a teaching institution:

There is a symbiotic relationship between me and my program and this [institutional] place. . . . There is constant ebb and flow across those boundaries. There is constant code shifting going on. . . . There is confusion of language and meaning that creates institutional discourse. There are disagreements and arguments. We are talking across purposes. And . . . all of those dimensions are happening simultaneously.

While his description may sound daunting, this faculty member was optimistic. The confusion of language and meaning, he suggested, creates rich opportunities for professional growth. Educators must explain their beliefs and practices to peers who have differing perspectives. In the process, all parties might gain insight. This is a tantalizing promise in the broader practice of scholarship of teaching and learning.

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## **Narrowing the teaching-research gap by integrating undergraduate education and faculty scholarship**

**Steven M. Toepfer<sup>1</sup>**

*Understanding and enjoying research can be facilitated by doing research with those we teach. By engaging undergraduate students as research participants, and converting a classroom assignment into a research project, the present author was able to narrow the teaching-research gap. 'Letters of Gratitude' were written to explore the benefits of being a benefactor and highlight important course content. Results indicated that students enjoyed participating in the process and showed increased interest in research. In addition, statistical group differences in subjective well-being were found between students who participated in the experimental and control groups.*

*Keywords: research-teaching, integrating research and teaching, role, education, letters, writing, gratitude.*

“What’s bread in the bone, will stick to the flesh.” -Aesop

A simple method is proposed in this paper for integrating research and teaching in an academic climate that too often compartmentalizes these faculty roles. The goals of this approach are three fold; 1) create a vehicle for teaching class concepts, 2) improve undergraduate knowledge of research, and 3) facilitate faculty scholarship. The undergraduate experience and student learning have been ranked as two critical faculty responsibilities that are best addressed through the channels of teaching and research (Fairweather, 1996, 2002; Marsh and Hattie, 2002). The regulation of time allocated to these differing roles is one of the most salient issues for faculty in higher education. For undergraduates, the nature of faculty work (especially research) is often shrouded in myth, opinion, and conjecture (Fairweather, 2002). By personally engaging students in research the present author offers more than a simple “two birds with one stone” approach, and attempts to synchronize the flight path in order to provide a shared experience. Employing undergraduates as research participants is by no means a new idea but integrating course content with research endeavors may cultivate student interest, improve understanding of concepts, and rapport between student and faculty.

The bifurcated teaching-research role of the University professor could be considered a delicate balancing act. That dramatic description illustrates the common struggle of integrating two very different aspects of the career. The inherent differences are prone to compartmentalization but when integrated provide a rich experience. This expectation may be reflected in advice from faculty mentors and administrators. Vroom (2007) reported that a Dean once advised him, “Just focus on your research and teaching will take care of itself. You can’t be a great teacher without also being great in research.”

The hereafter named teaching-research gap can affect students, leading them to believe that professors do nothing beyond teaching, take Fridays off, and work only nine-months a year.

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The present author contends that by stepping out of the dimly lit LCD office to shine the light of research in the classroom, faculty roles become more transparent, research is better disseminated, and student's educational experience are improved. In this article, the process of "converting" a student assignment into a research project is described. The proposed outcomes of engaging student-participants included, a) provide a hands-on example of an important class concept, b) engaging their curiosity about research, and c) provide them detailed feedback about the research process to spark interest and expand understanding.

## **I. Linking Undergraduates to the Research Process.**

### *A. Through Active Learning.*

Active learning is "learning by doing" and the benefits are substantial, especially when participants feel as if they are personally growing as a result of the learning experience (Longmore, Jarboe and Dunn, 1996). Such growth includes increased interest, motivation, and improved interpersonal skills as well as an increased ability to appreciate and consider multiple perspectives (Wagenaar, et. al., 2003; Metcalfe and Matharu, 1995; Jacobs, Power and Loh, 2002; Kiki, 2005). Active learning projects include experiences where students are involved in the discovery of knowledge, where the development of skills is emphasized, and where students are actively engaged rather than listening (Johnson *et al.*, 1991). Others have called active learning problem-centered learning, collaborative learning, and service-learning (Weinert, Schrader, and Helmke, 1990; Bonwell and Eison 1991; Rangachari 1996).

Students' confidence in their research abilities has been found to change during undergraduate years (Davis and Sandifer-Stech, 2006). A vehicle for improving this confidence is involvement in practical methods inherent in active learning. Direct participation in discovery (research) has been shown to improve learning and motivation in the same powerful way it motivates academics – through engagement (Brew, 2003). Garde-Hansen and Calvert (2007) referred to this type of active learning as research based learning for the express purpose of creating a research culture in the undergraduate curriculum.

According to Garde-Hansen and Calvert (2007), the higher order skills of evaluation, synthesis, and reflection that help motivate faculty are often absent from undergraduate curriculum. Linking undergraduates to these processes should be a goal of educators, therefore, exploring methods to forge these connections for students should be seriously considered by faculty. Garde-Hansen and Calvert (2007) refer to this as a managed taste of research-based learning that employs students to be part of research and perceive it as an important holistic approach to a curriculum. Schwartz (1995) supports this process as one that allows cognitive communities to evolve. Designing space in the curriculum for the emergence of a research community, even if that community is only evident for the briefest of moments, can yield important results (Garde-Hansen and Calvert, 2007).

The active research-based approach embeds an experience beyond the typical nuts-and-bolts of how to do research, something students will likely receive in a research method class. Weinert, Schrader, and Helmke (1990) draw attention to traditional research skill development in undergraduate students as a disjointed practice that usually includes one of two approaches: 1) a one-shot course approach, separate from the content courses and in the form of a methodology course (Payne, Lyon and Anderson, 1989; Weiss 1987), or 2) a requirement to do research, limiting the practical ability to use this knowledge in real world settings (Schmid,

1992). According to Weinert et al. (1990), students have reported that these classes are difficult and irrelevant; the authors suggest that research skills be taught actively, in all classes, thus shedding the back hall isolation of university academics. The approach presented in this article coincides with Weinert et al. (1990) but provides a third option to the traditional models for undergraduate research education. It is an initial step to integrate research into the undergraduate experience by making faculty research more transparent and enjoyable.

### *B. Through Deep Learning.*

Active learning is intended to puncture the surface approach or the typical reproduction of material studied through memorization or routine procedures (Dart, Burnett, Boulton-Lewis, Campbell, Smith and McCrindle, 1999). Deep learning is characterized by seeking meaning and understanding of class material through elaborating and transforming the material (Biggs, 1989; Marton and Saljo, 1984). This method is associated with constructivist teaching (Dart, 1997) which emphasizes that learners actively construct knowledge for themselves through process. Compared to students in surface approach education, those engaged in deep learning reported the classroom as more personal (in regard to relationships with the teacher), more immersive, and felt the environment encouraged inquiry strategies (Dart et al., 1999).

According to Dart et al. (1999) students desire more personalization in their learning environments, more active involvement in their education, more opportunities to make decisions and have control over their learning, and more emphasis on the use of inquiry strategies for problem solving. The authors conclude that it is beneficial to create learning environments in which students' feelings are considered. Guided by this recommendation the "letters of gratitude" assignment was converted into a research project. Expressive writing would link each participant through feelings of gratitude, requiring them to connect with others through vital engagement. Expounding on personal gratitude was intended to swell curiosity and embed class concepts in a meaningful way.

### **III. Student Exposure to Active Faculty Research.**

In an investigation for the advancement of university learning and teaching-research relations, Trigwell (2005) reported that contact with active scholars was a powerful and positive influence on students. Over 72% of undergraduate students at the University of Oxford agreed that they benefit from contact with active scholars, and less than 7% disagree. When students feel that they benefit more, they more frequently report an adoption of a deep approach to their learning, are prone to experience satisfaction with their courses, and exhibit a higher quality of learning (Trigwell, 2005).

### **IV. Faculty and Programmatic Benefits.**

According to Davis and Sandifer-Stech (2006) a serious dilemma facing many applied fields, from medicine to psychology to family studies, is the research-practice gap (Addis, Wade, and Hatgis, 1999; Chambless and Ollendick, 2001; Greenberg, 1994; Lavee and Dollahite, 1991; Willinsky, 2000; Wolfe, 1999). For the instructor-investigator it is a practice that amounts to the search for synergy, increased conscientiousness and time management.

Typical faculty concerns might revolve around increased preparation for such projects. However, the process is simple in the sense that such projects may lead to publication, reducing the typical teaching-research tug-of-war nature. It should also be of no small consequence that learning should be facilitated not only by the students but for the instructor. If research is already part of one's agenda, it is a matter of finding topics that fit with one's program of research and the curriculum.

## **V. The Project.**

The assignment was called "Letters of Gratitude" and involved a short letter writing campaign consisting of three letters to be mailed over the course of the semester, each about 2-weeks apart. Letters had to express gratitude toward a real person. The letters could not be trivial "thank you" notes for a gift.

The research project was constructed for an upper division, semester-long course (15-weeks) called Building Family Strengths offered by a Human Development and Family Studies department at a Midwest University. This three credit hour course has strong themes of positive psychology, resilience, and the strengths perspective. One of the assignments was based on a central course theme – increasing wellness and quality of life through engaging others. A chapter in one of the required course text books, "Doing well by doing good: Benefits for the benefactor" (Piliavin, 2003, pg. 227), distilled this broad theme into a focused discussion on the dual-sided advantages of reaching out to others in the form of volunteer work, vital engagement, community service, and well-being. The Letters of Gratitude project was a hands-on and process oriented method for improving, arguably, one of the most important aspects of the Human Development and Family Studies discipline – quality of life. The literature points to several key concepts such as altruism and kind acts as a source for improved mood or happiness (Lyubomirsky, Sousa and Dickerhoof, 2006), self-concept (Harris, 1977; Eccles and Barber, 1999), and subjective well-being (Pennebaker, 2004; Lepore and Smyth, 2002). The Letters of Gratitude assignment focused on three qualities of subjective well-being (SWB): happiness, life satisfaction, and gratitude.

By design, the assignment required active engagement via writing and mailing the letters to real people. In problem-based learning, activities center on a "problem" or "topic" that students work to solve (Wilkerson and Gijsselaers, 1996). The Letters of Gratitude assignment demonstrated how to improve well-being in concrete ways. The assignment also illustrated the difference between indirect and direct sampling, a central theme in the literature on volunteer work as a method to improve health for the volunteer.

The assignment contained some collaborative qualities but those were limited to doing the project as a class and receiving detailed feedback about their effort during the debriefing. Service-learning involves active learning projects that are beneficial to the community. In this project, service-learning was restricted to the benefit of the three recipients of the letters. Each of these criteria can be used to teach and integrate teaching and research for students. The Letters of Gratitude assignment was designed to tap these deeper constructs in the aforementioned ways. Additionally, this project was implemented as an initial step to expose undergraduates to research in a digestible way that might enhance the perception of faculty scholarship.

The intent was to explore written expression and vital engagement as a vehicle to improve author well-being – benefits for the benefactor. The desired outcome would be

improvement that is reflected quantitatively (repeated measures analysis on factors of well-being: happiness, life-satisfaction, and gratitude) and qualitatively (participant feedback).

## **VI. Hypothesis.**

Writing letters of gratitude was hypothesized to increase important qualities of well-being: happiness, life satisfaction, and gratitude. Improvement in these domains would continue to improve with practice and sustained letter writing, an unexplored question in an otherwise burgeoning literature on expressive writing. It was specifically hypothesized that writing letters of gratitude would increase well-being in two ways. First, all groups would improve over time with continued letter writing. The within groups expectation would be based on change compared to a pretest and the three subsequent letters. Second, each variable was expected to increase when compared to the control group.

## **VII. Methods.**

Surveys took approximately 15 minutes to complete and included a 2-page demographic survey that was developed by the present author, the Gratitude Questionnaire (McCullough, Emmons and Tsang, 2002), the Satisfaction with Life Scale (Diener, Emmons, Larson and Griffin, 1985), the Subjective Happiness Scale (Lyubomirsky and Lepper, 1999), and an exit survey which included questions regarding participant experience and time spent writing. The Gratitude Questionnaire – 6 (GQ6) is a brief self-report measure of the disposition toward experiencing gratitude. The GQ-6 has good internal reliability, with alphas between .82 and .87, and there is evidence that the GQ-6 is positively related to optimism, life satisfaction, hope, spirituality and religiousness, forgiveness, empathy and pro-social behavior, and negatively related to depression, anxiety, materialism and envy (McCullough, Emmons and Tsang, 2002). The Satisfaction with Life Scale (SLS) is a 5-item measure that assesses life satisfaction as a whole. The scale does not assess satisfaction with specific life domains, such as health or finances, but allows subjects to personally integrate and weigh these domains (Diener, Emmons, Larson and Griffin, 1985; Pavot, Diener, Colvin and Sandvik, 1991). The Subjective Happiness Scale (SHS) is a short 4-item questionnaire that quantifies subjective happiness with regard to absolute ratings and ratings relative to peers. The SHS has been validated in 14 studies with a total of 2,732 participants. Data have been collected internationally and from various age groups.

### *A. Procedure.*

Participants were drawn from four classes on three campuses. Three of the classes were the Building Family Strengths class, conducted by three different instructors, in the university system. Participants received a minor grade for completing their assigned tasks. Students randomly assigned to the experimental group (n=44) were asked to either type or write by hand three letters of gratitude during the semester and were then compared to a control group (n=40). Harlyey, Sotto, and Pennebaker (2003) demonstrated that writing by hand versus word processor makes no significant difference nor do verbalizations, length of writing, number of sentences, number of paragraphs, and typographical or grammatical errors. As a result, students were permitted to use either method and instructed that letters were to be non-trivial (e.g., “Thank you for the wonderful Christmas gift,” or “I appreciate the ride to work”). Instead, letters were to

include something significant for which they felt gratitude toward the intended recipient of the letter. The expressive writing assignment was limited to three letters to avoid “over-practicing” or a plateau of diminishing returns (Brickman and Cambell, 1971; Lyubomirsky, King, and Diener, 2005).

The three well-being variables that were the focus of this study (happiness, life-satisfaction, and gratitude) were measured in both groups four times. The first measurement or time 1 (T1) occurred, for the experimental group, before any letters were written, acting as a within-group baseline measure. The succeeding three measurements were taken immediately after turning in each of the letters. Letters were examined, not to read, but to check against basic guidelines (e.g., non-triviality, author identification, return address, stamped envelope, etc.). The primary investigator was responsible for checking and mailing the letters.

### *B. Results.*

Quantitative and qualitative analysis were used to examine participant experience. In terms of the quantitative analysis, significant results were found for happiness and gratitude but not life-satisfaction. Happiness showed statistically significant improvement after each and every letter within and between groups. Improvement in gratitude required a more sustained effort but showed a significant improvement over time. Qualitative data generated themes which appear to support the premise that the student-participant approach offers benefits for engaging and teaching students as research participants.

### *C. Quantitative Results.*

Toepfer and Walker (2009) found that writing letters of gratitude improved both happiness and gratitude in the authors. The following results from that recent study on expressive writing and well-being are shown to illustrate the effects of the project. Table 1 presents the means of each group on the three scales (happiness, life-satisfaction, and gratitude) for each of the four measurement periods. A two-way repeated measures analysis of variance was performed for each scale. The between-subjects factor for each analysis was group (letter-writers vs. non-writers), and the within-subjects factor was time.

The results, presented in Table 2, show the two significant interactions that were obtained: happiness and gratitude.

Although both groups demonstrated an increase over the four testing periods, the letter-writing group increased in their happiness scores with larger increments over time. Specifically, the letter-writers increased at each time, with a final increase of 3.69 points. The non letter-writers increased from time 1 to time 2, but then decreased at time 3, and then increased slightly again at time 4. The final increase for non letter-writers was only 1.84 points. More importantly, the letter-writers, who started with a smaller initial mean than did the non letter-writers, ended with a larger mean at time 4.

The effect for time was also significant, but this finding only indicates that there was an overall difference among the four testing periods when group was not considered. The means for happiness summed over group were the following: time 1 = 19.06; time 2 = 20.70; time 3 = 21.11; time 4 = 21.85. The difference from time 1 to time 4 was 2.79 points. The simple effects analysis between groups for each time was not significant for happiness.

**Table 1. Means for happiness, life-satisfaction, and gratitude over time.**

	Time				Combined Time
	1	2	3	4	
Happiness					
Letter-writers	18.69	20.31	21.51	22.38	20.72
Non writers	19.58	21.21	20.84	21.42	20.64
Combined Groups	19.10	20.70	21.11	22.00	
Life Satisfaction					
Letter-writers	5.18	5.51	5.53	5.58	5.50
Non writers	5.16	5.22	5.24	5.38	5.30
Combined Groups	5.17	5.36	5.40	5.50	
Gratitude					
Letter-writers	35.73	36.13	36.24	36.80	36.23
Non writers	35.14	35.16	34.30	33.70	34.57
Combined Groups	35.43	35.65	35.27	35.25	

**Table 2. Repeated measures ANNOVA for happiness, life-satisfaction, and gratitude.**

	Time		
	df	MS	F
<b>Happiness</b>			
Between-subjects			
Group	1	0.62	0.01
Error	80	57.97	
Within-subjects			
Time	3	113.06	45.88**
Time x Group	3	19.48	7.91*
Error	240	2.46	
<b>Gratitude</b>			
Between-subjects			
Group	1	222.05	2.30
Error	80	96.65	
Within-subjects			
Time	3	2.74	0.371
Time x Group	3	25.38	3.43*
Error	240	7.40	

\*  $p < 0.05$ , \*\*  $p < 0.01$

There was an interaction between the two groups on gratitude. The scores on gratitude for the non letter-writing group actually decreased over time, whereas the scores for the letter-writing group increased. The letter-writers demonstrated an overall increase of 1.07 points from time 1 to time 4, whereas the non letter-writers demonstrated an overall decrease of 1.44 points. The simple effects examining the difference between the two groups at each time showed that the letter-writers and non letter-writers were significantly different in their gratitude at time 4 ( $F=7.32$ ;  $df=1,80$ ;  $p<0.01$ ). The mean difference between the two groups at time 4 was 3.10.

Regarding life satisfaction, the two groups demonstrated slight, consistent increases in life satisfaction over the four times, but no interaction was found. The effect for time was significant when group was not taken into consideration. However, the difference between time 1 and time 4 was only 0.31. No significant simple effects were found for time between life-satisfaction groups.

#### *D. Qualitative Participant Feedback.*

In addition, qualitative participant feedback provided by the experimental group was overwhelmingly positive (see appendix). The feedback formed numerous themes: curiosity about the research, enjoyment, a positive reciprocal interaction between authors and recipients, and a desire to continue the practice. This was accomplished in a relatively short time frame. These themes suggest that reaching out to others could affect additional factors that were discussed in class; improved interpersonal interaction, fortifying the social buffering hypothesis, reciprocity, and positive emotional feelings.

The letters of gratitude project, and by extension similar projects which are embedded in course content, offer a way to educate student participants about research, ignite curiosity, and provide a glimpse of what lies behind a research article. Student-participants reported the experience as highly positive. Descriptive data documented enhanced student engagement and interest. When letter writers were asked if the assignment helped them better understand the related concepts 92% said yes. Eighty-eight percent reported they would participate in the assignment again. Compared to other university assignments, 75% said the experience was more enjoyable. Seventy-five percent said they plan to write letters of gratitude after the course was completed. Finally, 55% reported that the assignment had changed their feelings about writing such letters (some participants reported already using similar practices, usually in the form of “thank you” cards, but thought the exercise enhanced the preexisting value of the act). These responses were based on three short installments of letter writing which took 10-15 minutes, on average, to complete. Sixty-eight percent typed the letters, 20% were hand-written, while 13% mixed the two methods of composition.

Students in all participating classes expressed interest in learning more about the study, even the control groups who did nothing more than fill out the questionnaires four times. Three of the four classes asked to talk with the primary investigator. As a result, every class was debriefed after the data were collected. Students asked questions, made suggestions, and even inquired about the tenure process.

