The Journal of Effective Teaching
an online journal devoted to teaching excellence

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The Journal of Effective Teaching
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Letter from the Editor-in-Chief:
The Sage on the Stage

Russell L. Herman
The University of North Carolina Wilmington, Wilmington, NC

Learning is not a spectator sport. Students do not learn much by just sitting in class listening to teachers, memorizing repackaged assignments, and spitting out answers. They just talk about what they are learning, write about it, relate it to past experiences, apply it to their daily lives. They must make what they learn part of themselves.- Chickering & Gamson (1987)

It was 1993 when Alison King introduced us to the dichotomy of teaching styles, “sage on the stage” and “guide on the side.” This was not the first time researchers had questioned the centuries old method of lecturing in classrooms. At the turn of the century people like Dewey challenged our educational practices. More recently, we see lectures challenged in the media and active learning highlighted by the likes of Salman Khan (Khan Academy), Eric Mazur (Peer Instruction in physics), Jonathan Bergmann and Aaron Sams (Flipping the Classroom), and Daphne Koller and Andrew Ng (Coursera, Massive Open Online Courses). However, lecturing is still a major format for the delivery of courses in the STEM (science, technology, engineering, and mathematics) disciplines.

In a recent survey (Oct. 2012) by the Higher Education Research Institute at the University of California, researchers found that men (69.7%) and women (50.4%) teaching in STEM fields are more likely to use extensive lecturing in all or most of their classes. They compared these numbers with those for all other fields and with data from a decade ago (Lindholm, Astin, & Korn, 2002). Some of their results are shown in Table 1.

<table>
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<th>Methods used in all or most courses</th>
<th>2001-2002</th>
<th>2010-2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Discussion</td>
<td>Men  68.3%</td>
<td>Women 78.9%</td>
</tr>
<tr>
<td>Cooperative Learning</td>
<td>Men 32.6%</td>
<td>Women 55.8%</td>
</tr>
<tr>
<td>Student Presentations</td>
<td>Men 30.4%</td>
<td>Women 45.2%</td>
</tr>
<tr>
<td>Extensive Lecturing</td>
<td>Men 54.6%</td>
<td>Women 34.1%</td>
</tr>
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</table>

While more instructors have begun using methods other than lecturing, those reporting extensive lecturing has remained fairly constant despite the recent attention over the last

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decade, or more, to changing what we do in the classroom. This is more prominent in the STEM fields as noted in Table 2. Generally, STEM faculty use lecturing at a rate of 160% more than the those in non-STEM fields.

**Table 2. Comparison of STEM and non-STEM Use of Extensive Lecturing.**

<table>
<thead>
<tr>
<th>Extensive Lecturing</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEM</td>
<td>69.7%</td>
<td>50.4%</td>
</tr>
<tr>
<td>Non-STEM</td>
<td>43.7%</td>
<td>27.8%</td>
</tr>
</tbody>
</table>

Other interesting results were highlighted in the report. STEM faculty are more likely to grade on a curve (30.6% of Men and 16.6% of women in STEM fields vs. 16.2% men and 9.8% women in all other fields). The use of experiential learning/field studies came in at about 30% for men 20% for women in all fields and group projects were reported at 36-38% men and 27-29% women. Also, STEM faculty use student-centered pedagogy less often regardless of class size as compared to all other fields.

So, why do so many continue to use extensive lecturing and not take advantage of research-based instructional methods? This was addressed by Dancy and Henderson (2010), who had surveyed 722 physics faculty in the U.S. In the physics community there has been a concerted effort in the last two decades to understand how students learn. The PER (Physics Education Research) community has learned a lot starting from the physics education research of the 70’s and 80’s to the development in the 90’s of tools such as the Force Concept Inventory (FCI). These tools have shown that students do not learn physics concepts in a traditional lecture setting even from the best instructors (Halloun & Hestenes 1985; Hestenes, Wells, & Swackhamer, 1992; McDermott, 1993).