#### *E. Summary.*

The project integrated undergraduates in faculty research and demonstrated three important outcomes of doing so. First, the data show that student participation improved happiness and



gratitude, a significant finding in the world of positive psychology and family studies. This is no small byproduct for the cost of tuition and three stamps. Second, the written feedback showed how the letters of gratitude project engaged student participants in understanding research methodology and course content. As a teaching tool this is a valuable resource. Finally, a professor was afforded the opportunity to engage in research while teaching and in such a way as to allow him to unpack and explain not only the research results but the investigatory process. Synthesizing teaching and research linked two domains that are too often mutually exclusive pursuits of the university professor. As scholars, the professor's ultimate goal is to enhance the state of knowledge in our respective fields and disseminate that knowledge. As researchers, professors do this primarily by conducting research, writing books and articles, and serving on professional organizations; as teachers, through direct contact with our students in the classroom (Vroom, 2007). The present project sought to make a practice of synthesizing divergent aspects of the university professor's job (teaching and research) to the benefit of both student learning and the creation of scholarly work. The nexus for this active learning approach was accomplished in the classroom and proved useful on multiple levels. There were, however, aspects of the project that could be enhanced.

The practice of doing research with those we teach has clear limitations. First, if not careful, samples of convenience may present methodological issues. Inherent problems with such samples include homogeneity, uncontrolled confounds, sampling issues, and the restricted ability to generalize findings. The risks can be diminished with proper design but the level of risk is variable depending on the aim of the project. If the dual goals of the method presented here are accomplished: improved student understanding of research and a sound scholarly outcome, the benefits can be significant because the project is used as an instructional tool. Second, and related to the sample of convenience, is that prescribing students to the role of research participant contributes to the over production of data from possibly the most over represented group of subjects on the planet - college students. In addition, random sampling may be problematic. In the case of the letters of gratitude, the experimental group, those students writing the letters, would have to be balanced with randomized controls. A related confound is the problem of the timing of the assignments with the semester. Could the end of the semester bring added stress, or in the case of a class like Building Family Strengths, improve aspects of subjective well-being? Third is the issue of time. This type of project requires a shorter time frame. Restricting the process to a single semester is ideal in order to provide students with feedback but it does narrow the window for discussing the process with students. Fourth, some topics work for this type of practice while other may not. Clearly, topics that require a longitudinal design would not work. Some concepts are more appropriate for short-term investigation than others. In the future, similar research might be enhanced by adding pre- and post-test measures of course content mastery.

To maximize this experience, the present author suggests that such projects are employed during or after an introduction to research methods and design. Research methodology courses, often guided by a dense curriculum, have been called the "one shot approach" that remains unpopular with students and faculty (Scheel, 2002). Projects like the letters of gratitude example can pique student interest and may be a good supplemental option in a methods course or an additional experience outside such a class. The project works best if students are debriefed and the process explained. Campus subject pools should be established whenever possible. Research I Universities often construct subject pools but at many small colleges and regional campuses this is not an option. The present approach, when used correctly, may help build sample size on

smaller campuses. Finally, professors need to know their audience. Non-majors in an introduction course, for example, may have little interest and be better suited for the control group. However, this potentially eliminates the “randomness” of assignment and introduces potential selectivity problems.

In conclusion, this project demonstrated a method to engage undergraduates in course content in a practical manner while simultaneously producing research. According to student feedback, participation fundamentally changed the way they were typically exposed to faculty research and enhanced the learning experience. Due to the active and deep learning methods, as well as the project design, students ventured beyond the assigned reading; they experienced the growth and change that comes from doing. Faculty can opt out of the tug-of-war relationship between research and teaching, at least for the duration of such a project, and engage in a collaborative tightrope adventure. For both student and faculty, assignments that can be converted into research projects close the teaching-research gap and demonstrate that those who teach can do.

### **Appendix 1. Transcript of Participant Feedback.**

The following is a transcript of the available and exact written responses by student-participants. These responses are from those in the experimental (letter writers) group.

- I felt very good when the recipients were so touched! They made a point to let me know how thankful they were.
- My grandparents were very happy and loved the letter they received from me. It was a good assignment to do throughout this course.
- Writing these letters touched a lot of sensitive issues for me but it felt good writing them.
- I thought it was a nice way to show appreciation to those in your life you may not show as often as you would like.
- I feel the letters of Gratitude made people realize that they're important and that they mean something to me and that I greatly appreciate them for being a big part in my life.
- Writing the letters helped me remember the best parts of the person I was writing to and it felt good to let them know how I appreciated them.
- This was very enjoyable. The people that receive the letter loved their letters and are keeping them in a file or a special place.
- It was nice to be able to share our feelings w/ the people we love. It helped me remember why I loved them so much.
- It allowed me to express my feelings to people who don't openly express their feelings.
- I enjoyed writing them. One letter opened the door to talk to my sister-in-law about things that we both needed someone to talk to
- It was a short and easy assignment that improved my karma. I liked it.
- I enjoyed writing these letters and will continue to the ones that are important to me.
- It makes people feel happy, even though you know they are thankful already, for them to receive something in the mail with words of gratitude. I received thanks from them in the mail that made me feel special as well.
- The people I sent them to felt good which made me feel good. Good Activity.
- I just wanted to say that I think it was great to show people how much you really care about them.

- Everyone I wrote to appreciated the letter and I felt really good about writing them.
- BAD-others reading it besides me + the person I write to. GOOD- feel good to finally write to someone I have been meaning to contact. Overall, good idea for assignment!
- Very good, I've received feedback from 2 of the people I wrote letters to and they were very thankful + appreciative I have since wrote 2 additional letters to people + have made phone calls to other's thanking them for help, GREAT project.

The following responses show all available negative and neutral feedback.

- It felt forced, I did not like the fact that we had to mail them. This was just not something I, or my family would do so I did not like it very much.
- I enjoyed writing the letters of gratitude, although I felt culturally awkward at times. (not many people do this) I hope the receivers feel appreciated.
- I hated it.

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## **An ‘interteaching’ informed approach to instructing large undergraduate classes**

**Alan Scoboria<sup>1</sup> and Antonio Pascual-Leone<sup>2</sup>**

*Abstract: A novel approach to teaching large undergraduate courses using methods derived from ‘interteaching’ was investigated. Students in two large sections of undergraduate abnormal psychology received preparation guides, and took part in in-class discussion sessions during which instructors circulated to answer questions. Following discussion, students completed interteaching reports, based upon which instructors prepared clarifying lectures. Regression analyses revealed significant positive associations between attendance at discussion sessions and course performance, after controlling for academic average and student motivation. Performance for writing assignments involving critical and analytical thinking was significantly higher than in prior offerings of the course. A majority of students expressed a preference for the instructional methods. This instructional approach thus facilitated effective learning and may be more effective than traditional lecture based practices.*

*Keywords: interteaching, college instruction, large course instruction, teaching methodology, student engagement, active learning, student success.*

### **I. Introduction.**

In this paper we report upon a novel teaching method developed for large undergraduate courses. We developed this approach based on *Interteaching* (Boyce and Hineline, 2002), an educational method that shifts student responsibility for learning from one of passive reception to active engagement, and shifts the instructor’s role from imparting knowledge to structuring and guiding learning (Saville, 2006). Interteaching is an integrative teaching approach, derived from a wedding of educational methods drawn from behavioural instruction (Keller, 1968), cooperative learning (Halpern, 2004), and reciprocal peer tutoring (Griffin and Griffin, 1998).

In the traditional lecture format students are typically assigned readings in advance of class, however comprehensive reading prior to attendance is infrequent and comprehension is usually less than ideal. Such approaches promote passive listening during lecture, and realization of the extent of understanding (or lack thereof) only upon examination (McKeachie, 2002). In contrast, research on learning and memory demonstrates that factors such as desire to learn, frequent and deep processing of material, awareness of progress in learning, and monitoring of learning effectiveness are associated with better learning outcomes (Pintrich, Brown and Weinstein, 1994). Thus, it is advantageous for students to have multiple, higher quality exposures to the material over the course of studying.

To achieve this end, interteaching shifts the responsibility for initial exposure to materials from instructors to students, by providing a framework which emphasizes reading and preparation before the topics are encountered during class sessions. Furthermore, by grappling

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with the material, students are likely to be more invested in learning, and increasingly able to monitor their own understanding. Students so engaged develop their skills for acquiring and monitoring the quality of their knowledge. This is to say, they will better understand what they do know, and more importantly, what they do not yet know (see Dunning, Johnson, Erhlinger, and Kruger, 2003; Thiede, Anderson, and Theriault, 2003; Young and Fry, 2008, for discussion related to metacognitive competence and skill acquisition).

The procedures in an interteaching class session are as follows. Instructors prepare preparation guides in advance of class sessions. These guides consist of a series of factual and conceptual questions (i.e. 8-12) which assist students in engaging with and comprehending course material for the upcoming class. Students complete preparation guides (study guides) before class. In class, they form groups and discuss the questions, while the instructor circulates to answer questions and facilitate discussion. After discussion, students complete information sheets that the instructor subsequently uses to construct a clarifying lecture that focuses on only the most requested prep guide items. The clarifying lecture occurs at the start of the next class period and precedes student discussion on the next guide. Finally, exams are frequent and closely linked to preparatory material. See Boyce and Hineline (2002) and Saville et al. (2005) for further discussion of the conceptual framework and procedural details of the model.

The approach emphasizes student engagement with knowledge and ownership of the learning process, views advocated by proponents of active learning (Benjamin, 1991; Miserandino, 1999; Qualters, 2001). To accomplish these goals, the interteaching framework stresses preparation, as well as student-to-student and student-to-instructor discussion of material in class. Furthermore, by interacting with students in the moment, instructors are able to correct errors and address challenging concepts as they arise.

Initial outcome evidence for interteaching is promising. Research with small samples has provided evidence supportive of the method. In an experimental study (Saville, Zinn and Elliott, 2005), participants took part in a laboratory session and were randomized to learn about a short article via interteaching, lecture, reading, or served as controls (no exposure to the article). At testing one week later, participants in the interteaching group answered more questions correctly (74%) than the remaining groups, which did not differ from one another (from 51% to 60%).

Another study (Saville, Zinn, Neef, Norma, and Ferreri, 2006, Study 2) examined interteaching in the undergraduate classroom. In two sections of an undergraduate psychology research methods course ( $N = 12$  and  $19$ ), half of the class sessions were delivered using interteaching, and the other half using lecture. Quizzes were administered at the start of each class, related to material from the preceding class. Across units, interteaching consistently outperformed lecture, with 81% of participants scoring higher following interteaching than lecture. On a final examination, 76% of interteaching based questions were answered correctly, as compared with 69.5% of lecture based questions. Another study (Saville, 2006) used a dismantling design demonstrated that preparation coupled with in-class discussion is a key component in these performance gains. Students who were provided only with prep guides did not show performance gains, however, students who completed guides and in-class discussion did show significantly improved performance. Furthermore, although academic performance is only one measure of educational success, research has also considered student engagement and enjoyment of the process. Across these published reports (Saville, Zinn and Elliott, 2005, 2006; Saville, 2006), a majority of students indicated a preference for interteaching over lecture.

Prior studies report upon the use of interteaching in relatively small classes. How well the effectiveness of the model will translate to larger classrooms, however, has not yet been



explored. This paper presents findings which examine the association between academic performance, student engagement, and participation in the variant of interteaching which we employed in two large abnormal psychology courses. Per the interteaching model, in our courses students received preparation guides in advance of class. In class, they engaged in discussion about the guides in small groups, during which the instructor circulated to answer questions and stimulate discussion. After discussion, students completed interteaching reports following which the instructor provided a clarifying lecture regarding topics of difficulty.

However, we also altered the teaching model. To accommodate the unique goals of our courses, we opted to retain a somewhat greater role for lecture than Boyce and Hinline (2002) recommend. Instead of using two-thirds of class time for discussion, we chose to dedicate half of the time to discussion and the other half to clarifying lectures. The interteaching model also suggests that the guides be tied to exam materials. We thought it interesting to examine how the method might work if the linkages were not as explicit for some of the evaluation. Thus, written assignments were more closely tied to guides, whereas we did not emphasize explicit connections between guides and exams. Finally, in one of the courses, students were not required to switch discussion partners every class session.

The first author applied these methods in a large undergraduate course, following which the second author adapted the approach to an even larger course. If the methods used contain the key effective ingredients of interteaching, we anticipated observing performance gains relative to prior offerings of the same course. We anticipated that if attendance in discussions sessions facilitated learning, that attendance would be associated with course performance after controlling for academic performance and motivation. Finally, we anticipated that a majority of students would report preferring the discussion-based teaching approach.

## **II. Method.**

### *A. Participants.*

The University of Windsor Research Ethics Committee reviewed and provided approval for this research. The sample for the first course consisted of 58 students (72.4% female, mean age 22.07 years) who consented (of 61 enrolled). The sample for the second course consisted of 118 students (87.3% female, mean age 22.8 years) who consented (of 124 enrolled). Although they were not the focus of this study and were not suitable as full control groups, two preceding lecture-based versions of the abnormal psychology course ( $Ns = 68$  and  $47$ ) were used as points of comparison where appropriate.

### *B. Course Materials.*

The first author adapted a 13-week lecture-based abnormal psychology course to incorporate interteaching methods, and developed preparation guides containing about twelve questions for each class session. These provided a mixture of questions directed towards factual recall, critical analysis, and application of material. These preparation guides were used in both of the large courses.

### *C. Measures.*

The number of discussion sessions attended, and grades on examinations, and writing assignments were recorded. A composite course average was also calculated, by averaging examination and written assignment grades; discussion attendance was not included.

We assessed preferences for interteaching versus lecture alone via the question, “Which style of teaching do you prefer?”, using a 7 point Likert-style scale (anchored: 1 = discussion plus lecture; 4 = no preference; 7 = lecture alone). Two additional questions asked about time spent in discussion and lecture (1 = less time for discussion/lecture, 7 = more time for discussion/lecture). As results for the latter questions closely mirrored the first question, responses to the first question are reported below.

To assess motivation (only in the second course), we included two 9-point questions. The first queried general motivation, “How motivated were you to take part in the methods used in this course?” while the second asked, “How motivating were the teaching methods used in this class compared to other lecture-only courses you have taken?” (1 = much less motivating than other classes; 5 = no change; 9 = much more motivating).

### *D. Procedure.*

The first course met twice per week for 80 minutes, and consisted of 11 discussion and 11 corresponding lecture sessions. Students received preparation guides and prepared in advance of class. Verification of preparation is not a component of the interteaching model, hence quality of completion was not recorded. In class, students met in pairs (and in a new pair each week) to discuss the questions on the guide. The instructor and an assistant circulated to stimulate discussion and answer questions, after which students completed interteaching reports to indicate areas of difficulty. The instructor commenced the next class with a clarifying lecture, in which he discussed topics for which students had expressed difficulty understanding, or about which they wanted to learn more. Evaluation consisted of attendance at 10 discussions (as recommended by Saville, 2006), three exams, a clinical case paper, and a self-reflection paper. Exams consisted of multiple choice and fill-in-the blank questions. About 75% of questions came from an exam bank, with the remainder written by the instructor and linked to preparation guides.

The second course was highly similar to the first, with modifications to accommodate the larger class size. First, because the class occurred once weekly for 3 hours, holding alternating discussion and lecture sessions did not translate well to the weekly format. Thus, clarifying lectures followed discussions during the same class period. During a mid-class break, the instructor and assistants surveyed the reports and discussed issues raised by students, which guided the instructor during the ensuing lecture. Second, to facilitate discussion in a larger course, students interacted in groups of 3 to 4. Third, while the instructor encouraged students to switch partners, the class size made this difficult to monitor and students did not always switch from week to week. Finally, while evaluation was similar, exam questions came entirely from an exam bank, and 2 clinical case papers of increasing difficulty comprised the writing assignments.

The case writing assignments in both courses were an exercise in the reasoning and decision making processes involved in making clinical diagnoses. For each, students received a description of a clinical interview. Based upon case summaries, students wrote a 4-6 page diagnostic summary. In the process, we asked students to articulate the reasoning that led them to accept or reject possible diagnoses. Students were expected to engage in a number of practices

which reflected good critical and analytic thinking, including items such as weighing confirmatory and disconfirmatory evidence, avoiding undue inference, making use of language of probability, weighing clinical significance of symptoms, and identifying further information needed to clarify the diagnostic profile. We note that graders were unaware of student attendance rates when grading, thus knowledge of attendance did not impact the grades assigned.

We collected additional data prior to the final exam in both courses. Students provided preference ratings for teaching methods, demographic information, permission to use their course grades, and permission to verify their GPA. Students received a 1% course bonus in compensation for their participation.

### III. Results.

Statistical analyses were conducted using SPSS 17.0. To examine the potential association between teaching methods and improvements in learning, we contrasted performance on the diagnostic case writing assignment in the first course ( $N = 61$ ) and two prior lecture-only offerings of the same course taught by the first author ( $Ns = 68$  and  $47$ ; i.e. comparison classes). We thought this to be reasonable, as this writing assignment was largely identical across all three courses, which used the same case and grading rubric. The current average was 75.11% ( $SD = 5.98\%$ ), contrasted with 71.98% ( $SD = 9.62\%$ ) in the prior courses; this difference was statistically significant,  $t(2) = 2.26$ ,  $p < 0.05$ . The examinations differed substantially across the courses, so contrasts across courses were deemed inappropriate.

*Session attendance and course performance.* We next examined the association between course performance and attendance at discussion sessions. Attendance correlated significantly with the course average, writing assignments, and a majority of the individual examinations. in both courses (Table 1).

**Table 1. Correlations between attendance, GPA, motivation, and outcome variables.**

	Attend	GPA	Course average	Paper 1	Paper 2 <sup>2</sup>	Exam 1	Exam 2	Exam 3
Attend	—	0.32*	0.53**	0.47**	0.42**	0.40** <sup>1</sup>	0.36** <sup>1</sup>	0.36** <sup>1</sup>
GPA	0.32**	—	0.73**	0.40**	0.50**	0.64**	0.49**	0.73**
Course average	0.35**	0.70**	—	0.73**	0.68**	0.77**	0.73**	0.90**
Paper 1	0.31**	0.43**	0.66**	—	0.82**	0.19	0.30*	0.67**
Paper 2 <sup>2</sup>	0.42** <sup>1</sup>	0.42**	0.77**	0.40**	—	0.26*	0.27*	0.68**
Exam 1	0.18 <sup>1</sup>	0.64**	0.86**	0.45**	0.50**	—	0.60**	0.61**
Exam 2	0.23* <sup>1</sup>	0.64**	0.88**	0.44**	0.53**	0.78**	—	0.47**
Exam 3	0.16	0.66**	0.86**	0.41**	0.49**	0.77**	0.78**	—
Motivation	0.17	-0.02	0.16	0.06	0.25**	0.15	0.12	0.01
(Course 2 only)								

Notes: Correlations for the first course are above the diagonal; for the second course are below the diagonal. \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; 1 – Correlation is between exam grade and attendance at discussion sessions for that exam; 2 – Paper 2 was a self-reflection paper in the first course, and a second diagnostic case paper in the second course.

To control for differences in academic ability (in both courses) and motivation (in course 2), we conducted hierarchical multiple regression analyses to control for these variables before regressing attendance upon course outcomes. The increase in variance accounted for above that of the control variable(s) is reported ( $\Delta R^2 = R^2$  change = increase in variance accounted for).

In the first course ( $N = 58$ ), after controlling for GPA we found significant relationships between performance and attendance for the composite grade ( $\Delta R^2 = 0.035$ ,  $p < 0.05$ ), the case writing assignment ( $\Delta R^2 = 0.062$ ,  $p < 0.05$ ), the self-reflective writing assignment ( $\Delta R^2 = 0.060$ ,  $p < 0.05$ ), and the second exam ( $\Delta R^2 = 0.053$ ,  $p < 0.05$ ); but not the first and third exams.

**Table 2. Course 1, Hierarchical multiple regression statistics predicting the effect of discussion attendance upon outcome variables, after controlling for GPA.**

<i>Outcome variable</i>	<i>Predictors</i>	<i>B</i>	<i>SE</i>	$\beta$	<i>Sig.</i>	<i>Adj. R<sup>2</sup></i>
Course average	GPA	0.017	0.005	0.413	< 0.01	0.55
	Discussion attendance	0.008	0.004	0.259	< 0.05	
Exam 1	GPA	0.033	0.006	0.608	< 0.01	0.41
	Discussion attendance	0.014	0.013	0.119	<i>ns</i>	
Exam 2	GPA	0.027	0.007	0.454	< 0.01	0.26
	Discussion attendance	0.021	0.010	0.248	< 0.05	
Exam 3	GPA	0.043	0.006	0.712	< 0.01	0.52
	Discussion attendance	0.008	0.011	0.067	<i>ns</i>	
Paper 1 (Diagnostic)	GPA	0.014	0.005	0.313	< 0.05	0.20
	Discussion attendance	0.010	0.004	0.286	< 0.05	
Paper 2 (Self-reflection)	GPA	0.017	0.005	0.413	< 0.01	0.28
	Discussion attendance	0.008	0.004	0.259	< 0.05	

Note: SE – Standard error;  $\beta$  – Standardized coefficient; Adj. R<sup>2</sup> – adjusted R squared.

In the second course ( $N = 118$ ), after controlling for both GPA and motivation, we found significant relationships for the composite grade ( $\Delta R^2 = 0.017$ ,  $p < 0.05$ ), and both case writing assignments ( $\Delta R^2 = 0.040$ ,  $p < 0.05$ , and  $\Delta R^2 = 0.076$ ,  $p < 0.01$ ). Attendance did not uniquely predict exam performance in the second course.

**Table 3. Course 2, Hierarchical multiple regression statistics predicting the effect of discussion attendance upon outcome variables, after controlling for GPA and motivation.**

<i>Outcome variable</i>	<i>Predictors</i>	<i>B</i>	<i>SE</i>	$\beta$	<i>Sig.</i>	<i>Adj. R<sup>2</sup></i>
Course average	GPA	0.032	0.004	0.670	< 0.05	0.44
	Motivation	0.002	0.004	0.032	<i>ns</i>	
	Discussion attendance	0.008	0.003	0.140	< 0.05	
Exam 1	GPA	0.035	0.004	0.659	< 0.05	0.40
	Motivation	0.006	0.005	0.096	<i>ns</i>	
	Discussion attendance	-0.002	0.013	-0.008	<i>ns</i>	
Exam 2	GPA	0.047	0.005	0.626	< 0.05	0.40
	Motivation	0.003	0.005	0.047	<i>ns</i>	
	Discussion attendance	0.006	0.007	0.063	<i>ns</i>	
Exam 3	GPA	0.040	0.004	0.691	< 0.05	0.43
	Motivation	-0.003	0.005	-0.049	<i>ns</i>	
	Discussion attendance	-0.002	0.010	-0.050	<i>ns</i>	
Paper 1 (Diagnostic)	GPA	0.019	0.004	0.364	< 0.01	0.22
	Motivation	0.003	0.005	0.057	<i>ns</i>	
	Discussion attendance	0.017	0.007	0.209	< 0.05	
Paper 2 (Diagnostic)	GPA	0.025	0.006	0.346	< 0.05	0.26
	Motivation	0.006	0.007	0.074	<i>ns</i>	
	Discussion attendance	0.020	0.006	0.295	< 0.01	

Note: SE – Standard error;  $\beta$  – Standardized coefficient; Adj. R<sup>2</sup> – adjusted R squared.

*Preference for teaching methods.* To simplify reporting, we collapsed the preference scale to reflect students who expressed a preference for more interteaching (1, 2 or 3 on the scale), no preference (4 on the scale), or a preference for more lecture (5, 6 or 7 on the scale). In the first course, a majority of students preferred the interteaching format: 60.3% of students expressed preference for more interteaching, 6.9% indicated no preference, and 29.3% indicated a preference for more lecture-only. In the second course, preference was about equally split; 46.6% expressed interest in more discussion, 2.6% were neutral, and 50.4% expressed interest in more lecture.

*Motivation for teaching methods.* Amongst the students in the second course, 81% reported finding themselves equally motivated compared to other courses, and 52% indicated being more motivated than in other courses. The average motivation rating for those indicating greater motivation was 6.9 on the 9 point scale, indicating a moderate increase in motivation.

We also examined associations between motivation and the other variables in the second course. Motivation correlated positively with performance on the second writing assignment ( $r = 0.25, p < 0.01$ ), preference for discussion ( $r = 0.62, p < 0.01$ ), interest in more discussion ( $r = 0.45, p < 0.01$ ) and interest in less lecture ( $r = -0.40, p < 0.01$ ). Motivation did not correlated significantly with attendance or overall course performance.

#### **IV. Discussion.**

These results suggest that the participation in the interteaching-inspired methods employed in these large undergraduate abnormal psychology courses promoted effective learning. Quality of performance for written assignments increased as attendance at discussions increased, and one paper showed improved grades relative to prior lecture-based offerings of the course. Attendance at discussion sessions was associated with course performance, after controlling for GPA (in both courses) and student motivation (in one course).

The positive relationship between attendance and grades on written assignments was evident in both courses, despite differences in course size, frequency of meetings, and several other procedural specifics. We speculate that preparation and discussion may promote deeper processing of course material, which thereby influences writing. While quality of preparation was not formally observed in these courses, many students appeared to the instructors to be quite actively involved. The relationships between motivation and writing outcomes in the second course are consistent with this observation. The methods likely motivated at least some students to become more engaged in learning, perhaps due to a greater sense of personal involvement in the course, which subsequently impacted writing performance.

We would like to acknowledge several limitations of this work. The examination of attendance indicates that the teaching methods promoted learning. What these particular findings do not indicate is whether the approach, which incorporates discussions and lectures, produced better learning outcomes than lecture alone. Indeed, attendance alone is known to influence learning (Newman-Ford, Fitzgibbon, Lloyd, and Thomas, 2008). Additional work is needed to clarify if these methods hold advantages over lecture in large classes. It is possible that GPA and motivation are not sufficient controls, and students who attend simply do better. While future work is clearly needed to make definitive statements, showing gains over a prior lecture-based course and advantages above general academic ability and motivation for teaching methods is certainly suggestive. Furthermore, even if the interteaching based and lecture methods results in equivalent learning outcome, the fact that most students indicated that these interteaching

informed teaching methods were equally or more motivating and enjoyable are a notable strength of the approach.

The majority of exam questions were not linked to the study guides in either course (the first course had 25% linked; the second had none). The first course did show a significant relationship between attendance and one exam. The fact that no relationship between attendance and exams was found in the second course suggests that at least some link between guides and exams is important, as recommended by the interteaching model.

The work described herein demonstrates that the teaching methods used resulted in effective learning in large undergraduate abnormal psychology courses. As such, this method stands as a novel alternative to lecture when teaching abnormal psychology. The approach has conceptual advantages over lecture, is more interactive, and appears to be more enjoyable and motivating for a majority of students. Based upon these observations, instructors are encouraged to consider the use of these and similar teaching methods in their courses. Regarding future research, work which rigorously tests interteaching can examine the benefits of specific components of the model, while other work should continue to examine variations of the interteaching method that instructors devise to meet the unique needs of their courses.

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## **Faculty and student perceptions of post-exam attendance**

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*Abstract: This project investigated differences between faculty and student perceptions of student attendance in courses for the class period after an exam, including factors thought to influence student attendance. Participants from a single university completed a mixed-methods on-line questionnaire. Quantitative analyses revealed significant differences between faculty and student perceptions on all but one project variable. Qualitative analyses reinforced those findings and suggested that faculty misunderstand what factors actually influence student attendance. Taken together, the results suggest a substantial disconnect between faculty and student perceptions of the importance of class attendance and highlight areas for faculty to influence student attendance.*

*Keywords: post-exam attendance, perceptions, faculty-student differences*

“When substantial numbers of students do not attend, classroom learning is depreciated, student and teacher morale suffer, and academic standards are compromised” (Brown, 2002, p. 101).

This investigation uses an online mixed-methods survey to explore faculty and student perceptions of course attendance for the class period immediately following a course examination. It addresses three key gaps in the prior literature on this subject: 1. What are the factors that influence overall perceived absence for that class period? 2. How similar or dissimilar are faculty and student beliefs about the causes of absence for that class period? 3. How are student beliefs about the causes of absence related to their own attendance for that class period?

### **I. Prior Research on Class Attendance.**

Student classroom attendance is a popular topic of both empirical research (Friedman, Rodriguez, and McComb, 2001; Gump, 2004; Launius, 1997) and faculty discussions (much\_metta, 2008). Both the research and the discussions focus on the central question: Why don't students attend every class? Although faculty perceptions are based on their own

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idiosyncratic experiences in the classroom, those perceptions are validated by the research: As many as one-third of students are absent from a class on any given day (Marburger, 2001) and as few as 8% of students attend every class in a given course, with nearly 25% attending less than two-thirds of the classes (Cohn and Johnson, 2006).

As educators, many university faculty are rightfully concerned about student absences since substantial empirical research, and their own experiences, have demonstrated that attendance is related to student performance and grades, even in courses where attendance is not a part of the grading system (Brewer and Burgess, 2005; Gump, 2005). Marburger (2001) documented that missing a class period increased the probability of responding incorrectly to an exam question about material covered that day by nearly 15%.

Collectively, a correlation between student absence, student performance, and the relative commonality of absences indicates a missed opportunity for students to learn or reach their full potential. Unfortunately, research indicates that students do not view the situation that way (Moore, Armstrong, and Pearson, 2008). In spite of faculty and administrative beliefs that what happens in the classroom is valuable, interesting, and important, and that students have an obligation to attend every class, many students do not perceive classes as worthwhile and do not feel obligated to attend (Moore et al., 2008), even at taxpayer-subsidized public institutions (Hassel and Lourey, 2005). This disconnect between faculty and student perceptions is consistent with prior research that has demonstrated that students bring different values, assumptions, priorities, and motivations to college than those shared by faculty (Perry, 1988).

Students primarily view classroom attendance in terms of commodification, exchange, or transaction, arguing, “they had paid for the class, they should be able to decide whether to go or not” and that as long as students could get a good grade, they should not have to attend class (Hassel and Lourey, 2005, p. 5). Indeed, only 17% believed learning was related to attendance, and just 4% believed that student performance would be influenced by attendance.

Evidence of the factors that influence student attendance supports this commodification perspective. Students are more likely to attend class: if they consider the material or instructor interesting (Gump, 2004), if in-class quizzes are announced (Azorlosa and Renner, 2006), if attendance is required for their grade and if there are direct consequences for absenteeism (Friedman et al., 2001; Gump, 2004; Launius, 1997). Students are less likely to attend class if attendance is not required, especially later in the semester (Marburger, 2006); if they are assigned to larger classrooms vs. smaller classroom settings, where they perceive their absence will not be as noticeable (Friedman et al., 2001; Marburger, 2001); if they perceive a negative effect on their attendance likelihood if given full notes for the class period by the instructor (Cornelius and Owen-DeSchryver, 2008); or if they believe that regular attendance should be factored in to final grades (Hassel and Lourey, 2005). Moore et al. (2008) reported that only 17% of students’ classroom absences can be categorized as potentially excused (e.g., medical emergencies); 23% were related to giving higher priority to academic work in other classes (e.g., cutting class to study for another test), and 60% were related to low intrinsic motivation (e.g., too tired, class is boring).

Despite the substantial amount of prior research on the topic of student attendance, there is a specific type of student absence that is discussed among faculty, and remains a source of great concern and frustration, but has never previously been investigated. This is the absenteeism associated with the post-exam class period. A recent thread on the *Chronicle of Higher Education* online fora suggested that absenteeism for this single class period could reach levels as high as 40% and was a relatively common phenomenon (much\_metta, 2008). Potential

reasons suggested for this pattern were course level, course size, and five specific student perceptions. These perceptions are that students believe: (a) nothing important will be covered during that period; (b) no effort is required before studying for the next exam; (c) class attendance will not affect their final grades, especially in classes where attendance is not recorded; (d) missing this particular class will not change their grade on their next test; and (e) attendance has no correlation to how much they learn in a course. According to literature reviewed above, all of these misperceptions are common.

The reasons that many faculty are concerned about this absenteeism are threefold. First, it is a symptom of larger absenteeism throughout the course, which prior research has documented leads to poor academic performance. Second, because of their awareness of the connection between attendance and performance, many faculty expend considerable time and effort attempting to increase student attendance in order to maximize student success. Third, and specifically related to these unique class periods, many faculty use those course periods to either review examinations or introduce the foundation for new units in the course. Both of those uses can disproportionately influence student learning in the course in comparison to many other course days, so absenteeism on those days can pose an even greater threat to student learning.

To address the gap in the literature on post-exam attendance, this preliminary investigation will utilize a convenience sample to explore the issues surrounding faculty and student perceptions of post-exam attendance and the factors thought to influence it. A convenience sample is the most appropriate choice for this preliminary stage for three reasons: 1. Convenience samples are common in Scholarship of Teaching and Learning [SoTL] research, particularly in research on class attendance (Brewer and Burgess, 2005; Moore et al., 2008; Stuckey, 2008). 2. Convenience samples are considered methodologically acceptable in investigations where the objective is to conduct preliminary research or to explore theoretical relationships between variables, rather than to describe a representative sample (Brown, Cozby, Kee, and Worden, 1999; Cho, 2006). Indeed, rigorous and expensive sampling from large populations is not justified for preliminary investigations (Pyrchak, 2005). 3. Perceptions can be reliably tested with any sample capable of perceiving them so long as the purpose of that test is to explore the relationships between and among them, rather than generalizing those specific perceptions as common to all populations.

Specifically, it hypothesizes:

H1: Perceived post-exam attendance will be influenced by the following factors: course level, course size, motivation for taking the course (e.g., core, major, elective), attendance policy, post-exam day curriculum (e.g., review, new material), and group membership (faculty/student).

H2: Students will significantly differ from faculty in their perceptions of student attitudes about post-exam attendance.

H3: Student perceptions will be related to their own post-exam attendance.

Additionally, qualitative questions further explore both student and faculty perceptions of the issues connected to post-exam attendance.

## II. Method.

### A. Participants.

There were two categories of participants: faculty (N=109) and students (N=377). Demographic information for both groups is presented in Table 1.

**Table 1. Demographic Information.**

Variable	Group	
	Faculty (N = 109)	Student (N = 377)
Gender		
Male	60 (55.0%)	171 (45.4%)
Female	49 (45.0%)	206 (54.6%)
Ethnicity		
White	102 (93.6%)	315 (83.6%)
African-American	2 (1.8%)	44 (11.7%)
Hispanic	1 (0.9%)	6 (1.6%)
Asian	0 (0.0%)	3 (0.8%)
Other	4 (3.7%)	8 (2.1%)
College		
Business	6 (5.5%)	—
Education	7 (6.4%)	—
Health/Human Sciences	20 (18.3%)	—
Information Technology	4 (3.7%)	—
Liberal Arts/Social Sciences	23 (21.1%)	—
Science and Technology	47 (43.1%)	—
Other	2 (1.8%)	—

*Note.* One student failed to report ethnicity. Only faculty were asked to list College.

### B. Materials.

All participants completed an IRB-approved on-line mixed-methods questionnaire. The questionnaire was administered through Survey Monkey and participants had to provide a password to access the questionnaire. This questionnaire consisted of three demographic questions (one for faculty only), six course questions, eight perception questions (one for students only), and five qualitative questions (one for faculty only). See Appendix.

Both faculty and students received identical questionnaires with the following three exceptions: 1. Faculty were asked to indicate which college within the university housed their department. 2. Faculty were asked an extra qualitative question, “What do you do in your course to encourage attendance for the class period immediately following an exam?” 3. Students were asked an extra quantitative question, “On average, how likely are you to go to class for the class period immediately following an exam compared to other non-exam days in that course?”

### *C. Procedure.*

Faculty and students at a southeastern American university with an enrollment of approximately 17,000 students were invited to participate in an on-line survey about student attendance. All university faculty ( $N = 690$ ) were notified via email of the existence of the survey, the invitation to participate, the web address, and the password. Faculty members who taught in the undergraduate program were encouraged to tell their students about the survey in their courses. Students were notified about the survey in classes from participating faculty and the authors. Faculty and students who wanted to participate navigated to the web page for the survey, entered the provided password sent with the invitation to participate, and completed the survey. The faculty response of 109 reflects a response rate of 15.8%. Because not all students may have been notified about the survey, it was not possible to calculate the student response rate.

## **III. Results.**

### *A. Perceived attendance analyses.*

Roughly half of the combined sample perceived a decline in post-exam attendance (46.9%), and half perceived no change in attendance (48.4%), with just 4.7% reporting an increase in attendance. To explore potential influences on perceptions of changes in post-exam attendance, we conducted a 2 (Faculty/Student)  $\times$  4 (Course Level)  $\times$  5 (Reason for Taking)  $\times$  11 (Class Size)  $\times$  4 (Post-exam Day Curriculum)  $\times$  7 (Attendance Policy) univariate ANOVA, with perceived post-exam attendance in the target course as the dependent variable. The model was significant,  $F(27, 437) = 2.17, p < 0.01$ , partial  $\eta^2 = 0.12$ , but the only independent variable to emerge as significant was Class Size,  $F(10, 437) = 2.50$ , partial  $\eta^2 = 0.05$ . Sheffe post hoc analyses revealed significant differences between the under 25 class size ( $M = 2.84, SD = 0.77$ ) and the 176-200 ( $M = 2.00, SD = 0.77$ ),  $p < 0.05$ , Cohen's  $d = 1.11$ , and 201-225 ( $M = 2.1, SD = 0.88$ ),  $p < 0.05$ , Cohen's  $d = 0.90$ , class sizes.

### *B. Perception analyses.*

A correlation matrix for the seven perception questions assessed potential intercorrelations to determine whether multivariate analyses were necessary. See Table 2. Most of the perception questions were significantly correlated with at least one other perception question at the  $p < 0.05$  level, which necessitated multivariate analyses. To assess potential differences in perceptions between faculty and students, a MANOVA was conducted with all seven perception questions as dependent variables and group membership (faculty/student) as the independent variable. A significant multivariate effect emerged for group membership, Pillai's Trace = 0.21,  $F(7, 438) = 16.47, p < 0.001$ , partial  $\eta^2 = 0.21$ . Follow-up univariate ANOVAs for all seven dependent variables revealed six significant models: Important,  $F(1, 444) = 32.75, p < 0.001$ , partial  $\eta^2 = 0.07$ ; Grades,  $F(1, 444) = 7.54, p < 0.01$ , partial  $\eta^2 = 0.02$ ; Course Learning,  $F(1, 444) = 17.51, p < 0.001$ , partial  $\eta^2 = 0.04$ ; Exam,  $F(1, 444) = 55.873, p < 0.001$ , partial  $\eta^2 = 0.11$ ; Less Learning,  $F(1, 444) = 62.45, p < 0.001$ , partial  $\eta^2 = 0.12$ ; and Class Size,  $F(1, 444) = 10.89, p < 0.01$ , partial  $\eta^2 = 0.02$ . Because group membership was the only independent variable, univariate model statistics are identical to group membership statistics within the model.

and can be interpreted as such. For the Important variable, students agreed more with the statement than faculty. For the Class Size variable, students perceived larger classes to have more of a decline in attendance than faculty perceived. For the other four significant variables, faculty agreed more with the statements than students. Faculty perceived student absence to result in lower course grades, lower exam scores, and less learning (both variables) than students did.

### *C. Own attendance analyses.*

Overall, student participants reported that they were no more or less likely to attend class for the class period immediately following an exam (56.1%), with 18.5% reporting they were less or significantly less likely to attend and 25.4% reporting that they were more or significantly more likely to attend. To explore potential influences of perceptions on own post-exam attendance, a 5 (Important) x 5 (Effort) x 5 (Grades) x 5 (Course Learning) x 5 (Exam) x 5 (Less Learning) univariate ANOVA was conducted with students' own post-exam attendance as the dependent variable. The model was significant,  $F(24, 326) = 2.35, p < 0.001$ , partial  $\eta^2 = 0.15$ , but the only independent variable to emerge as significant was Grades,  $F(4, 326) = 3.46$ , partial  $\eta^2 = 0.04$ . Sheffe post hoc analyses revealed significant differences between those who were neutral to the statement ( $M = 2.75, SD = 0.91$ ) and those who agreed ( $M = 3.26, SD = 0.89$ ),  $p < 0.05$ , Cohen's  $d = 0.57$  and who strongly agreed ( $M = 3.38, SD = 0.98$ ),  $p < 0.01$ , Cohen's  $d = 0.66$ .

**Table 2. Correlations and Descriptive Statistics for Perception Variables (N = 446).**

Variable							Faculty ( <i>N</i> = 109)		Students ( <i>N</i> = 377)		Cohen's <i>d</i>
	1	2	3	4	5	6	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	
1. Important	—						2.72	0.11	3.43	0.06	0.66
2. Effort	0.44***	—					3.10	0.11	3.32	0.06	—
3. Grades	-0.01	0.06	—				4.22	0.11	3.90	0.05	0.32
4. Course learning	-0.08	0.03	0.48***	—			4.11	0.10	3.61	0.05	0.49
5. Exam	-0.15**	0.03	0.31***	0.39***	—		3.63	0.10	2.78	0.05	0.86
6. Less learning	-0.14**	-0.03	0.32***	0.48***	0.61***	—	4.01	0.10	3.15	0.05	0.92
7. Class size	0.14**	0.01	0.16**	0.05	0.03	0.05	3.75	0.10	4.12	0.05	0.38

*Note.* Cohen's *d* represents effect size of the difference between the faculty and student groups.