These studies led to research-based pedagogical practices such as Mazur’s Peer Instruction. Mazur recounts often how he was surprised to learn that his methods of lecturing did not challenge student preconceptions as an implementation of the FCI test showed. It was not long before he changed from extensive lecturing to active learning, leading him to become an early adopter of what is now called flipping the classroom. In a flipped classroom students are responsible for getting the content outside the classroom and then they come to class ready to discuss and reflect on what they read.

Peer Instruction is just one of the research based instructional 24 strategies that Dancy and Henderson (2010) asked faculty about their level of knowledge and usage. 87% of the faculty were familiar with at least one and the best known by 64% of the faculty was Mazur’s Peer Instruction. Even with this awareness, Dancy and Henderson found that faculty do not reform their teaching methods for the reasons one might think, such as 1) faculty are focused on their research; 2) faculty aren’t aware of research-based innovations; or, 3) faculty might not be convinced of their value. The main reasons that are reported have to do with the time needed to commit to learn and implement new research-based methods.
Even those instructors claiming to use reform methods generally do not use the exact PER strategies that have been proven to lead to gains in student learning. Dancy and Henderson (2010) describe these common features as

They involve student-student interactions, place importance on conceptual understanding, encourage higher level thinking over rote learning, and encourage active learning over passive learning. Additionally, low performance on measures of student learning are consistently associated with passive classroom activities such as traditional lecturing.

However, they found that faculty tend to cut out components like student-student interaction, hands on activities in the classroom, and student-faculty interaction, which are key to these methods producing gains in learning.

Why did lecturing work in the past, if it did? Perhaps students in the past were more motivated to work on their own than they are now. After all, we have been hearing about how the millennial student is so much different. Was it easier thirty years ago to get students (us) into the classroom and have them do more outside the classroom?

Babcock and Marks (2010) have recently found that students spend less time studying now than their counterparts did half a century ago. Students spent 24 hours per week studying in 1961, but in 2003 they spent 14 hours per week. That is a drop of 2.5 hours per decade. However, Babcock and Marks noted that most of the drop took place before 1981. So, if students spend less time outside classes than they used to, there may be less time spent on task and not engaging as much with the material as their counterparts had. Babcock and Marks had also considered that students might work for pay more now than in the past. However, when comparing students with similar work behaviors, they found that there was no significant difference between similar groups of students decades apart. The extra time not used for studying was used instead as leisure time.

From the trends in the data, it seems that the lecture is not going anywhere fast. It is an efficient means to conveying the material if the instructor believes that education is content-centered. However, students do not have time to make the material their own and there is little critical analysis taking place unless the students engage with the material outside of the classroom. On the other hand, who would believe that much can be absorbed in fifty minutes? Students should be prepared to engage with the subject for several more hours outside of the classroom no matter what teaching methodologies are being used. Whatever happened to the two-hour rule? (Actually, I remember that being more like a two and a half, or three, hour rule when I was in school.)

Many of the research-based instructional methods flip the engagement around – let the student get the content by reading, or using short video lectures, while outside the classroom and leave the class time for added active learning strategies. This might give students something to do when they are not in class. This can lead to times of chaotic gatherings instead of the well-controlled sage on the stage environment. It also means that more time has to be spent per topic and less content would be covered. This is difficult for
STEM subjects as there is an expectation in the current curriculum that students proceeding from one course to another have established common skill sets. This might be one reason STEM faculty in general are slow to adopt methods other than lecturing in spite of the past several decades suggesting that lecturing by itself is not effective. However, the flipped classroom seems to have excited teachers in K-12 especially since the origins of this format came up from public school teachers and not down from administrators.

There are many reasons why STEM instructors choose to continue to use lectures extensively in their teaching. It is probably more that being the mode in which they were brought up. There is plenty of evidence that research-based methods lead to significant gains in learning. However, there instructors who are more comfortable with lecturing will most likely need to adopt a whole change in educational philosophy before we see significant decreases in the extensive use of lectures. We will also need to find ways to have students take more responsibility in their learning by starting to devote more time to studying. These goals are not necessarily independent.