\*\*  $p < 0.01$ , \* $p < 0.001$

#### *D. Qualitative analyses.*

Faculty and student responses to qualitative questions (4,850 total) were entered into the NVIVO software program for analysis. The qualitative evaluation included actual statements and their total number and percentage for each category. To allow for a comprehensive organization of data and recognition of common themes emerged, one author identified the common categories for each question separately for faculty responses and student responses. If a statement fit into multiple categories, it was assigned to multiple categories. An “other” category was created for statements that could not be placed into the emerged categories and/or could not form stand alone categories. A subset of 10% of the responses (485) were blindly recoded by another author. Interrater reliability, as measured by percent agreement, was 96.70%. Comparative analyses between faculty and students are presented for the first three common questions, but not Question 5 because the response rate was less than 25% for that question. For the additional faculty question regarding strategies for encouraging attendance [Question 4], results are presented in the context of student perceptions of factors that influence attendance (i.e., are the strategies that faculty use perceived as effective by students?).

Faculty and students had overlapping responses for all three common questions. When asked “What comes to mind when you hear post-exam attendance?”, the top 3 issues identified by both 68% of the faculty and 65% of the students were (1) day after exam, (2) low attendance or fewer students, and (3) exam results or test review. Some faculty, however, saw no difference in their class attendance (3%). Four percent (4%) of the students felt there was no need to attend class the day after the exam, with an equal percent feeling that the day after an exam is an opportunity to obtain extra points. Only 3% of the students viewed this day as just another class period with an equal number of students feeling like they needed a rest after an exam. Student comments included “I want to see my test and find out what I got wrong so I can learn it”, “Low attendance because most students think that only an exam review will be done in class and that isn't influential in learning.”, “I think of it as any other day it doesn't matter if it is pre-exam attendance or post-exam attendance they are the same days to me”.

When asked “What factors do you think affect student post-exam attendance?”, faculty and students identified three common issues: (1) test results and review, (2) importance of the material to be covered, and (3) tiredness. Other factors reported by students included focusing on other classes or upcoming exams, laziness, and class size. Faculty comments included, “They think nothing important will happen. It is an excuse to cut class”, “Lack of motivation and interest in course material. [There is an] inability to take responsibility for their own education” and “[Students assume] they accomplished something and can take a breather.” Student responses included “They will have plenty of time to get the missed material before the next exam”, and “If a student thinks they put a lot of effort into studying for the exam they might think they are entitled to a period of rest before putting more effort into that class again”.

Other factors influencing a potential reduction in attendance after an exam identified by faculty but not students included immaturity and irresponsibility. Students identified factors such as length of time before next exam, difficulty of class or test, being influenced by the attitude or interest towards the teacher, credit/points offered, and stress and anxiety as important components influencing attendance at post-exam periods. The faculty comment “immaturity, lack of understanding the relationship of attendance and keeping up-to-date” which is absent from student responses emphasizes that some students may fail to recognize the documented connection between attendance and performance in the class. In addition, students may

misunderstand the intent of testing and see the subsequent class as irrelevant if the test is going to be reviewed according to the student comment of “[The teacher] usually just go[es] over exam and its [sic] already taken so there is no chance to help your grade. The only thing done after that is to introduce what will be talked about for the next few weeks”. Test review is viewed as unimportant since the outcome of the exam is already set.

When asked “How does it make you feel when class attendance in your courses for the class period immediately following an exam is lower than on other non-exam days?” the faculty and students shared one perception – a lack of concern about the issue. However, this perception was far more common among students (53%) than faculty (14%). Unique issues identified by faculty included: (a) negative feelings such as disappointment, frustration and irritation (34%), and (b) students are not interested in learning (6%). Unique faculty responses included, “Irritated! This is actually one of the more important days to attend because it's the intro to a new topic”, “A combination of sad, glad, and resigned. Sad because my own statistics indicate that students with poor attendance will dominate my D's and F's; glad that those who want to learn are in class, and resigned to the fact that those who simply come to college to party will be gone in a couple of semesters, making way for someone who might want to learn and develop intellectually”.

Unique issues identified by students included: (a) deserving points for attending (5%), e.g., “Makes me wish I had not came to class if there is no reward for coming or no punishment for not coming”, “I feel that I deserve extra credit for perfect attendance”, and “Like I should get something for being there”; (b) focusing on self (15% students), e.g., “It makes me feel better about myself”, “I don't really care. I'm there to learn for myself, not others”, and “As long as I am there it doesn't bother me”; (c) loss to those who don't attend (5% students), e.g., “it doesn't effect [sic] me any because I always attend class... I am not missing out on learning anything, those skipping out on class are”; and (d) wish they did not come (3% students), e.g., “Wish I hadn't come”, “Makes you wonder why you came”, and “Makes me wish I hadn't come b/c most of the time the material covered is stuff from a book that I can read at home on my own time and not information found outside the book”.

In response to the question, “What do you do in your course to encourage attendance for the class period immediately following an exam?”, over one-quarter of the faculty respondents (28%) indicated that they do not implement actions to specifically encourage post-exam attendance. Twenty percent (20%) implement action through an attendance policy. However, only 6% of students considered attendance policies to be an influencing factor on post-exam attendance. Seventeen percent (17%) of faculty reported reviewing and returning the exam. Student responses to the prior question suggested mixed feelings about this strategy. Some students are encouraged by exam review as elucidated by the student comment “Many think that reviewing for an old exam has nothing to do with doing better on future exams. However the more devoted students will generally attend class regardless”. Twenty-seven percent (27%) of students associated assignments, finding out grades, and reviewing the exam as relevant to attendance. However, other students were discouraged by exam review. These students commented that “Most classes review exam the next class and a lot of people don't care to review the exam. Some people know after an exam that there won't be anything to [sic] important to hear in class the next meeting.”, “What the professor does on days after tests. If it is just a review that day, students will be less likely to come than if they were to be learning new material.”, and “[Students] need a break from the material after studying. Some students who



know they did well on the test will not come to the next class because they know it will be a review of material already known.”

#### IV. Discussion.

This investigation used an online mixed-methods survey to explore faculty and student perceptions of course attendance for the class period immediately following a course examination. It sought to address three key gaps in the prior literature on this subject: 1. Which factors influence overall perceived absence for that class period?, 2. How similar or dissimilar are faculty and student beliefs about the causes of absence for that class period?, 3. How are student beliefs about the causes of absence related to their own attendance for that class period?

The first hypothesis, that perceived post-exam attendance would be influenced by course level, course size, motivation for taking the course, attendance policy, post-exam day curriculum, and group membership, was largely unsupported. Although a significant effect emerged for class size on perceptions of post-exam attendance, with a smaller decrease in attendance present in courses under 25 students compared to courses with 176-200 and 201-225 students, none of the other variables were significant. These results seem to suggest that perceived post-exam absence is relatively evenly distributed across university courses (i.e., students and faculty are equally likely to see a decline in attendance in every one of their courses, regardless of structural differences between them). Although these results seem to contradict some prior findings on general attendance patterns, such as differences based on attendance requirements (Friedman et al., 2001; Gump, 2004; Marburger, 2006), they are consistent with others, such as an increase in absences in larger classes (Griedman et al., 2001; Marburger, 2001). Overall, these results are consistent with Moore et al.'s (2008) data that 60% of student absences are related to low intrinsic motivation that have nothing to do with structural factors such as post-exam day curriculum or course level (i.e., if a student skips class because she is “too tired,” she would be too tired for any class, regardless of level or attendance policy).

Qualitative analyses also supported Moore et al.'s (2008) contention, with student tiredness identified as a factor influencing post-exam attendance by both faculty and staff. However, qualitative analyses also indicated that both faculty and students perceived post-exam day curriculum to be an important potential factor in post-exam attendance, and students perceived class size to be influential. That these factors were perceived to be influential, but not found to be statistically significant influences on perceived post-exam attendance in the quantitative analyses, suggests a substantial disconnect between perception and reality. According to the respondent answers, the factors faculty and students thought would affect post-exam attendance did not actually influence it at all.

It should also be noted that one potential reason for the apparent contradiction between these results and some of those reported in the prior literature may have to do with a methodological difference between investigations. In all of the literature reviewed here, attendance was assessed either via student self-report or instructor records. In this investigation, participants were asked to report their *perception* of *overall* classroom attendance for the period. A perceived decline in attendance could have some of the same effects on faculty and students as an actual decline, such as a drop in student and faculty morale (Brown, 2002), because in a symbolic interactionist sense, perception is reality to the perceiver (Gilovich, 1991; Goffman, 1959; Stryker and Burke, 2000). However, future research should attempt to replicate these results using actual attendance records for the post-exam period in order to conclusively evaluate

the nature of these relationships. It is also a possibility that although structural factors influence individual students' general attendance, they do not exert significant influence on most students' post-exam attendance specifically.

The second hypothesis, that there would be significant differences in student and faculty perceptions of student attitudes about attendance, was supported with the exception of the Effort question. Student and faculty agreement with the statements was significantly different. Students were more likely than faculty to endorse statements about the importance of the material and the impact of class size. Faculty were more likely than students to endorse statements about effects on grades, exam performance, and learning. These results are entirely consistent with Perry's (1988) and Moore et al.'s (2008) findings that students and faculty bring significantly different beliefs and values to the college classroom. Students in this sample were more likely to attribute students' absences to factors that were self-serving to students, such as class size (e.g., "I won't be missed or noticed.") or the belief that nothing important would be covered in their absence, so they could afford to miss class. Not surprisingly, faculty were less likely to endorse these statements in an equally self-serving fashion (e.g., if everything they cover is important, why would they think that students wouldn't see it that way?). The same pattern appeared in the four statements faculty were more likely to endorse: faculty saw student attendance as related to both student performance (grades and exams) and student learning (both variables), consistent with both prior research (Perry, 1988) and faculty discourse (much\_metta, 2008). Students were less likely to endorse all four statements, again in a self-serving, cognitive dissonance-reducing fashion. That is, student absence could only be justified (and benign), if it had no effect on student performance or learning. Therefore, it is not surprising to find that students were less likely to endorse statements that would contradict those beliefs.

This disconnect between faculty and student perceptions of student attitudes about attendance was also evidenced in the qualitative data. Faculty uniquely identified student immaturity and lack of responsibility as potential factors influencing post-exam attendance whereas students uniquely identified their attitude towards the teacher, length of time until the next exam, and stress/anxiety.

The third hypothesis, that student perceptions would be related to their own post-exam attendance, was partially supported. Although only one perception variable emerged as a significant predictor [Grades], students who agreed with the statement that attendance influences grades were less likely to cut class after an exam than those who were neutral to the statement. This is consistent with the interpretation presented above for the second hypothesis. Likewise, qualitative data indirectly supported this contention, with students reporting that by attending post-exam periods, they are not missing material that their absent classmates are or that in the absence of rewards for attendance/punishments for absences they are less likely to attend class.

#### *A. Limitations.*

This investigation assessed the major predictors suggested by both anecdotal ad hoc explanations and empirical research on other forms of class attendance, but other important predictors may yet be discovered. It is possible that other as yet unknown factors may predict post-exam attendance, and future research should continue to explore this possibility. Additionally, the sample used in this investigation reflected only a small percentage of the faculty and undergraduate students at the institution. However, it was substantially larger than is typical for SoTL investigations of this kind (Myers, 2008; Stucky, 2008; Young and Fry, 2008;

Walker, 2008). Further, the methodology used did not allow for the determination of the student response rate, nor any information on how representative the sample was of the student body as a whole. Although it is possible that students in the sample represented a unique subset that did not reflect the general sentiment of the student body, we believe that it is not unreasonable to assume that the students in our sample adequately represented the population from which they were drawn. The researchers in this investigation and other participating faculty who announced the survey to students represented a diverse range of disciplines and the fact that many of the courses in which the survey was announced to students were general education/non-major courses suggests that a broad range of students may have known about and participated in the survey. However, readers should exercise caution in generalizing the results of this single investigation to all college students at all institutions.

### *B. Implications for Practice and Future Research.*

Clearly, faculty and students approach post-exam attendance from very different perspectives. A better understanding of these differences is necessary to bridge this gap. Faculty need to better communicate to students the importance of attendance and its relationship to learning and class performance. The fact that students were four times more likely than faculty (53% vs. 14%) to see poor post-exam attendance as an issue unworthy of concern only highlights the enormity of the gap between student and faculty perceptions. Further, faculty need to understand that structural factors within their control such as attendance policy and post-exam day curriculum have comparatively little influence on post-exam attendance next to intrinsic student factors such as motivation. This last point is particularly important, as over one-third of faculty identified those two specific strategies as ways to increase attendance, but neither of those factors emerged as significant quantitative predictors of perceived post-exam attendance. The results of this investigation suggest that the most effective way to influence student attendance may not be a structural carrot-and-stick approach, contrary to what both faculty and students commonly perceive to be effective, but rather, an interpersonal one. Faculty need not only to better communicate the importance of attendance, but also to better intrinsically motivate students to attend (Gump, 2004). It is even possible that the structural approach could be counterproductive, with students perceiving instructors who use it as autocratic and not personable, thus inhibiting the development of intrinsic motivation to attend. Future investigations could compare structural approaches with interpersonal ones to examine this possibility and the potential of interpersonal approaches to influence student attendance.

This preliminary investigation has explored relationships between the variables thought to influence post-exam attendance. These results should be replicated and re-validated with a representative sample of undergraduate students. Further, that research should explicitly test those variables as predictors of students' own post-exam attendance. Additionally, it should continue to tease apart the roles of both perception (perceived decline in attendance) and reality (actual attendance records) on faculty and student attitudes and behaviors. There is great opportunity here for potentially low-cost big-return strategies. For example, if the perception of a decline in attendance is artificial (e.g., student attendance the class before and the class after an exam are actually the same), a simple practical solution would be to correct the misperception among both faculty and students by recording actual attendance. If the perception of a decline in attendance contributes to low faculty morale, and faculty perceptions are inaccurate and can be corrected, morale should theoretically improve.

## **Appendix 1: Project Measures**

### Demographic Questions

1. Please indicate your gender:
  - a. Male
  - b. Female
  
2. Please indicate your ethnicity:
  - a. White
  - b. African-American
  - c. Hispanic
  - d. Asian
  - e. Other
  
3. Please indicate your College: [faculty only]
  - a. COBA
  - b. COE
  - c. CHHS
  - d. CIT
  - e. CLASS
  - f. COST

### Course Questions

Think of one of the undergraduate courses you [teach/are taking] this semester when answering the following questions. The course you select must use exams as a form of assessment of student learning. Be sure to think only of this course when answering the questions in this section.

1. What level is the course you have selected? [Course Level]
  - a. 1000 level
  - b. 2000 level
  - c. 3000 level
  - d. 4000 level
  
2. Which of the following most accurately describes why the majority of students enrolled in this course take it? [Reason for Taking]
  - a. The course is in university Core and is specifically required
  - b. The course is in university Core and is a choice among several
  - c. The course is specifically required for a major or program
  - d. The course is a choice among several for a major or program
  - e. The course is an elective

3. Which of the following most accurately describes the size of this course? [Class Size]
  - a. Fewer than 25
  - b. 26-50
  - c. 51-75
  - d. 76-100
  - e. 101-125
  - f. 126-150
  - g. 151-175
  - h. 176-200
  - i. 201-225
  - j. 226-250
  - k. Over 250
  
4. Which of the following most accurately describes what you typically do during the class period immediately following an exam in this course? [Post-exam Day Curriculum]
  - a. Continue with course content with no review of the exam
  - b. Review a few items from the exam, then continue with course content
  - c. Review the full exam
  - d. Other \_\_\_\_\_
  
5. Which of the following most accurately describes the class attendance policy for this course? [Attendance Policy]
  - a. Attendance is required every day and students receive points for attendance
  - b. Attendance is required every day and students lose points for absence (but receive no points for attendance)
  - c. Attendance is required some days, but not others, and students receive points for attendance on those days
  - d. Attendance is required some days, but not others, and students lose points for absence (but receive no points for attendance) on those days
  - e. Attendance is not required, but students may lose points for any classwork that day
  - f. Attendance is not required and there is no direct effect on students' grades
  - g. Other \_\_\_\_\_
  
6. On average, how is class attendance in this course for the class period immediately following an exam? [Post-exam Attendance]
  - a. It is significantly lower than other non-exam days
  - b. It is slightly lower than other non-exam days
  - c. It is about the same as other non-exam days
  - d. It is slightly higher than other non-exam days
  - e. It is significantly higher than other non-exam days

### Perception Questions

Now think about all courses more generally. Please state how much you agree or disagree with each of the following statements:

1. “Students are less likely to attend the class period immediately following an exam *because* they think nothing important will be covered *that period.*” [Important]

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1	2	3	4	5

2. “Students are less likely to attend the class period immediately following an exam *because* they think they don’t need to put much effort into the course until closer to the next exam.” [Effort]

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1	2	3	4	5

3. “Student attendance is related to the grades a student will get in a course, even in courses where attendance is not taken.” [Grades]

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1	2	3	4	5

4. “Student attendance is related to how much a student will learn in a course.” [Course Learning]

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1	2	3	4	5

5. “Missing the class period the day after an exam will make it more difficult for a student to do well on the next exam.” [Exam]

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1	2	3	4	5

6. “Missing the class period the day after an exam will result in less student learning.” [Less Learning]

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1	2	3	4	5

7. How do you think class size affects attendance in a course for the class period immediately after an exam? [Class Size]

Small classes are significantly more likely to see a decline in attendance	Small classes are slightly more likely to see a decline in attendance	Class size makes no difference	Large classes are slightly more likely to see a decline in attendance	Large classes are significantly more likely to see a decline in attendance
1	2	3	4	5

8. On average, how likely are you to go to class for the class period immediately following an exam compared to other non-exam days in that course? [Own Attendance, students only]

Significantly less likely to go	Slightly less likely to go	No more or less likely to go	Slightly more likely to go	Significantly more likely to go
1	2	3	4	5

#### Qualitative Questions

1. What comes to mind when you hear the words “post-exam attendance”?
2. What factors do you think affect student post-exam attendance?
3. What do you do in your course to encourage attendance for the class period immediately following an exam? [faculty only]
4. How does it make you feel when class attendance in your courses for the class period immediately following an exam is lower than on other non-exam days?
5. Any other comments?

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## Doing what Sociologists do: A student-engineered exercise for understanding workplace inequality

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*Abstract: This exercise is designed to help instructors, even those with moderate to relatively large enrollments, lead students through interviews and data analysis. Instructors in a number of fields including sociology, economics, political science, public policy, anthropology, business, or human services may find this exercise useful. Students devise their own research questions and interview questions from course readings on workplace and labor market inequality. They are responsible for conducting four short interviews; two with service-sector employees and two with managers or owners of similar establishments. Students are then responsible for assessing the extent to which the two sides converge and diverge. Along with a description of the exercise, I present a suggested format for students' final papers, as well as sample research questions, interview questions, and sample establishment-types that students may use to create their own independent research project. My students are often surprised by the richness of their data and the consistency of their conclusions with existing theory and empirical research findings.*

*Keywords: inequality, work, interview, service sector, experiential learning*

### I. Introduction.

This paper describes a student-designed project for understanding workplace and labor market inequality. The impetus for the project came from numerous discussions with upper-level students at a large, public U.S. university, through which I learned that many students received their degrees without collecting and analyzing their own data. Instead, most “research” takes place in the library and culminates solely in literature reviews. In the words of one student, she had gained little experience “doing what sociologists do” (or anthropologists, political scientists, etc.). In response, I crafted a project that involves interviewing both service-sector employees and managers or owners at similar establishments in order to glean different perspectives on workplace and labor market inequalities. Students select their own focus (for example, minimum wage policies, healthcare benefits, gender and race in the workplace, or scheduling issues), and test their own hypotheses. Before outlining the exercise, I provide learning goals as well as variations on how this exercise might fit into a course framework.