References


Doctoral Students' Reasons for Reading Empirical Research Articles: A Mixed Analysis

Melissa L. Burgess\textsuperscript{a}, Cindy Benge\textsuperscript{b}, Anthony J. Onwuegbuzie,\textsuperscript{1b} and Marla H. Mallette\textsuperscript{c}

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Abstract

Little is known about reading ability among doctoral students. Thus, we used a fully mixed concurrent equal status design (Leech & Onwuegbuzie, 2009) to examine 205 doctoral students in the College of Education and their reasons for reading research articles. A thematic analysis revealed 5 themes (subsumed by 2 meta-themes) explaining reasons for reading. A series of canonical correlation analyses revealed statistically significant multivariate relationships between reasons for reading empirical articles and (a) reading intensity (i.e., frequency of reading empirical research articles, number of empirical research articles read each month) and (b) reading ability (i.e., reading comprehension, reading vocabulary). The implications of these and other findings are discussed.

Keywords: Reading, Literacy, Higher Education, Mixed Methods Research, Mixed Research, Adult Learning, Doctoral Students.

Doctoral candidates are not only enrolled students, they also have multiple life roles and responsibilities, as well as diverse life experiences. For example, in addition to the roles and responsibilities as scholars, many doctoral students also have full- or part-time jobs, graduate assistantships, families for which to care, and other varied personal roles and responsibilities that contribute toward the complexity and motivations for attaining a doctoral degree. In addition to having varied educational, professional, and personal foci, doctoral students are diverse culturally, physically, and socioeconomically. Doctoral students in the college of education, in particular, tend to be nearly 10 years older (average age 42) and also take an average of nearly 5 years longer to complete their degrees than do doctoral students in other disciplines (Smallwood, 2006). Specifically, many are in their thirties to mid-forties in age, and return to school during and/or after employment in the workforce toward increasing their knowledge in their respective professions (Evans, 2002; Evans & Pearson, 1999; Neumann, 2003; Pearson & Ford, 1997; Usher, 2002). They typically do not perceive themselves as preparing for the workforce - as under-
graduates do; however, they view themselves as being active participants in research and other areas of employment related to their research (Pearson, Evans, & Macauley, 2004).

Overall, studies of doctoral students seem to have a relatively small representation in the academic literature (Benge, Onwuegbuzie, Mallette, & Burgess, 2010). The dearth of research includes examination of doctoral student attrition rates (Golde, 2005; McAlpine & Norton, 2006), graduation rates (Bowen & Rudenstine, 1992; Cesari, 1990), and mentorship (Grady & Hoffman, 2007). Until recently, one under-explored area regarding doctoral students that might positively contribute toward research addressing attrition rates, graduation rates, and mentorship is in the area of reading. The lack of research in this area could be explained by the assumption that doctoral students should have little or no difficulty in reading what is required for their classes and/or individual research. However, to date, scant research has been conducted that specifically explores doctoral students’ reading abilities or personal motivations or barriers in any academic programs as they pertain to reading empirical literature.

McMinn, Tabor, Trihub, Taylor, and Dominguez (2009) surveyed 744 doctoral students in the field of clinical psychology to explore their reading habits as well as motivating and hindering factors for completing assigned readings. They reported that approximately only 50% of the 744 respondents indicated that they thoroughly read the assigned readings for their classes. Using a Likert-format scale, the factors that received the highest rating in motivation to read were: (a) interest in the topic, (b) writing assignments based on the reading, and (c) quizzes or tests over the material. In contrast, the factors that inhibited reading were (a) demands from other classes relative to the length of the reading assignment and (b) other life obligations.

Interestingly, utilizing open-ended response questions, Benge et al. (2010) derived similar hindering factors in their investigation of the perceived barriers to reading empirical literature reported by doctoral students in the field of education. Benge et al. (2010) identified eight themes: (a) time, (b) research/statistics knowledge, (c) interest/relevance, (d) prior knowledge, (e) vocabulary, (f) reader attributes, (g) text coherence, and (h) volume of reading. Responses included within the theme of time were other responsibilities such as family and career.