### II. Objectives.

The goals of the exercise are fourfold. Primarily, I designed it hoping that students would develop an understanding and appreciation of the demanding nature of low-wage and/or service

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sector work. I suspected that they would discover not only that every worker's situation qualitatively differed, but that even "low-skill" jobs actually require substantial hard skills (reading, writing, mathematics) and soft skills (linguistic ease, diction, work ethic, deference). Secondly, the exercise's strength comes from its ability to compare and contrast the views and experiences of employees with those of management. Students will likely find at least some diverging opinions regarding public policy or the work environment. Thirdly, it seeks to foster an understanding of the ways that mobility is limited in many of these jobs. Finally, and most importantly, the project requires independent, student-driven research involving data collection and qualitative data analysis. This is final goal is undoubtedly an ambitious one, however, as the "Student Findings" and "Student Reactions" sections reveal, the students embraced and appreciated the chance to engage in original data collection and analysis.

### III. Framework and Possible Uses.

Although students at large, research universities often encounter fewer opportunities for "experiential learning" than their small-college counterparts, research reveals that this sort of learning can be quite effective at developing the critical thinking and analysis skills (e.g., Grant et al., 1981; Misra, 1997). Most experiential activities aimed at elucidating social inequality rely on service-learning (Mikolchak, 2006; Giles and Eyler, 1994; Everett, 1998; Mooney and Edwards, 2001), classroom activities (McCammon, 1999; Straus, 1986; Groves et al., 1986) or participant-observation/field-trip approaches (Grant et al., 1981; Scarce, 1997; Nichols et al., 2004; Abelev, Vincent and Haney, 2008). Very few experiential inequality exercises place students in the field and require them to engage in project-design and independent data collection. Moreover, the exercise accommodates differential learning styles (Friedman and Alley, 1984; Dunn, 1984) by benefiting students who may learn better from interaction than strictly from reading and lecture. Often, students learn concepts and theories better if they are required to use them (Certo, 1976; Wright, 2000), as students see that their utility extends beyond the classroom.

This exercise fits best in an upper-level course, one in which all students have completed a prior Research Methods course. This prerequisite will ensure that the students are grounded in the ethical and epistemological considerations involved in interviewing and data analysis. The exercise would fit well in courses such as "Work Inequalities," "Poverty," "Social Inequality," "Work and Occupations," "Urban Economics" or "Urban Politics" course. Possibilities exist for incorporating the exercise into an array of economics, anthropology, political science, business administration, or human services courses. In my "Work Inequalities" course, I accompany the exercise with David Shipler's (2005) *The Working Poor*. Although more journalistic than empirical, this book sensitizes students to the many issues affecting the working poor in America, including the Earned Income Tax Credit, affordability of childcare, issues affecting undocumented workers, social capital, "deskilling," and a number of unfair or illegal employer practices.

I instruct students to generate a research question or hypothesis, as well as a number of potential interview questions, while reading this book. Therefore, like a professional academic, students derive their research questions from pre-existing theory and empirical evidence. This approach allows me to introduce students to deductive reasoning, if they have not already encountered it. Other texts germane to this activity include Ehrenreich's (2001) *Nickel and Dimed*, Hays' (2003) *Flat Broke With Children*, Newman's (1999) *No Shame in my Game* or her (2006) *Chutes and Ladders: Navigating the Low-Wage Labor Market*. Although dated, I

accompany the exercise with the (1990) film “Fast Food Women” (Appalshop Productions), which documents the working conditions of fast food workers in rural Kentucky. Like the exercise, the filmmakers interview workers, managers, and even corporate executives. It reveals many surprising contrasts; for instance, corporate executives contend that most employees are either teenagers or simply adding supplemental income to their families’ budgets, thereby justifying low wages. Workers, by contrast, reveal that they are the sole breadwinners in their families, struggling to make ends meet. Uncovering such contrasts serves as the overarching objective of this exercise. I find that this combination of film and reading encourages appropriate and insightful student research questions. Yet, the PBS film “Waging a Living” also provides fertile territory for students to develop their own research projects (Public Broadcasting Service, 2006).

#### IV. Exercise Description.

I first inform students that they will be speaking with four people for the assignment, two workers and two managers or owners. I tell them that the people they speak with must be strangers, not friends, and that they must appear to be at least 25 or 30 years of age (this is especially important in a “college town” where one is likely to find many university students in service sector jobs). During the week preceding the interviews, I ask students to develop a research question and a set of interview questions germane to that research question. Table 1 presents a list of research questions devised by my students. Some students are particularly interested in the minimum wage and the perceived effects of an increase (which happened federally in 2007, 2008, and 2009). Other students devise questions related to promotions, health benefits, scheduling, hiring practices, unions, or employee turnover.

Students initially voice trepidation at the prospect of interviewing strangers. In order to help the students become more comfortable approaching people, we practice the above scenario during in-class mock interviews. I ask them to bring along at least 20 sample questions (10 for workers; 10 for managers or owners) for use in the mock interview. Instructors may also ask students to turn in a copy of these questions as a graded assignment and so they may provide feedback and use the questions to guide a discussion about proper, objective interviewing techniques. For example, I find that many of the students initially write questions such as “Why do you feel your employer treats you unfairly?” without first asking *if* the employee feels he or she is treated unfairly and without operationalizing fairness or unfairness. Tables 2 and 3 present a list of many of the better questions developed by my students for use during our in-class mock interviews. Once fieldwork commences, I instruct students to approach workers by saying something like the following:

“Hi, my name is (name) and I’m a student taking a sociology course at (school name). We’re doing a unit on service sector jobs, and one of our projects is to interview people who work in these jobs. I was wondering if you would have some time, maybe at the end of your shift today, to talk with me about your work. Everything you tell me will be kept confidential, except where required by a court of law,<sup>2</sup> and I won’t be talking with

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<sup>2</sup> Having taken a previous research methods course, students should know that survey and interview data, although perhaps not freely shared with anyone, are not subject to the same legal protections as information provided to lawyers and priests and that researchers have occasionally been subpoenaed and forced to reveal interviewees’ identities (Babbie, 2008, pp. 70-71). Associations such as the American Sociological Association maintain that researchers should assure participants the level of confidentiality with which the researcher is comfortable (American Sociological Association, 1999). Therefore, students should

anyone else at your workplace. The interview should take between 10 and 20 minutes. Is there a time that would be convenient for you?”

**Table 1. Sample Research Questions Devised and Utilized by Students.**

1. What would be the effect on both employers and employees of a minimum wage raise? How much of an increase would employees need to make ends meet? How much of a raise would employers absorb before raising prices or cutting back workforce?
2. Are workers at these establishments typically unionized? Do workers and managers feel that unions would be helpful in ensuring fair pay and labor practices?
3. How do tips affect employees' earnings and employers' attitudes toward proper employee pay?
4. Do workers at this type of establishment typically receive employer-provided health insurance? How do employers feel about providing health insurance to employees?
5. What methods do service sector employers use to augment low wages (if any)? Do they use the provision of free items, discounts, or other amenities? How do these provisions affect employee satisfaction?
6. Do employers create schedules by considering employee obstacles such as childcare, school schedules, or public transportation availability? Do employees generally feel as if their employers ignore the need for scheduling flexibility?
7. Do employers consider family responsibilities in deciding who to hire, promote, or terminate? How do family responsibilities affect on-the-job performance of employees?
8. Do employers generally live more comfortable material lifestyles than employees? Does either party need to rely on government assistance (including TANF, Food Stamps, Earned Income Tax Credit, WIC, etc)?
9. Do employees and employers generally make ends meet on their wages? If not, what other sources of income do they maintain?
10. Do service sector employees [assuming low wages] see their work situation as a result of personal failure or structural inequalities? Do they cite discrimination, failing schools, or inadequate government programs as their reason for their lack of upward mobility? How do managers or owners subjectively view the situations of their workforce?

The last question is especially important, as many workers will fear that participating while they are on-the-clock may be perceived by employers as “stealing time.” Most of my students arrange employee interviews during breaks, lunches, or at the end of shifts. They reported that about 75

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make sure to include the phrase “except where required by a court of law” in order to protect themselves from possible, but unlikely, legal ramifications.

percent of the approached workers and 50 percent of the approached managers/owners agreed to participate. Low participation rates can spark discussion about selection biases (could the workers and employees who agreed to participate differ in any observed or unobserved ways from those who declined?). Students should make sure to mention that during the interview an interviewee can decline to answer any question that he or she wishes.

**Table 2. Sample Interview Questions for Employees Devised by Students.**

1. Do you rely on the income from this job to survive, or do you use it only for supplemental (extra) income? Do you work any other jobs?
2. How many previous jobs have you held? What type of work have you done in the past? Did you earn higher or lower wages at previous jobs?
3. How long have you worked at this establishment? How long do your coworkers usually work here before leaving?
4. Do you belong to a labor union? Why or why not?
5. What is your hourly wage? Do you receive tips? Have you ever been promoted? What was your starting wage? When did you start? Does your employer provide benefits (health,
6. Have you ever been instructed to keep working after you have punched out or asked to start working before punching in (i.e., working off the clock)?
7. What type of hours do you typically work (predictable, irregular, day-shift, swing-shift, graveyard, etc)? Do irregular hours make childcare difficult?
8. How many hours per week do you usually work? Do you receive time-and-a-half after 40 hours?
9. Are you able to make ends meet with the income from this job? If not, what other help do you receive? What hourly wage (and number of hours) does it take to make ends meet in
10. What transportation arrangements do you have (cost of transportation, length of commute)?
11. Are there any out-of-pocket work expenses associated with the job (uniforms, manuals, etc)?
12. What is the highest degree you have earned? (How many years of school?)
13. What are your views on the minimum wage? Should it be higher? (currently \$5.85 in most states)
14. What are your views on public assistance? Is it sufficient? Should it be easier to obtain? Harder? Should it be made more available to working people?
15. Have you ever received (or do you currently receive) government assistance (AFDC/TANF, Medicaid, Food Stamps, WIC, SSI/Disability, Earned Income Tax Credit)?

Students are instructed to choose one particular type of service-sector workplace; for instance, a particular student might do her fieldwork in supermarkets while another interviews only in gas stations. This ensures comparability. I provide students with a list of possible locations such as Wal-Mart, Target, Dairy Queen, Subway, Big Lots, Hampton Inn, and a number of locally-specific service-sector workplaces. Generally, if the student chooses very similar establishments, the results will be more comparable. For example, comparing workers at Subway to those at another sandwich shop will be better than comparing workers at Subway to those at McDonald's.

**Table 3. Sample Interview Questions for Managers/Owners Devised by Students.**

1. How long have you been a manager or owner here?
2. How many employees do you have?
3. What is your average turnover rate? (how often do workers come and go?)
4. What is the average starting wage here? Do you believe this a fair wage for the work performed and the skills required? (Remember: don't ask accusingly—be objective).
5. Do jobs here provide any benefits (health insurance, retirement)?
6. What expectations do you have of your employees?
7. Are workers typically offered as many hours as they want? How many hours does the average worker receive? How do you decide on the number of hours each person works? Do family
8. What are your views on the minimum wage (currently \$5.85 in most states)? Should it go up, go down, or no change?
9. What would you do if the minimum wage was raised substantially? (\$10 per hour, for example). Cut back workforce? Raise Prices? Nothing? Why?
10. Is it an advantage or disadvantage for workers to join unions? Why? Would you resist if workers tried to join a labor union? How?
11. What are your views on the overall quality of your workforce?
12. What are your views on different demographic groups who apply for jobs (racial minorities, men/women, college students)? Are some typically better employees than others?
13. Do any of your workers receive government assistance (TANF, Medicaid, Food Stamps, WIC, SSI/Disability, Earned Income Tax Credit)? What are your views on workers receiving government assistance?
14. Can most workers make ends meet on the wages paid by his/her establishment? What hourly wage (and number of hours) do you think it take to make ends meet in (CITY)? Could you make ends meet on the wage paid to new workers here?
15. Do you advertise for open positions? Where? How?

I instruct students that these establishments must require no training, only the physical ability to work. For example, they should not speak with forklift operators or plumbers, both of which require training and certification. Limiting the sample this way encourages discussion about the definition of a “skilled” occupation versus “unskilled” labor and usually several students vehemently object to this dichotomy, as they realize that most “unskilled” jobs actually require substantial skills. Table 4 includes a list of possible establishment-types, as well as several common businesses that would fall in each type. I encourage my students to avoid utilizing the same types of businesses as their colleagues; after viewing “Fast Food Women” most students gravitate toward the fast food industry if not encouraged to go elsewhere. Even within these

types, students may find it helpful to select only one type of employee. For example, they may interview two baristas, two hotel housekeepers, or two dishwashers.

**Table 4. Examples of Possible Establishment-Types for Student Interviews.**

1. Fast Food (Wendy's, Burger King, Taco Bell, Carl's Jr., Popeye's, local alternatives)
2. Retail, Discount (Wal-Mart, Target, ShopKo, Sam's Club, Costco, K-Mart, Big Lots, local alternatives)
3. Retail, Other (Sears, Kohls, Bed, Bath and Beyond, Mervyns, Pottery Barn, Dillard's, local alternatives)
4. Chain Restaurants (Outback, TGI Friday's, Olive Garden, I-Hop, local alternatives)
5. Local Restaurants (Chinese Buffet, Sushi Bar, Mexican, Family Restaurants, Diners)
6. Fueling Stations (76, Amoco, BP, Shell)
7. Supermarkets (Kroger, Safeway, Winn-Dixie, Piggly Wiggly, local alternatives)
8. Hotels (Hampton Inn, Motel 6, Super 8, Country Inn and Suites, Ramada, local alternatives)
9. Pet Stores (Petco, Petsmart, local alternatives)
10. Home Improvement Stores (Home Depot, Lowes, local alternatives)
11. Book Stores (Barnes and Noble, Borders, local alternatives)
12. Coffee Shops (Starbucks, local alternatives)
13. Movie Rental (Blockbuster, Family Video, Hollywood Video, local alternatives)
14. Office Supply Stores (OfficeMax, Staples, Office Depot, local alternatives)
15. Pharmacies/Drug Stores (Walgreens, Rite Aid, CVS, Osco, local alternatives)

## **V. Ethical Concerns.**

The chief ethical concern involves, of course, the protection of human subjects. At many universities, Human Subjects/Internal Review Board rules severely limit the ability for classroom research to involve human subjects. At others, including my home university, classroom exercises are exempt from Human Subjects review. Becoming aware of your university's guidelines prior to the start of the exercise will avoid any unforeseen ethical dilemmas. If students wish to present findings at a conference, submit the paper along with a graduate school application, or otherwise use the paper beyond the classroom, they would also need to secure



Human Subjects/IRB approval. At many institutions, this needs to take place before data collection could commence; at others, a post hoc IRB review can take place if the purpose of data collection has changed. In the former case, students may treat their four interviews as a trial study before completing IRB approval for continued interviews—the ones they will use in the final product.

Another pressing concern involves ensuring that students cause no psychological damage to interviewees. Much potential harm can be assuaged by reviewing students' proposed interview questions, discussing proper objective interviewing techniques (avoiding emotional responses that may alter the way interviewees assess their own situations), and even practicing mock-interviews so that students become comfortable with the interview protocol.

Importantly, I reinforce that students must not tape-record the interviews. They likewise must not record names of interviewees (they create pseudonyms in their papers), and must not record the specific place of employment. They are instructed to record "a Mexican fast food establishment" rather than "The Taco Bell on 5<sup>th</sup> Street." Students are instructed to inform interviewees of this strict confidentiality. Ultimately, the student will remember the location of the establishment, but if a third party were to happen upon the research notes or the student paper, they would be unable to identify the location or employee. Lastly, as a safeguard, I instruct students to interview no more than one person per location. This decision undoubtedly harms their ability to directly compare managers and employees at specific establishments (i.e., they cannot interview an employee and then interview his or her employer), but also helps employees feel certain that the information they provide will not be revealed to their supervisors, thus jeopardizing their jobs. Better disclaimers regarding confidentiality may allay some of these concerns, however, instructors can choose whether to opt for this extra safeguard.

## **VI. Paper Assignment.**

I suggest that students type their interview notes upon returning home from the interviews and they can copy and paste from these notes into the relevant sections that will make up their paper. I generally instruct students to read through their interview notes looking for patterns and using the highlight feature available in most word processing programs to denote the emerging themes. During class, we discuss the tendency to see what one wants to see, and I instruct them to present evidence that both supports and refutes their hypotheses. Students are instructed to write a five to seven page reaction paper, consisting of the five main sections below:

- a) Framework. What is your research question? What were your expected findings (hypotheses)? Did you have any secondary research questions?
- b) Fieldwork Recall. Describe the people you spoke with and the places they worked. How well did your interviews go? Where they hesitant to talk with you? Why? Do you think they were honest? Other observations?
- c) Application. Compare and contrast your findings with course reading. Are your findings consistent with (author's) insights into the low-wage, service sector labor market? Did you find any paradoxes or contradictions? What are the largest obstacles for workers in service-sector occupations? How did managers' and workers' views clash? Whose arguments did you find most convincing? Use these

questions as general guides, but also use your qualitative data to explore topics you feel are most relevant.

- d) Policy Analysis. Do you think that low-wage earners are amply supported by today's government programs? Why or why not? If you were a government policy maker, would you make any changes to federal policies designed to help low-wage workers? What would those changes be?
- e) Assessment. Were your hypotheses (expectations) substantiated or unsupported? Did any of your findings surprise you? Have you learned anything new about low-wage, service sector work?

I find this framework quite successful for producing high-quality papers, with the notable exception that many students dedicate far too much space summarizing their fieldwork experience (recall) at the expense of analyzing their findings with course reading and/or lecture material (application). Yet, I generally place more grading emphasis on the latter, as it better reflects critical thinking and it requires the use of relevant concepts and theories from the course materials. While introducing the assignment, I ensure the students are aware of the evaluative focus on application prior to writing their papers. Even after substantial class discussion about government policy and our various safety nets, many students give only cursory consideration to relevant policy alternatives, possibly suggesting the complexity and interconnectedness of many problems facing low-wage workers in the United States. Instructors may likewise require that students submit interview notes along with their papers as an extra safeguard against plagiarism (i.e., it will help ensure that a student actually did the interviews).

On the day papers are due, I instruct students to utilize 10 or 15 minutes to create a “research brief” in which they summarize their findings in five or 10 main points. This involves a brief discussion of the importance of summarizing complex findings in a few short bullet-points. I then divide students in groups of five to seven people and ask them to share their findings with their group. I likewise encourage group members to ask questions and engage in dialogue with each other. Rather than having a group spokesperson summarize the group’s findings, which may be quite divergent, I then reassign new groups and repeat the exercise, allowing students to share their findings with others. This approach successfully fostered engaging group discussions. Upon completion, I work with the class as a whole to develop a list of several main points that summarize our overall research findings.

## **VII. Student Findings.**

Students are generally surprised by the richness of their data. One student, interested in the minimum wage and potential effects of a substantial increase, found one coffee-shop manager who said that he felt he would not be able to handle a minimum wage increase without limiting workers’ hours or laying off employees. For him, raising prices was not an option since he was competing with large corporations who could better absorb the increased labor costs. The same student found that workers felt they “could be fired and replaced very quickly.” Another student, concerned with how workers balanced work and family, had an interviewee who said that “work understands that I have other things going on, but I always feel that they can use that against me. Like if I have to do something with my daughter, they can just cut my hours and give them to

someone else.” This sense of vulnerability and expendability permeated most of the student papers. Many employees looked over their shoulders before making any critical comments about management, presumably out of fear that such criticism may endanger their jobs. Despite the care they take protecting their jobs, few employees noted any beneficial aspects of their jobs. For the employees, “the constant dissatisfaction with their job [sic] was always in the back of their mind.” Students generally find that workers were allotted few or no sick days, were discouraged from filing accident reports, often found themselves overworked, and quite often felt that although their jobs are undesirable and insufficient, the alternatives are equally unattractive, given current levels of human capital.

Interviews with managers and owners confirmed the precariousness of the workers’ labor market positions. One manager commented to a student that “people who work [here] are a dime a dozen.” Yet, students often question the sincerity of managers’ or owners’ responses. Several students noted that the managers viewed the students as little more than a potential sale or an outlet for public relations. One student commented that “each one of them also tried pushing their company and products they sold on me which I felt was very interesting. Even during an interview they were still trying to make a sale.” Another student felt that “the managers sounded to me like they had already something pre-written for them [sic] when situations like these take place” and yet another felt that “It appeared that [the manager] may have tried to answer in a way that would make her decisions appear more generous for her workers.”

Many students concluded that the managers/owners are singularly focused on maximizing profits. They actively resist increases in wages and the provision of benefits, send workers home when customers are scarce, prefer to hire workers who are aesthetically and interactionally pleasing to customers, and admittedly overworked employees who found themselves working on “a skeleton crew.” Managers were generally aware that employees struggled to live on their current wages, yet intense competition and a large pool of job-seekers kept wages low and benefits non-existent (Marx’s “industrial reserve army”). Others at franchise stores reported they had no control over wages and benefits; those were determined by corporate executives. They occasionally provided discounts or competition-based bonuses to employees, chiefly because these could be taken away during hard times. Interestingly, managers often reported that they struggled to make ends meet themselves; one manager reported an hourly wage only \$1.50 above the state minimum, with several others lacking employer-provided health insurance.

Students interested in hiring decisions quite often found that such decisions are made as much by ascribed statuses (particularly race, ethnicity, and gender) as by education, training, and work experience. One student found in his interviews with restaurant managers that “the restaurants tend to hire people according to their ethnicity, not how much education they have or how much experience they have to be qualified for the job.” Although I typically discuss ascribed statuses in class and we may talk about how research has pinpointed the frequent use of gender (Reskin and Roos 1990) and race/ethnicity (Waldinger and Lichter 2003) in ranking candidates for hiring and promotion, students were excited to both see this knowledge substantiated through real-world experience and to add to our knowledge about how and why such decisions are made.

### **VIII. Student Reactions.**

At the completion of the exercise I administered a feedback survey consisting of both open-ended and closed-ended questions to my students. In total, 28 students completed the feedback form. A colleague of mine was generous enough to both try the exercise and administer the evaluation in his course, adding 35 additional cases for a total of 63 student evaluations. Roughly 40 percent of the students said that they had done an interview project in a previous class (most in a Research Methods course), but I found it noteworthy that in upper-level (400-level) courses, more than half had not. Therefore, consistent with the third objective, it did provide most students with their first experience collecting and analyzing original data. Students revealed that their interviews averaged about 16 minutes, and they felt only moderately comfortable approaching strangers to ask for an interview (mean of 5.8 where 1 indicates extremely uncomfortable and 10 indicates complete ease). Yet, when asked the extent to which the project helped them feel more comfortable conducting interviews, responses averaged 6.8 (where 1 indicates “Not at all” and 10 indicates “Substantially”). When asked to what extent the views of managers/owners and employees differed or clashed, student responses averaged 6.5 (where 1 indicates “Not at all” and 10 indicates “Entirely”). This finding informs the second main objective of the exercise; too see if the views of managers and owners clashed with those of workers, which students felt they often did. And, consistent with the first objective, when asked whether the project helped them better understand the working conditions in service-sector employment, quantitative responses averaged 6.7 (same scale as above). And, when asked whether the exercise should be used again in future courses, 85 percent responded “Yes.”

The most common qualitative critique of the assignment was that students wanted more time to complete it. Because I use this exercise in an expedited four-week course, they have less than two weeks to complete interviews and write the analysis; one student commented that he/she “felt rushed” and another five students simply said “More time.” Even in my colleague’s 10-week course, where the students were given an extra week, some students felt rushed. Conversely, a small minority felt that, given the amount of time allocated, they could have undertaken even more interviews in order to ensure that their interviews were not atypical cases. This prompted class discussions about reliability, generalizability, and issues related to sample size. Some students felt that the questions they needed to ask were too personal and in one student’s words, sociologists need to take better care to “respect people’s personal business.” Comments such as these encourage interesting discussions about the sociological enterprise, the offering of incentives to interviewees, and the extent to which social science research necessitates intrusions into subjects’ personal matters. Other students said “I liked the way it went” and “Nothing [should be changed].” When asked about the most important lesson they learned from the project, one student said “The importance of real world experience in study” while another student said “personal skills, speaking, interviewing, etc.”

Students were generally surprised with their findings. During our class discussion, one student commented that “The managers knew about pay inequalities but didn’t do anything about it!” Others benefited from hearing the managers’ points of view, something often missing from similar projects. One student commented that the “minimum wage is more complicated than I assumed. You can’t just raise it because someone has to pay it.” Comments such as these encouraged class discussion about the relationship between employee pay, the price of goods and services, and inflation. Another student commented that he/she was surprised by “the amount of blatant discrimination managers use when hiring employees. [They admitted] it had a lot to do

with ascribed status.” Finally, one student commented on her feedback form that it is unfair that “employers sending people home so they don’t reach 40 hours-- that says...that companies are more concerned about money [sic] than people.” Relatedly, a student commented that “I did not realize that so many companies, large and small, don’t provide anyone with benefits.” Taken in aggregate, these comments may best be summed up by one student’s conclusion that “Employers can be very shady” Comments like these present ample opportunity for discussing how this “shady” behavior can often be structurally-driven. For example, employers statistically discriminate, choosing workers from groups with which they believe they will obtain the most work with the least resistance. These perceptions can be fueled by the media, popular images, or past interactions. In either case, such decisions are often viewed as quite rational, but ultimately driven by pre-existing structural inequalities. Even more importantly, however, one student noted on his or her feedback form that the exercise provided him or her with motivation to challenge systematic workplace inequalities, saying that “discussing these problems with [interviewees] made the problem more personal and real for me....now I really feel there needs to be a change in order to bring about more equality.”

## **IX. Conclusions.**

Many students in my class were surprised by the inequalities they discovered, ranging from the expendability of workers to the markedly unpredictable working hours encountered by many service sector employees. These findings are particularly powerful because they reinforce what one might learn by reading *Nickel and Dimed*, *No Shame in My Game*, or *The Working Poor*, but such discoveries have more staying power when they are derived from a student-designed project. Similarly, the richness of their findings underscores the need to develop and implement more exercises that allow students to design a research project using pre-existing theories (i.e., information from course readings), create a research question or hypotheses, collect data germane to those hypotheses, systematically analyze their interview data, and write up conclusions. Such an exercise requires students to observe the social world and to use those observations to critically consider the textual information that they encounter in their classes. Such critical inquiry carries the possibility that student findings will diverge substantially from prior academic knowledge and will help students feel as if they are contributing to, not passively receiving, knowledge about the social world. It also provides practice in deductive logic, as they are asked to generate research questions using preexisting theory and evidence and to answer those questions using real-world data. Furthermore, I know of no existing exercises that ask students to interview both managers and workers, with the goal of assessing convergence and divergence. In sum, this exercise gives students experience “doing what sociologists do”, from start to finish. As one student eloquently wrote, “It’s one thing to listen to statistics from your professor about workplace inequality, but it is quite another to go out into the field and actually experience the emotion that these people feel about these issues.”

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## **The perceived barriers toward reading empirical articles among graduate students: A mixed methods investigation**

**Hesborn O. Wao, Oma Singh, Valerie Rich, Tina N. Hohlfeld, Matthew Buckmaster, Denise Passmore, Christen Tonry<sup>1</sup>, Anthony J. Onwuegbuzie<sup>2</sup> and Qun G. Jiao<sup>3,\*</sup>**

*Abstract: This mixed methods study identified doctoral students' perceptions of barriers that prevent them from reading empirical articles. A secondary purpose was to examine the relationship between the students' perceived barriers and their levels of reading vocabulary and comprehension. Participants were 148 doctoral students in education at a large metropolitan research extensive university. The students were enrolled in sections of a one-semester research design course offered over a 2-year period. A thematic analysis (qualitative phase) revealed the following six barriers that students perceived as preventing them from reading empirical articles: lack of time (76.4%), psychological-physical factors (14.8%), lack of relevancy (10.8%), lack of statistical background (7.4%), language style (4.7%), and accessibility (2%). Lack of time was statistically significantly related to levels of reading ability (quantitative phase). Moreover, students with high levels of reading vocabulary were 3.4 times more likely than were their counterparts to perceive time as a barrier. Also, students with high levels of reading comprehension were 2.8 times more likely than were their counterparts to perceive time as a barrier. Implications of the findings are discussed.*

*Keywords: reading empirical research, barriers, reading ability, graduate students, higher education*

### **I. Introduction.**

Doctoral students from the field of social and behavioral sciences in general and the field of education in particular typically are required to enroll in at least one research methodology course during their degree programs. A major curricular goal of these courses is to prepare students to become consumers of research (i.e., to possess the ability to read, to interpret, to synthesize, and to utilize research) (Ravid and Leon, 1995). Indeed, the ability to read and critique empirical research is an important outcome of doctoral programs (Walpole, Burton, and Kanyi, 2002). Although some students will embrace the academic rigor and demands involved in becoming an expert in the field of education, others face difficulties with reading and comprehension. Thus, identifying the barriers that students experience when reading empirical

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research articles (i.e., articles that involve the collection, analysis, and interpretation of quantitative and/or qualitative data) is important for instructors to help graduate students to meet the objective of becoming consumers of research literature. Unfortunately, scant information exists about what barriers prevent doctoral students from reading empirical research articles.

#### *A. Theoretical Framework.*

Graduate students in advanced degree education programs are actively seeking expertise in their chosen areas of study. Alexander's (1995, 2003) Model of Domain Learning (MDL) is a framework that explains the process of developing expertise in an academic domain. The development of expertise is a dynamic process that progresses through three stages: acclimation, competence, and proficiency. Knowledge comprises academic domain knowledge or the breadth of the subject area and topic knowledge or the depth of knowledge in specific areas of the domain (Alexander and Jetton, 2000). In the final stage of proficiency, when students become experts in their chosen fields, they add new knowledge to the domain through research (Alexander, 1995, 2003).

The Construction-Integration (CI) Model (Bruning, Schraw, Norby, and Ronning, 2004; Kintsch, 1988) of reading comprehension explains how readers develop expertise in a domain through reading text. Readers build their vocabularies and thus their understanding of domain specific concepts and strategies as they read complex texts within their domains. The CI Model is an interactive process that the reader cycles through as he or she comprehends the text. Reading comprehension begins with the reader integrating the words with his or her vocabulary knowledge base to create a rich network of associative propositions or concepts. These associations are elaborated upon and become integrated with the reader's past knowledge to form comprehension of the sentence, phrase, and passage. The deepest comprehension integrates the richest interconnected associative net with the reader's prior knowledge base of vocabulary and concepts in the domain. Thus, prior vocabulary knowledge, which supports a rich and dense associative web, helps automate a reader's comprehension (Bruning et al., 2004; Kintsch, 1988).

As graduate students advance in levels of formal education and gain expertise in the content area, the complexity of their reading assignments increases (Pressley, 1995; Winne, 1995). This increased scholarship in the reading material causes the cognitive load required for vocabulary comprehension to be amplified (Alexander and Jetton, 2000). When comprehension does not automatically occur, the reader must systematically use meta-cognitive processes to plan, monitor, evaluate, and adjust his/her learning activities, motivation, affect, and learning environment (Alexander, 1995, 2003; McCombs and Marzano, 1990; Paris and Paris, 2001; Pressley, 1995; Winne, 1995, 1996; Zimmerman, 1990). As such, reading ability represents one construct that might help to determine the ease with which graduate students are able to understand empirical research articles.

Recently, the reading ability measured via the Nelson-Denny Reading test (NDRT; Brown, Fishco, and Hanna, 1993) as comprising reading comprehension and reading vocabulary scores has been found to be significantly related to student achievement in graduate-level research methodology and statistics courses (Collins and Onwuegbuzie, 2002, 2002-2003, 2004; Onwuegbuzie and Collins, 2002). Moreover, Onwuegbuzie and Collins (2002) found that graduate students' NDRT scores were statistically significantly higher than were the normative sample of undergraduate students reported by Brown et al. (1993). However, a small percentage

of the graduate students' scores were extremely low in contrast to the normative sample. Disturbingly, several graduate students' scores pertaining to reading comprehension and reading vocabulary represented the 14th percentile and 24th percentile, respectively. In another study conducted by Onwuegbuzie, Slate, and Schwartz (2001), 87% of graduate students surveyed reported that after reading several pages of a textbook, they were unable to recall or comprehend the contents of those pages. Similarly, Collins and Onwuegbuzie (2002) established that some graduate students demonstrate limited comprehension while reading research methodology textbooks. These results suggest that for some graduate students, reading ability might have a debilitating effect on their levels of academic performance. Moreover, it is likely that students with low reading abilities might find it difficult to read and understand empirical research articles. However, to date, this link has not been investigated formally.

### *B. Purpose of Study.*

Because the majority of graduate students have adequate to high levels of reading comprehension and reading vocabulary (Onwuegbuzie and Collins, 2002), it is reasonable to assume that lack of reading ability is not the sole barrier that prevents graduate students from reading and understanding empirical research articles. Thus, the primary purpose of this study was to identify doctoral students' perceptions of barriers that prevent them from reading empirical studies. The secondary purpose was to examine the relationship between these barriers and levels of reading vocabulary and comprehension. This study was unique in at least three ways. First, it represented one of the few studies in which the role of reading ability on educational outcomes among doctoral students has been examined. Second, it appears to be the first formal attempt to investigate what doctoral students perceive to be barriers that prevent them from reading empirical research articles. Third, although virtually all studies that have examined the construct of reading ability among graduate students have involved the use of quantitative (i.e., monomethod) techniques, the present investigation utilized mixed methods procedures (i.e., quantitative *and* qualitative approaches) such that the resulting mixture or combination was likely to result in "complementary strengths and nonoverlapping weaknesses" (Johnson and Turner 2003, p. 299).

### *C. Mixed Methods Research Questions.*

The following mixed methods research questions were addressed: (a) what is the relationship between reading vocabulary ability and perceived barriers among doctoral students in education when reading empirical articles? and (b) what is the relationship between reading comprehension ability and perceived barriers among doctoral students in education when reading empirical articles?

### *D. Significance of the Study.*

This study was important because all doctoral students in education must be proficient with reading empirical research articles in order to develop expertise in their chosen fields within the domain of education. It was anticipated that the results from this study would guide faculty in planning supportive programs within the College of Education that facilitate students'

development of expertise in evaluating and conducting quality educational research. Also, it was expected that the doctoral-level education programs in similar institutions of higher learning would be able to apply the results of this study to improve their respective programs.

## **II. Method.**

### *A. Participants.*

The sample comprised 148 doctoral students in the College of Education at a large southern metropolitan, Carnegie-designated research-extensive university (Carnegie Foundation for the Advancement of Teaching, 2005) in the United States. These students enrolled in sections of an advanced research design course that was offered by the College of Education each semester over a 2-year period. These participants represented a convenience sample for both the qualitative and quantitative phases of the study. Approximately one half of the students (51%) were female. The participants varied in ages from 22 to 56 years, with the majority of students (87.2%) pursuing a Doctorate of Philosophy (i.e., Ph. D.) degree, and the remainder (12.8%) pursuing a Doctorate of Education (Ed. D.) degree.

### *B. Instruments and Procedures.*

On the first day of class, all participants were administered two scales, namely, the NDRT and the Reading Interest Survey (RIS). The NDRT was utilized in this investigation to measure reading ability. This instrument, developed by Brown et al. (1993), is a 118-item test divided into two subtests, Vocabulary (80 items) and Comprehension (38 items). Each item on the NDRT contains a five-choice response option. The NDRT assesses reading vocabulary, reading comprehension, and the reading rate of test takers. Through a series of revisions, content and statistical data have been updated, although the format of the test has remained unchanged over the years (Brown et al., 1993). This test was selected because of its widespread use among researchers and adequate score reliability ( $KR-20 = 0.92$ ) and score validity that have been reported in the literature, as well as the fact that normative data are available on very large samples of high school and college students (Brown et al., 1993; Onwuegbuzie and Collins, 2002). For the purposes of the present investigation, both the reading vocabulary scores and comprehension scores were analyzed. Score reliability calculated for the reading vocabulary test, as measured by  $KR-20$ , was 0.82 (95% CI = 0.78, 0.86) and for comprehension scores, was 0.69 (95% CI = 0.62, 0.76). Participants also were administered a RIS containing 62 items, the majority of which were closed-items requiring students to provide information regarding their reading habits, preferences, and difficulties (e.g., "Please indicate your perception about reading empirical research articles: Please circle the option that best applies: 1 = EASY; 2 = SOMEWHAT EASY; 3 = NEUTRAL; 4 = SOMEWHAT DIFFICULT; 5 = DIFFICULT"). Included in the RIS also were a few open-ended items (e.g., "What barriers prevent you from reading more empirical research articles?"). Collectively, RIS contained both closed- and open-ended items, a mixed methods collection style that Johnson and Turner (2003) refer to as Type 2 data.

The researchers utilized a mixed methods concurrent equal status design (Onwuegbuzie and Johnson, 2004) involving identical samples (Collins, Onwuegbuzie, and Jiao, 2006, 2007;

Onwuegbuzie and Collins, 2007) for both the quantitative and qualitative components. Correlation analysis (a quantitative technique) was combined with a thematic analysis (a qualitative technique) for the joint purpose of triangulation (i.e., seeking convergence and corroboration of results from different methods studying the same phenomenon) and complementarity (i.e., seeking elaboration, enhancement, illustration, clarification of the findings from one method with findings from the other method; Greene, Caracelli, and Graham, 1989). With respect to the qualitative component of the study, the method of *constant comparison* (Glaser and Strauss, 1967; Lincoln and Guba, 1985) was employed to identify themes that represented barriers to reading empirical articles reported by the participants. The researchers categorized the responses of the participants to create various barrier themes by allowing the actual words (i.e., *in vivo* codes) of the participants to guide the constant comparison process. These themes, in turn, then were correlated with the participants' reading vocabulary scores, yielding a sequential mixed methods analysis—specifically a quantitative-qualitative mixed methods analysis (Onwuegbuzie and Teddlie, 2003). The Statistical Analysis System (SAS Institute Inc., 2002) was used to undertake all statistical analyses.

As a framework for conducting mixed methods data analysis, the following five stages identified by Onwuegbuzie and Teddlie (2003) were incorporated in the present study: data reduction, data display, data transformation, data correlation, and data integration. *Data reduction* involved reducing the dimensionality of the qualitative data using thematic analysis and quantitative data using descriptive statistics; *data display* involved describing pictorially the qualitative data using matrices and quantitative data using tables; *data transformation* involved converting qualitative data into numerical codes that can be represented statistically (i.e., *quantitized*; Tashakkori and Teddlie, 1998); *data correlation* involved correlating qualitative data with quantitized data; and *data integration* involved combining both quantitative and qualitative data into a coherent whole. Mixed methods analysis was employed to enable the researchers get more out of the initial data, thereby enhancing the significance of the findings (Onwuegbuzie and Leech, 2004; Collins, Onwuegbuzie, and Sutton, 2006).

### III. Results.

#### A. Quantitative Findings.

The reading vocabulary scores ranged from 42 to 80, with a mean performance score of 73.31 ( $SD = 5.72$ ). As expected, the reading vocabulary scores were negatively skewed (i.e., skewness = -1.93), reflecting the high-achieving nature of doctoral students in general. Also, these scores represented a leptokurtic distribution (i.e., kurtosis = 6.01).

The reading comprehension scores ranged from 44 to 76, with a mean performance score of 68.14 ( $SD = 6.08$ ). Again, the reading comprehension scores were negatively skewed (i.e., skewness = -1.36), reflecting the high-achieving nature of doctoral students in general. Also, these scores represented a leptokurtic distribution (i.e., kurtosis = 2.11). The correlation between vocabulary scores and comprehension scores was statistically significant ( $r = 0.46, p < 0.0001$ ).

### *B. Qualitative Findings.*

The *in vivo* (i.e., using the exact words of the participants) and descriptive (i.e., developing descriptive words or phrases as codes) coding procedures revealed the following six themes emerging from the students' responses characterizing their perceptions of barriers that prevent them from reading empirical studies: time, psychological-physical factors, relevancy, statistical background, language, and accessibility. *Time* referred to the lack of time to undertake reading empirical articles due to other equally demanding obligations such as work, family responsibilities, and other assigned school work. *Relevancy* was typified by phrases such as "not as appropriate to my field," "lack of relevance to my work," "Oftentimes empirically based article don't relate to my research interest areas," "Since my field is social studies, I prefer ethnographic and oral history type of articles." *Statistical background* referred to inadequate statistical background or knowledge needed to understand the information presented in the articles and was represented by phrases such as "if the article includes complicated statistical analyses, I find myself rather frustrated," "I feel a lack of knowledge in statistical data and methods even though I have had stats 1 and 2," and "Lack of understanding of statistical techniques used in many research articles." *Physical and psychological factors* were characterized by words/phrases such as "boredom," "lack of interest in the topic," "fatigue," "laziness," "burnout," "lack of concentration in the reading content," and "visual impairment." *Language* referred to the barrier due to difficulty understanding terminology and vocabulary used in the articles due to several reasons including lengthy and statistically laden articles or employs technical writing style. Finally, *accessibility* represented the difficulty in accessing empirical articles due to several reasons including online unavailability, too many articles to sort through, difficulty locating articles on topics of interest, dearth of empirical articles in some specialties. It was denoted by phrases such as "There is a lot of research out there and often it becomes tedious to sort through them all," "It also takes time to locate articles on topics of interest," and "accessibility and finding articles with the whole test (the study itself) is a problem."