However, aside from McMinn et al. (2009), whose study focused on assigned readings, no researcher has yet explored specifically the reasons why doctoral students engage in reading empirical literature—either assigned or self-selected. Moreover, being mindful of its potential to lead to the understanding of complex phenomena, what is lacking from studies conducted at the doctoral level are mixed research studies that involve “mix[ing] or combin[ing] quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study” (Johnson & Onwuegbuzie, 2004, p. 17). Thus, what is needed are studies examining doctoral students’ perceptions of why they read empirical research articles in general, and mixed research studies in particular. This was the goal of the current study.
Therefore, toward coming closer to addressing and answering these questions, the following sections in this study are: (a) adult learning theory as the theoretical framework to support the study; (b) the methodological framework used to elicit and analyze the data; (c) the results of the analyses; (d) the conclusion of the findings; and (e) suggestions for future research.

**Theoretical Framework**

As adult learners, doctoral students approach a new learning experience with a distinct set of assumptions that identify the primary purposes of adult learning (Knowles, Holton, & Swanson, 2005). Historically, Knowles (1968) proposed a theory of adult learning (i.e., andragogy) that characterized adult learners as: (a) autonomous and self-directed in their learning, (b) having many and varied experiences providing a rich foundation for learning, (c) appreciating the connection between learning to gain knowledge and learning for application, (d) pragmatic (e.g., having a need to know, paralleled by a deliberate reason for learning), and (e) intrinsically motivated as they have solid tendencies toward what and how they want to learn. 

Although Knowles is a pioneer in the field and a champion of adult learning, his work has received a fair amount of criticism. As Merriam, Caffarella, and Baumgartner (2006) noted, one major contention is that andragogy is not actually a theory but rather a set of assumptions about adult learning. Further, and even more problematic, these assumptions seem devoid of context. That is, Knowles’ characterization of learners as autonomous fails to consider, “the product of the sociohistorical and cultural contexts of the times; nor is there any awareness that social institutions and structures may be defining the transaction irrespective of the individual participant” (Merriam et al., 2006, p. 88). Thus, although doctoral students value research activity toward informing their own research and/or professional practices (Barnacle, 2004), this may not be the focus of the institution.

It is also important to recognize that adult learners are not a single, homogenous group, and that perhaps these assumptions of adult learners are more of end goals than shared qualities (see e.g., Baumgartner, Lee, Birden, & Flowers, 2003; Merriam et al., 2006). This idea is further elucidated when exploring models of self-directed learning. In particular, Grow (1991) presents a four-stage model of self-directed learning. The stages represent a continuum from dependent, to interested, to involved, to self-dependent. Interestingly, Grow suggests that these stages are based on several assumptions, which include the idea that self-direction can be situational: a person can be self-directed in one area and not another. In addition, Grow further posits that universities tend to foster dependence rather than promote self-direction.

In this study, the importance of context in adult learning along with the notion that adult learners are differentially self-directed is situated in Giddens’ (1984) theory of structuration. Structuration is represented as a duality involving structure and agency. That is, structure and agency are not conceived as two separate entities, but rather as interdependent constructs that produce and reproduce society. Giddens (1984) explains structure as,
“Rules and resources, or sets of transformation relations, organized as properties of social systems” (p. 25). Agency “concerns events of which an individual is the perpetrator, in the sense that the individual could, at any phase in a given sequence of conduct, have acted differently. Whatever happened would not have happened if that individual had not intervened” (Giddens, 1984, p. 9). Thus, one way to understand better the reasons doctoral students read empirical articles is to consider the duality of their agency and structure as adult learners within a doctoral program.

At some point during the doctoral program, a doctoral student will be required to read empirical research articles to formulate an understanding of the organization and technical language of an empirical research study. Presumably, doctoral students have a variety of reasons why they read empirical research articles. Further, the assumptions and goals of adult learning contextualized in Giddens’ (1984) theory of structuration provide a framework in which to situate these reasons, which ultimately can inform doctoral students’ education.