### *C. Mixed Methods Findings.*

Each theme was *quantitized* (i.e., transforming the qualitative data to a numerical form; Tashakkori and Teddlie, 1998) to determine the frequency of each theme. This process of quantitizing revealed that the order of endorsement level for each of the themes was as follows: time (76.4%), psychological-physical factors (14.8%), relevancy (10.8%), statistical background (7.4%), language (4.7%), and accessibility (2%). Thus, *time* was by far the most commonly cited theme. Also, counting the frequencies of the themes of other courses taken, "statistical-based courses" (i.e., "courses that focus on theory and application of statistical procedures to problems in education (or other fields)") was the most cited course category (cited by 80.4% of the sample). This was followed by "research-based courses" (45.3%) (i.e., "course that focus on theory and application of major design models to systematic inquiry..."), "qualitative-based courses" (25.6%) (i.e., courses that "focus on theory and application of major design models to systematic inquiry"), and "measurement-based courses" (21.6%) (i.e., courses that focus on measurement concepts such as construction of tests and measurement assessments to more advanced concepts).

To examine if there was a relationship between vocabulary performance and the type of barriers cited, we selected approximately 20% of the participants with the highest vocabulary scores and 20% of the participants with the lowest vocabulary scores. Participants who scored between 42 and 69 were classified as belonging to the *low* group ( $n = 30$ ), whereas those who scored between 78 and 80 were classified as belonging to the *high* group ( $n = 34$ ). The researchers hypothesized that these two groups with markedly different levels of reading vocabulary also would differ with respect to their endorsement levels of one or more of the six emergent barriers.

Similarly, to examine if there was a relationship between reading comprehension performance and the type of barriers cited, we selected approximately 20% of the participants with the highest comprehension scores and 20% of the participants with the lowest comprehension scores. Thus, participants who scored between 44 and 64 were classified as belonging to the *low* group ( $n = 34$ ), whereas those who scored between 74 and 76 were classified as belonging to the *high* group ( $n = 32$ ). Again, we hypothesized that these two groups with markedly different levels of reading comprehension also would differ with respect to their endorsement levels of one or more of the six emergent barriers. It must be noted, because there were only 38 comprehension items, the comprehension scores were multiplied by two to facilitate comparison with verbal scores, as recommended by the instrument developers (i.e., Brown et al., 1993).

Table 1 presents the frequencies and percentages of categories of courses taken as reported by students in both low and high groups. The upper part of Table 1 relates to vocabulary performance whereas the lower part relates to comprehension performance.

**Table 1. Frequency and Percentages of Courses Taken Reported by Participants with the Lowest and Highest Scores by Subtest as a Function of the Total Sample Size.**

Group by Subtest		Courses			
		Statistics	Measurement	Qualitative	Research Methods
<b>Vocabulary</b> ( $N = 148$ )					
Low Score (42 to 69)	Count	21	5	10	15
	%	14.2%	3.4%	6.8%	10.1%
High Score (78 to 80)	Count	25	10	6	18
	%	16.9%	6.7%	25.7%	12.2%
Difference	%	2.7%	2%	18.9%	2.1%
<b>Comprehension</b> ( $N = 148$ )					
Low Score (44 to 64)	Count	28	7	10	12
	%	18.9%	4.7%	6.8%	8.1%
High Score (74 to 76)	Count	25	8	6	17
	%	16.9%	5.4%	4.1%	11.5%
Difference	%	2.0%	4.7%	2.8%	3.4%

Table 2 displays the barrier themes cited by students from both subgroups. The computation of both frequencies and percentages in Table 1 and Table 2 are based on total sample size ( $N = 148$ ).

**Table 2. Frequency and Percentages of Barriers Reported by Participants with the Lowest and Highest Scores by Subtest as a Function of the Total Sample Size.**

Group by Subtest		Barriers					
		B1	B2	B3	B4	B5	B6
<b>Vocabulary</b> ( <i>N</i> = 148)							
Low Score (42 to 69)	Count	19	7	2	3	3	2
	%	12.2%	4.7%	1.4%	2%	2%	1.4%
High Score (78 to 80)	Count	29	5	2	1	1	0
	%	19.6%	4%	1.14%	0.7%	0.7%	0%
Difference	%	7.4%	0.7%	0.26%	1.3%	1.03%	1.4%
<b>Comprehension</b> ( <i>N</i> = 148)							
Low Score (44 to 64)	Count	24	5	4	6	1	0
	%	16.2%	3.4%	2.7%	4.1%	0.7%	0%
High Score (74 to 76)	Count	25	4	3	5	1	1
	%	16.9%	2.7%	2.0%	3.4%	0.7%	0.7%
Difference	%	0.7%	0.7%	0.7%	0.7%	0%	0.7%

*Note.* B1 = Time; B2 = Relevance; B3 = Statistical background; B4 = Psychological -physical factors; B5 = Language; B6 = Accessibility

Table 3 shows the frequencies and percentages of categories of courses taken by the sub-sample of participants with the lowest and highest levels of reading vocabulary and comprehension scores.

**Table 3. Frequency and Percentages of Courses Taken Reported by Participants with the Lowest and Highest Scores by Subtest as a Function of the Sub-sample Sizes.**

Group by Subtest		Courses			
		Statistics	Measurement	Qualitative	Research Methods
<b>Vocabulary</b> ( <i>N</i> = 64)					
Low Score (42 to 69)	Count	21	5	10	15
	%	70%	17%	33%	50%
High Score (78 to 80)	Count	25	10	6	18
	%	74%	29%	18%	53%
Difference	%	4%	12%	15%	3%
<b>Comprehension</b> ( <i>N</i> = 66)					
Low Score (44 to 64)	Count	28	7	10	12
	%	82.4%	20.6%	29.4%	35.3%
High Score (74 to 76)	Count	25	8	6	17
	%	78.1%	25%	18.8%	53.1%
Difference	%	4.3%	-4.4%	10.6%	-17.8%

Table 4 shows the barrier themes cited by the same sub-sample of participants based on vocabulary scores and comprehension scores. The computation of both frequencies and percentages in Table 3 and Table 4 are based on respective sub-samples, not the whole sample.

**Table 4. Frequency and Percentages of Barriers Reported by Participants with the Lowest and Highest Scores by Subtest as a Function of the Sub-sample Sizes.**

Group by Subtest		Barriers					
		B1	B2	B3	B4	B5	B6
<b>Vocabulary (N = 64)</b>							
Low Score (42 to 69)	Count	19	7	2	3	3	2
	%	63%	23%	7%	10%	10%	7%
High Score (78 to 80)	Count	29	5	2	1	1	0
	%	85%	15%	6%	3%	3%	0
Difference	%	22%	8%	1%	7%	7%	7%
<b>Comprehension (N = 66)</b>							
Low Score (44 to 64)	Count	25	4	3	5	1	1
	%	73.5%	11.8%	8.8%	14.7%	3.0%	3.0%
High Score (74 to 76)	Count	24	5	4	6	1	0
	%	75%	15.6%	12.5%	18.8%	3.1%	0
Difference	%	1.5%	3.8%	-3.7%	-4.1%	-0.1%	3.0%

*Note.* B1 = Time; B2 = Relevance; B3 = Statistical background; B4 = Psychological -physical factors; B5 = Language; B6 = Accessibility

An interesting finding was that the barrier of lack of time was cited less by the low-reading vocabulary group (63%) than by the high-vocabulary group (85%), as shown in the upper panel of Table 4. Moreover, the chi-square test yielded a statistically significant difference between these two groups with respect to how often the lack of time barrier was cited, whereby the lowest-scoring group were less likely to cite time as a barrier than were the highest-scoring group ( $\chi^2(1) = 4.10, p = 0.0429$ ). The effect size associated with this difference, as measured by Cramer's  $V$ , was 0.25, indicated a moderate difference (Cohen, 1988). No other chi-square test was performed because the proportion of students who cited the remaining barriers was too small to obtain adequate statistical power (Erdfelder, Faul, and Buchner, 1996).

With respect to reading comprehension scores, again, the barrier, lack of time, was cited less by the low-reading vocabulary group (73.5%) than by the high-vocabulary group (75%), as shown in Table 4. The chi-square test yielded a statistically significant difference between these two groups with respect to how often the barrier was cited, whereby the lowest-scoring group were less likely to cite lack of time as a barrier than were the highest-scoring group ( $\chi^2(1) = 5.25, p = 0.0219$ ). The effect size associated with this difference, as measured by Cramer's  $V$ , was 0.28, indicating a moderate difference. Because the proportion of students who cited the remaining barriers was too small to obtain adequate statistical power, no other chi-square test was performed.

Regarding the categories of courses taken, students in the low-performance vocabulary group had taken fewer courses in the area of educational measurement than did those in the high-performance vocabulary group, a difference of 12%. Conversely, students in the low-performance vocabulary group had taken 15% more qualitative courses than had the high-performance vocabulary group.

With respect to the categories of courses taken, again, students in the low-performance reading comprehension group had taken fewer courses in the area of educational measurement, statistics, and research methods than had those in the high-performance reading comprehension group, a difference of 4%, 4.3% and 17.8%, respectively. Conversely, students in the low-



performance reading comprehension group had taken 10.6% more qualitative courses than had the highest-scoring group (see Table 3).

#### **IV. Discussion.**

Research is an important part of any doctoral student's academic growth. To read and be able to analyze research in one's field is a primary goal of graduate programs in general and doctoral programs in particular (Walpole et al., 2002). In this study, the researchers were interested in identifying the perceptions of barriers that prevent doctoral students from reading empirical studies. Examined also was the relationship between these barriers and levels of reading vocabulary and comprehension. By collecting and analyzing quantitative and qualitative data within the same framework, the present inquiry has demonstrated the utility of using mixed methods approaches (cf. Tashakkori and Teddlie, 1998, 2003) to studying educational phenomena such as reading ability.

With respect to the first purpose, the following six barriers were identified: lack of time, psychological-physical factors, lack of relevancy, lack of statistical background, language style, and accessibility. Lack of time was by far the most common barrier cited for preventing doctoral students from reading empirical research articles, being mentioned by slightly more than three-fourths of the sample. The five other factors were cited less frequently than was this barrier theme, with psychological-physical factors being the second-most commonly mentioned barrier (14.8%; this was also the broadest barrier category). Because more than three fourths of the sample cited lack of time as a barrier, we can surmise that this is an important area of interest for further studies.

In comparing students whose levels of reading vocabulary represented the lowest 20% and highest 20% on the continuum, it was found that the low-performance vocabulary group had taken fewer measurement courses than had their high-performance counterparts (17% vs. 29%, respectively), but more qualitative courses (33% vs. 17%, respectively). Conversely, a dissimilar finding was reflected in a comparison of the lowest 20% and highest 20% with respect to levels of reading comprehension. Here, the low-performance reading comprehension group, in comparison to their high-performing counterparts, had taken slightly fewer measurement courses (12% vs. 14%, respectively) and slightly fewer qualitative courses (11% vs. 14%, respectively). What these data suggest is unclear, although there appears to be a link between doctoral students' levels of vocabulary performance and the type of research methods courses that they select.

According to the CI Model (Bruning et al., 2004; Kintsch, 1988), the development of a dense associative net or topical vocabulary facilitates comprehension. The structure and curriculum of these courses might influence the decisions of students with different levels of vocabulary performance when selecting courses. On one hand, the fact that more low-performance vocabulary students take more qualitative courses might result from the research methods taught in these courses. Qualitative methods focus on the analysis and synthesis of vocabulary to form themes, concepts, and principles. Applying qualitative methods to research in the students' interest areas within the domain of education might support students, who lack the vocabulary, in generating the vocabulary, concepts, and associative network required for expertise in their field. If increased topical vocabulary is a prerequisite for efficient reading comprehension, then offering qualitative methods courses to education doctoral students in the beginning of their programs might support their improved ability to read empirical articles.

On the other hand, the fact that more high-performance vocabulary students take more measurement courses also might result from the structure and curriculum of these courses. The nature of measurement methods are the opposite to those of qualitative methods. Rather than generate concepts from examples, measurement activities involve the creation of specific items to measure the concept. Experts generate specific questions or examples with exacting vocabulary to represent constructs. These measurement activities would require the students to have rich domain specific vocabulary resources and previous concept development for efficient application. Previous experiences of the students, who take more measurement courses, might have supported their development of a more advanced associative net, and as a result, they do not find the need to include more qualitative courses in their programs. The students with low-performance vocabulary levels, who take more qualitative courses, use these qualitative courses to support their developing vocabulary.

Further support for the relevancy of the CI Model for explaining reading comprehension of doctoral students is provided by the comparisons of courses taken by the high- and low-performing comprehension groups. The fact that students in the low-performance reading comprehension group took slightly fewer measurement courses and slightly fewer qualitative courses might be an indication of the time spent developing expertise within the doctoral program. According to the CI Model (Bruning et al., 2004; Kintsch, 1988), increased fluency in reading comprehension is facilitated by the denseness of the associative vocabulary net. Within the doctoral program, students continuously build this net. Therefore, reading comprehension within the domain of expertise is continuously developing and improving. Time studies with repeated measures are needed to document this development. Instruments will be needed to measure vocabulary level and empirical reading levels to verify the relationship between vocabulary development and reading comprehension.

If the CI Model explains how doctoral students increase their ability to read empirical research articles while developing expertise in the field, then the CI Model should guide the creation of recommended programs of study. Doctoral students, who have lower levels of domain specific vocabulary, should be encouraged to take qualitative methods courses first, because this would support the vocabulary development that is needed for success in later measurement methods courses. Future research should examine the development of vocabulary of doctoral students within the education domain. New measures are needed, because the NDRT did not measure the education specific vocabulary of doctoral students.

The majority of students in both the low- and high-performance groups in both vocabulary and comprehension scores cited lack of time as a barrier that prevented them from reading empirical research articles. However, the proportion of students who cited this barrier was statistically significantly larger (85% for vocabulary and 79% for comprehension) in the high-scoring group than in the low-scoring group (63% for vocabulary and 53% for comprehension).

The odds ratio revealed that students with high levels of reading vocabulary were 3.4 times more likely than were their low-scoring counterparts to perceive time as a barrier. One might have expected that students with the low levels of reading comprehension would be *more* likely to cite time as a barrier because they needed more time to read each empirical research article on account of their relative reading problems. However, the reverse was discovered. Consequently, the present finding might suggest that those individuals who have lower vocabulary performance than their peers might be more prone to find excuses not to read

empirical articles, possibly because of their discomfort with the relatively more advanced vocabulary. Moreover, these reading avoidance behaviors might stem from the fact that students who are not as proficient with respect to reading vocabulary are not able to self-regulate their study strategies, maintain motivation to accomplish their goals, actively seek the information they need, or be resilient and persevere when they encounter difficulties (Alexander, 1995, 2003; Bruning et al., 2004; Kintsch, 1988; McCombs and Marzano, 1990; Paris and Paris, 2001; Pressley, 1995; Winne, 1995, 1996; Zimmerman, 1990). The finding that students with the highest vocabulary levels are more likely to cite time as a barrier might reflect the fact that they have the greatest motivation to read empirical articles and thus are more cognizant of the limited time they have to do so. In support of this assertion, a small but statistically significant relationship was found between students' levels of reading ability and how often they read empirical articles ( $r_s = 0.18, p < 0.05$ ).

Another explanation for why more students with higher vocabulary abilities indicated that time was a barrier that prevented them from reading empirical research articles could be that the perspectives of these different groups of students are different based on their accomplishments within their programs. Doctoral students, who have spent more time in their program and are taking higher level courses, might have increased expectations for reading empirical research articles when compared to doctoral students who are just beginning their program of studies. In addition, doctoral students enrolled in a greater number of courses, might also have increased expectations for the number of empirical articles to read. When numbers of articles to be read are a part of the equation, time might become a more influential barrier to reading. This finding also confirms the CI Model as an explanation for how students comprehend reading material and gain expertise. As students delve deeper into the domain, their associative vocabulary nets become denser, and their ability to comprehend empirical research in their field becomes more fluent. Parallel with the development of the students' expertise in the field, the rigor of readings in higher-level courses increases, while the expectations for their performance becomes more demanding. Because students at these higher levels of expertise are required to read greater quantities of more rigorous empirical research articles, they are more aware of the time required for reading these articles. Another important measure for future research will be the number and rigor of empirical research articles required for doctor students in the courses offered by the College of Education.

#### *A. Implications for Future Research.*

Understanding the role that reading comprehension plays in the learning process of graduate students is important, as evidenced by the recent increase in the number of studies conducted in this area (Collins and Onwuegbuzie, 2002-2003; Francis and Simpson, 2003; Jiao and Onwuegbuzie, 2003; Onwuegbuzie et al., 2001, 2004). Level of reading ability has been found to predict overall performance in research methodology courses (Collins and Onwuegbuzie, 2002, 2002-2003). Building on these works, the current investigation has documented another educational outcome that is linked to reading ability, namely, students' perceptions of the debilitating effect of time on their capacity to read empirical research articles. Future research should investigate this relationship between perceived lack of time and reading ability. More in-depth qualitative techniques (e.g., interviews, observations) can play an important role here. Quantitative techniques also could be used to see if this association between perceived lack of

time and reading ability varies as a function of demographic (e.g., gender, ethnicity, age, student's major field of interest), affective (e.g., level of motivation, level of self-efficacy) variables, program of studies variables (e.g., number of courses, numbers of empirical articles, reading level of empirical articles), and individual variables (e.g., level of domain specific vocabulary development and reading comprehension ability with empirical research articles).

An unexpected finding was the possible link between high reading vocabulary performance and enrollment in measurement-based courses, as well as the link between low-reading vocabulary performance and enrollment in qualitative courses. Although this was not a major focus in our study, there might be some important information to glean here regarding course preference of doctoral education students. In particular, it might be that doctoral students with the greatest reading vocabulary ability are more confident about enrolling in quantitative-based research courses because these courses necessitate the ability to receive, to encode, to translate, and to reproduce material presented in statistical textbooks, which are all aspects of the reading process (Hacker, 1998; Otero and Kintsch, 1992). Conversely, those with lower levels of reading ability might be more inclined to enroll in qualitative-based research courses because they support the development of domain specific vocabulary and its associative net utilized for reading comprehension (Kintsch, 1988). Whether doctoral students' choice of research methodology courses might stem, at least in part, from their levels of reading ability or whether reading ability is a result of those choices should be the subject of future investigations.

## V. Conclusions.

An important limitation of the present findings warrants mention. Specifically, the results were obtained from a relatively homogeneous sample of doctoral students. This poses a threat to the external validity of the findings via population validity and ecological validity (Johnson and Christensen, 2008). Thus, it is not known whether the results are representative of doctoral students in general. As such, replications of the study are needed across various doctoral populations from various academic disciplines. This study also should be replicated on master's students and on undergraduate students.

Nevertheless, the current investigation indicates that for doctoral students from the field of education, reading ability might play an important role in the learning context. Moreover, to the extent that the negative relationship between levels of reading vocabulary and the perception that time prevents students from reading empirical articles might be indicative of reading avoidance behaviors or inadequate preparation among the poorest readers, this finding suggests that inadequate reading ability can place a student at risk of not learning the skills necessary to be a consumer of research (Ravid and Leon, 1995; Walpole et al., 2002). As such, reading ability in graduate school offers great potential for the design and implementation of interventions and course sequences that might effectively help address the research needs of graduate students and fully educate the future researchers and professional educators of tomorrow.

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## **Second language learners' achievement in literature through problem-based learning method**

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Dr. Nabi Bux Jumani<sup>3</sup>**

*Abstract: Teaching literature to L2 learners demands methodological training and innovative strategies to bring effectiveness in learning. Problem based instructional strategy is being widely used to determine its impact on learner's achievement, retention, attitude etc. This paper explores the impact of Problem based learning method (PBLM) and Traditional lecture method on achievement of L2 learners in the learning of literature at grade XII in Pakistan. An experiment was conducted on 67 students, 34 for control group and 33 for experimental group, of Federal Government postgraduate college H-8 Islamabad. Pre-test and post-test design was used to compare students' achievement. Grade-XII English book was selected for lessons to be taught by PBLM and traditional lecture method. The pre-test and post-test was administered according to the paper pattern of Federal Board of Intermediate and Secondary Education Islamabad. The collected data was analyzed statistically. The results showed that there was a significant difference between the achievement score of experimental group and that of the control group. The result also showed that Problem based learning method was more effective in enhancing achievement level of the students and helpful for teaching literature to L2 learners. It was recommended that PBLM may be adopted for literature teaching at XII grade level.*

*Keywords: second language acquisition, literature learning, problem-based learning, achievement in L2*

### **I. Introduction.**

Twenty first century is looked upon as the age of global changes and challenges in every sphere of life, particularly in the arena educational system of a country. The emerging paradigms of telecommunication and digital technology are broadly influencing upon the teaching learning process all over the world. The rapidly changing present world demands people to be multi-tasked, equipped with the skills of collaboration and flexibility, and have the ability to process information. Problem solving, goal setting, and creative thinking are considered specific skills required for the twenty first century workforce. For Jeffrey and Woods (2003, p.122) education needs to foster creativity that is to encourage flexibility, innovation and, "positive identities."

Similarly Albrecht (2002) regards training of human brain for better creative products as the need of the time. The situation justifies the need for education to be reconstructed, theory to be redesigned, and strategies to be reconsidered. In this regard Feden and Vogel (2003, p.16) are of the opinion that "we have a new set of lenses through which we can view teaching and

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learning. They are provided by cognitive psychology.” Thus teachers need to update their knowledge of cognitive psychology and receive necessary training in cognitive teaching methods. They need to re-orient their teacher- centered classrooms to student- centered and give students their legitimate autonomy. Students need to be engaged in practical projects, active manipulation of material, processing information, asking questions, making queries, solving open-ended problems, and generating their responses rather than giving right answers.

Duch (2001) lists five characteristics of good PBL problems:

1. An effective problem must engage student’s interest and motivate them to probe for deeper understanding of the concepts being introduced.
2. Good problems require students to make decisions or judgments based on facts, information, logic, or rationalization.
3. Cooperation from all members of the team should be necessary to effectively work through a problem.
4. The initial questions in the problem should have one or more of the following characteristics so that all students in the groups are initially drawn into a discussion of the topic: (a) the questions should be open-ended, not limited to one correct answer; (b) the questions should be connected to previously learned knowledge; and (c) they should incorporate controversial issues that will elicit diverse opinions.
5. The content objectives of the course should be incorporated into the problems and the questions should challenge students to develop higher order thinking skills such as analysis, synthesis, and evaluation.

Camp (1996) suggested that the “pure problem based learning” involves active learning, problem centered, student centered, integrated, collaborative, interdisciplinary, makes use of small groups and operates in clinical settings. According to Torp (1995) problem based learning is an instructional approach built around an ill-structured problem which is messy and complex in nature; requires inquiry, information gathering, and reflection; is changing and tentative; and has no simple, fixed, formulaic, “right” solution.

Stepien (1993), Duch (1995) and Edens (2000) stated three basic stages of problem based learning that is, confronting and defining the problem; accessing and investigation; and synthesis and performance.

Jones (1996) describe that the most decisive aspect of PBIS is the development of appropriate questions. He further emphasized the importance of appropriate assessment of the performance of students. According to him the academic achievement of the students in lecture-based instructional strategy is assessed through standardized test but in PBIS more appropriate assessment methods and techniques like written exams, practical exams, self assessment, structuring of concept maps and oral presentations are required. According to Norman and Schmidt (2000) PBIS program improved the motivation of the students. Vernon and Blake (1993) found that the students demonstrated more satisfaction to their educational achievements when they are practiced with PBIS. Problem-based instructional strategy (PBIS) enhances relocation of concepts to new problems, concept assimilation, inherent interest in learning, and learning skills (Schmidt, 2000).

Dods (1997) studied the effectiveness of PBIS in elevating acquisition of knowledge. He selected 30 students from biochemistry course at the Illinois Mathematical and Science Academy. The content of this course was covered through PBIS, lecture method and an amalgamation of both the PBIS and lecture method. Data were collected by using pre-test and

post-test to examine the student's depth of understanding. It was found that although content was delivered easily through lecture method but PBIS is more effective in promoting complete understanding of the key concepts of biochemistry content.

In Pakistani universities and colleges, it is observed that the teaching/learning situation of literature has not significantly changed. Majority of the teachers are committed to traditional methods of teaching literature. The traditional methods of teaching require teachers of literature to impart a vast amount of information to students who are expected to accumulate the imparted information and reproduce accurately in examination. There is hardly any research and effort to apply cognitive teaching strategies and techniques to teach literature in order to develop students' thinking and other cognitive processes such as perception, memory, retrieval and transference. As a result, though students successfully get a degree at the end of the courses, they remain unable to process and manipulate information, synthesize and evaluate ideas, make connection between classroom learning and the practical world outside, or generate personal and innovative ideas.

Several studies on problem-based learning method have proved that the students showed better performance in problem based learning settings. Albanese, M., and Mitchell (1993) investigated the overall effects of problem-based instruction. The question guiding this meta-analysis was "What does literature tell us about outcomes and implementation issues related to problem-based instruction". Similarly, Johnson, E. Herd, S. Andrewartha, K. (2002) in their study "Introducing problem-based learning into a traditional lecture course" assess student satisfaction in a course that used a combined problem-based learning and lecture format.

Breton (1996) conducted a study which analyzed two different teaching methods in an accounting theory class. Two classes of students, one traditional and one PBL were compared to determine differences in knowledge acquisition and aptitude for problem solving. The present study was conducted in Pakistani context where the culture of PBL is not common in schools and colleges.

## **II. Purpose of Study.**

The purpose of this study was to investigate the effects of the Problem based learning method of teaching on achievement of grade XII College students in English Text-book.

### **Research Questions**

The following research questions were designed:

- i) Is there any significant difference between the achievement of students who got and did not get the Problem based method of teaching according to their pre test and post test results.
- ii) Is there any significant difference between the achievement of High achievers who got and did not get the problem based method of teaching according to their pre test and post test results.
- iii) Is there any significant difference between the achievement of Low achievers who got and did not get the problem-based method of teaching according to their pre test and post test results.

### III. Methodology.

The sample of this study consisted of 67 male students of grade XII of Govt. Federal Government Postgraduate College, Islamabad, Pakistan. As the college was a public sector institution located in capital, students from various socio-economic backgrounds from different parts of the country were eligible to join it. The students had a very rare experience to be taught by problem based learning method because almost all the public sector educational institutions used lecture method of teaching. The students were between the age of 17 to 19 and have completed their English text-book. Sample students were divided into two groups i.e. control group and experimental group. Control group comprised of 34 students and Experimental group of 33 on non-equivalent basis. The class sections were allotted randomly to control and experimental groups. To measure the achievement level of students, two different types of tests were developed by the researcher which were administered after validation. For this purpose twelve lesson plans of English text book were selected. The students of experimental group were involved in different activities and problems. After collecting the data, the responses were scored; means and t-values were calculated for determining the significance. A quasi-experimental research design (Pretest-Posttest Non-equivalent Group Design) was employed to measure differences in Achievement. In this design, subjects were randomly assigned to experimental and control groups.

On this pre-testing the students were divided into two groups' i.e. experimental groups and control groups. The experimental group was taught through problem based learning method while the control group was taught through traditional method. Their level of achievement in PBL after grouping was measured as usually measured in the pre-testing. The test for achievement was conceptual in nature. These scores were used as post-test scores. Twelve lessons were taught in the pre-testing and similarly 12 lessons were taught in the post testing. But these lessons were different from the pre-test.

The split half method (odd-even) was used to test the reliability of post-test scores obtained by the students who formed the sample of the study. The coefficient of reliability was determined through the use of Spearman Brown Prophecy formula estimating reliability from the comparable values of the post- test. It was found to be .79.

### IV. Analysis of Data.

The data collected through achievement tests which were conceptual in nature, were statistically analyzed. A pretest and posttest on English text-book was constructed and administered. The analysis and presentation of data are given below:

#### Hypothesis # 1

There is no significant difference between the Achievement of control group and experimental group on pre-test.

**Table 1. Calculation of t-test.**

Group	N	$\bar{X}$	SD	t-value
Control	34	9.59	6.106	0.008
Experimental	33	9.58	6.515	

$P > 0.05$ ;  $df = 65$

Referring to Table 1, “t” with  $df = 65$  and  $\alpha = 0.05$  we found that the tabulated value of  $t = 2.000$  is greater than the calculated value of  $t = 0.008$ .

**Conclusion:** The null hypothesis is therefore up held. It is concluded that there is no significant difference between the mean scores of achievement of control group and experimental group on pre-test.

### Hypothesis #2

There is no significant difference between the achievement of high achievers of control group and experimental group on pre-test.

**Table 2. Calculation of t-test.**

Group	N	$\bar{X}$	SD	t-value
Control	11	16.64	4.249	0.490
Experimental	11	17.45	3.560	

$P > 0.05$ ;  $df = 20$

Referring to Table 2, “t” with  $df = 20$  and  $\alpha = 0.05$  we found that the tabulated value of  $t = 2.086$  is greater than the calculated value of  $t = 0.490$ .

**Conclusion:** The null hypothesis is therefore up held. It is concluded that there is no significant difference between the mean scores of achievement of high achievers of control group and experimental group on pre-test.

### Hypothesis # 3

There is no significant difference between the achievement of low achievers of control group and experimental group on pre-test.

**Table 3. Calculation of t-test.**

Group	N	$\bar{X}$	SD	t-value
Control	11	3.27	2.149	0.337
Experimental	11	3.00	1.612	

$P > 0.05$ ;  $df = 20$

Referring to Table 3, “t” with  $df = 20$  and  $\alpha = 0.05$  we found that the tabulated value of  $t = 2.086$  is greater than the calculated value of  $t = 0.337$

**Conclusion:** The null hypothesis is therefore upheld. It is concluded that there is no significant difference between the mean scores of achievement of low achievers of control group and experimental group on pre-test.

### Hypothesis # 4

There is no significant difference between the achievement of the control group and experimental group on post-test.

**Table 4. Calculation of t-test.**

Group	N	$\bar{X}$	SD	t-value
Control	34	10.26	5.869	8.850
Experimental	33	24.18	6.971	

$P > 0.05$ ;  $df = 65$

Referring to table 4, “t” with  $df = 65$  and  $\alpha = 0.05$  we found that the tabulated value of  $t = 2.000$  is smaller than the calculated value of  $t = 8.850$ .

**Conclusion:** The null hypothesis is therefore rejected. It is concluded that there is a significant difference between the mean scores of achievement of control group and experimental group on post-test.

#### **Hypothesis # 5**

There is no significant difference between the achievement of high achievers of control group and experimental group on post-test.

**Table 5. Calculation of t-test.**

Group	N	$\bar{X}$	SD	t-value
Control	11	17.18	3.842	7.907
Experimental	11	32.45	5.126	

$P > 0.05$ ;  $df = 20$

Referring to table 5, “t” with  $df = 20$  and  $\alpha = 0.05$  we found that the tabulated value of  $t = 2.086$  is smaller than the calculated value of  $t = 7.907$ .

**Conclusion:** The null hypothesis is therefore rejected. It is concluded that there is a significant difference between the mean scores of achievement of high achievers of control group and experimental group on post-test.

#### **Hypothesis # 6**

There is no significant difference between the achievement of low achievers of control group and experimental group on post-test.

**Table 6. Calculation of t-test.**

Group	N	$\bar{X}$	SD	t-value
Control	11	4.36	1.963	15.551
Experimental	11	17.91	2.119	

$P > 0.05$ ;  $df = 20$

Referring to table 6, “t” with  $df = 20$  and  $\alpha = 0.05$  we found that the tabulated value of  $t = 2.086$  is smaller than the calculated value of  $t = 15.551$ .

**Conclusion:** The null hypothesis is therefore rejected. It is concluded that there is a significant difference between the mean scores of achievement of low achievers of control group and experimental group on post-test.

## V. Results and Discussion.

The experimental study was conducted to examine the level of achievement of two groups through traditional method and problem based learning method. Results in pretest indicated that there was no significant difference between the achievement scores of the control group and the experimental group. It does make clear that the traditional teaching method is prevalent and modern techniques of teaching literature are not applied. When compared with the results in posttest, it is clear that the students perform better when taught through PBLM and it helps students develop the abilities of analysis, synthesis and evaluation as the items of achievement test were based on these measures. Both the high achievers and low achievers of experimental group showed significant difference in the mean score of achievement on posttest that signifies the effectiveness of PBLM in comparison with traditional method. It also makes clear that the existing methods of teaching literature are not based on modern cognitive approach like problem solving skill and it also shows that teachers are not trained to teach literature through modern instructional techniques. So the students of experimental group showed significant better performance when compared with control group on scores of posttest.

## VI. Recommendations.

1. Problem based learning methodology may be used for better achievement.
2. Conceptual learning may be improved through Problem solving instructional strategy.
3. Teachers may use PBL for fostering higher order thinking skills.

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## Mission

Founded in 2001, the Journal of the Scholarship of Teaching and Learning (JoSoTL) is a forum for the dissemination of the Scholarship of Teaching and Learning in higher education for the community of teacher-scholars. Our peer reviewed Journal promotes SoTL investigations that are theory-based and supported by evidence. JoSoTL's objective is to publish articles that promote effective practices in teaching and learning and add to the knowledge base.

The themes of the Journal reflect the breadth of interest in the pedagogy forum. The themes of articles include:

1. Data-driven studies: formal research projects with appropriate statistical analysis, formal hypotheses and their testing, etc. These studies are either with a quantitative or qualitative emphasis and authors should indicate the appropriate domain. Acceptable articles establish a research rigor that leads to significant new understanding in pedagogy.
2. Reflective essays: integrative evaluations of other work, essays that challenge current practice and encourage experimentation, novel conclusions or perspectives derived from prior work
3. Reviews: Literature reviews illuminating new relationships and understanding, meta-analysis, analytical and integrated reviews, etc.
4. Case studies: These studies illustrate SOTL and its applications, usually generalizable to a wide and multidisciplinary audience.
5. Comments and communications: Primarily, these are comments based on previously published JoSOTL articles, but can also include book reviews, critiques and evaluations of other published results in new contexts or dimensions

## Submissions

Authors are encouraged to submit work in one of the following categories:

- **Traditional Research Reports: data driven studies with either a quantitative or qualitative emphasis**
- **Reflective Essays on SoTL**
- **Reviews of current themes in SoTL research including meta-analysis**
- **Case studies illustrating SoTL and its applications**
- **Comments and Communications on previous Journal articles, or book or software reviews**

In your e-mail with your submission, please indicate which of the above categories most applies to your submission. Despite their differences, all of these types of submissions should include the author's expression of the implications their work has for the teaching-learning process. This reflective critique is central to our mission in furthering understanding of SoTL. Authors are encouraged to review the [Guidelines for Reviewers](#) in order to understand how their submissions will be evaluated. **Authors are strongly encouraged to study the Reviewer's Rubric that reviewers shall apply in evaluating their submitted work.**

Authors should submit their article to [josotl@iupui.edu](mailto:josotl@iupui.edu). Submissions must be prepared in an electronic format using Microsoft Word on either PC or Macintosh platforms. Submissions should be uncompressed files attached to an e-mail, not in the body of an e-mail text. All submissions must be prepared following the guidelines below. While there is no formal page limit, authors should adhere to recent article lengths, typically 20 pages or less. Authors are expected to include proper referencing for their sources, especially URLs for web sites that might contain material of interest to our readership.

### **Every submission must include a cover page preceding the article with the following information:**

Title of article

For each author:

    Name and affiliation

    Postal address

    e-mail address

    telephone number

Abstract (less than 100 words)

Keyword list related to the submission (less than eight words or short phrases)

This cover page should be followed by the article formatted according to the JoSoTL Style Sheet (available in either .doc or .pdf format).

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Authors will be required to sign a [Copyright Agreement](#) with the Trustees of Indiana University. Authors must be prepared to sign this agreement upon acceptance of their work and prior to

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If you have any questions regarding the submission policy, please e-mail [Kimberly Olivares](#) (JoSoTL Production Coordinator) or call her at 317-274-0086, or contact a member of the [Editorial Board](#).

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## **Style Sheet for the *Journal of the Scholarship of Teaching and Learning***

**John Dewey<sup>1</sup> and Marie Curie<sup>2</sup>**

*Abstract: This paper provides the style sheet for the Journal of the Scholarship of Teaching and Learning. Manuscripts submitted for publication should adhere to these guidelines.*

*Keywords: radiation, metacognition, identity theory, constructivism, educational philosophy.*

### **I. General Guidelines for the Manuscript.**

The final manuscript should be prepared in 12-point, Times New Roman, and single-spaced. Submissions should be double-spaced. All margins should be 1 inch. The text should be fully left- and right-justified. The title (in 16 point bold) and author's name (in 12 pt. bold) should be at the top of the first page. The author's name should be followed by a footnote reference that provides the author's institutional affiliation and address. The abstract should be indented 0.5" left and right from the margins, and should be in italics.

Except the first paragraph in a section subsequent paragraphs should have a 0.5" first line indent. Use only one space after the period of a sentence (word processors automatically adjust for the additional character spacing between sentences). The keywords should be formatted identically to the abstract with one line space between the abstract and the keywords. Keywords currently in use are indexed at the end of each volume. Authors should use keywords that are helpful in the description of their articles. Common words found in the journal name or their title article are not helpful.

Pages should be unnumbered since they will be entered by the Journal editorial staff. We will also insert a header on the first page of the article, as above.

References should be incorporated in the text as authors name and date of publication (Coffin, 1993), with a reference section at the end of the manuscript (see below for the desired format for the references). Titles of articles should be included in the references in sentence case. Unless instructed otherwise in this Style Sheet, please use APA style formatting. Footnotes should incorporate material that is relevant, but not in the main text.

### **II. Section and Sub-Section Headings.**

#### *A. Major Sections.*

Major section headings should be flush-left, bold-faced, and roman-numeral numbered. Major section headings should have one-line space before and after. The first paragraph(s) of the article do not require a major heading.

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<sup>2</sup>Institut Pasteur, University of Paris, 75015 Paris, France.

### *B. Sub-Sections.*

Sub-section headings should also be flush-left, in italics, and alphabetically numbered. Sub-section headings should have a one-line space before and after. Sub-sub-sections should appear at the beginning of a paragraph (i.e., with an 0.5" indent, followed immediately by the text of the sub-sub-section), with the heading also in italics.

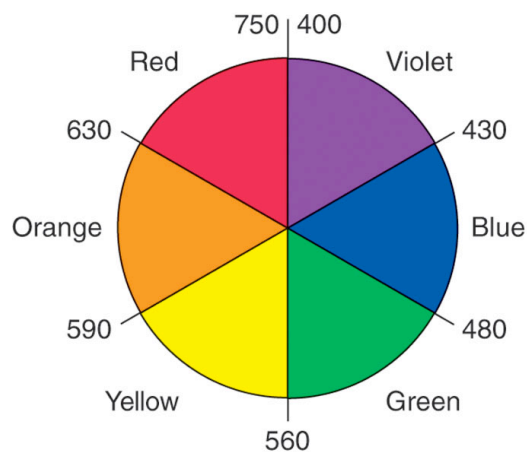
### **III. Tables and Figures.**

Tables and figures should be inserted in the text where the author believes they best fit. They may be moved around a little to better correspond to the space requirements of the Journal. If necessary, tables and figures may occupy an entire page to ensure readability and may be in either portrait or landscape orientation. Insofar as possible, tables should fit onto a single page. All tables and figures should be germane to the paper. Tables should be labeled as follows with the title at the beginning (in bold), with data entries single-spaced, and numbered. Column labels should be half-line spacing above data.

**Table 1. The title of the table.**

Unit	Length, inches
Point	1/12
Pica	1/6

Figures should have their captions follow the image. Captions should be single-spaced, with title in bold. Additional text should not be in bold. The Editorial staff may adjust layout to allow optimal use of space.



**Figure 1. Color wheel with wavelengths indicated in millimicrons.** Opposite colors are complementary.

### **Acknowledgements**

Acknowledgements should identify grants or other financial support for this research by agency (source) and number (if appropriate). You may also acknowledge colleagues that have played a significant role in this research.

### **Appendix**

Please insert any appendices after the acknowledgments. They should be labeled as follows:

#### **Appendix 1. The Title of the Appendix.**

### **References**

- Coffin, D.A. (1993). Using the competitive edge. *Journal of Economic Education*, 24 (1), 62-69.
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