Methodological Framework

Collins, Onwuegbuzie, and Sutton (2006) conceptualized that mixed research involves the following 13 methodological steps that are grouped within three stages: the Formulation Stage: (a) determining the mixed goal of the study (including the underlying philosophical stance), (b) formulating the mixed research objective(s), (c) determining the rationale of the study and the rationale(s) for mixing quantitative and qualitative approaches, (d) determining the purpose of the study and the purpose(s) for mixing quantitative and qualitative approaches, (e) determining the mixed research question(s); the Planning Stage: (f) selecting the mixed sampling design, (g) selecting the mixed research design; and the Implementation Stage: (h) collecting quantitative and/or qualitative data, (i) analyzing the quantitative and/or qualitative data using quantitative and/or qualitative analysis techniques, (j) validating/legitimating the mixed research findings, (k) interpreting the mixed research findings, (l) writing the mixed research report, and (m) reformulating the mixed research question(s). These 13 steps are continuous, iterative, interactive, and dynamic. According to Leech, Collins, Jiao, and Onwuegbuzie (2010), “Using these interactive steps to formulate, plan, and implement a mixed research study informs the researchers’ decisions relative to drawing quality meta-inferences (integration of inferences derived from the quantitative and qualitative study components)…and formulating appropriate generalizations” (p. 5). As recommended by Leech, Onwuegbuzie, and Combs (2011), and as did Benge et al. (2010) in their study of students’ perceptions of barriers to reading empirical literature, the current study was structured in accordance to each of these 13 interactive steps.

Step 1: Mixed goal. Using Newman, Ridenour, Newman, and DeMarco’s (2003) nine-element typology, the goal of the present mixed research study was to have a personal, institutional, and/or organizational impact on future doctoral programs. The research paradigm that drove this investigation is what Johnson (2011) recently has labeled as dialectical pluralism, whereby the researcher incorporates multiple epistemological perspectives within the same inquiry. Specifically, in the present study, the following two epis-
temological perspectives were combined: pragmatism-of-the-middle and transformative-emancipatory. According to Onwuegbuzie, Johnson, and Collins (2009), pragmatism-of-the-middle “offers a practical and outcome-oriented method of inquiry that is based on action and leads, iteratively, to further action and the elimination of doubt; paradigms routinely are mixed” (p. 134). In contrast, the transformative-emancipatory paradigm is driven by the researcher, whose goal is to conduct research that is emancipatory, participatory, and antidiscriminatory, and which focuses directly on the lives and experiences of underserved and marginalized persons or groups such as women; ethnic/racial/cultural minorities; certain religious groups, individuals with disabilities/exceptionalities; and members of gay, lesbian, bisexual, and transsexual communities (Mertens, 2003). In this study, in the context of literacy, doctoral students who were struggling readers were treated as an underserved group because of the scant attention they have received in the literature.

**Step 2: Mixed research objective.** The objectives of this mixed research study were fourfold: (a) exploration, (b) description, (c) explanation, and (d) prediction (Johnson & Christensen, 2010). Specifically, the objectives of the quantitative phase were description and prediction. The objectives of the qualitative phase were exploration and description. Finally, all four objectives were pertinent in the mixed research phase.

**Step 3: Rationale for mixing.** Using Collins et al.’s (2006) rationale and purpose (RAP) model, the rationale for conducting the mixed research study could be classified as (a) participant enrichment, (b) instrument fidelity, and (c) significance enhancement. Participant enrichment refers to the mixing of quantitative and qualitative approaches for the rationale of optimizing the sample (e.g., increasing the number of participants, enhancing the likelihood of securing complete and valid responses). Instrument fidelity represents the procedures used by the researcher(s) to maximize the utility and/or appropriateness of the instruments used in the investigation, whether qualitative or quantitative. Significance enhancement refers to mixing qualitative and quantitative techniques to maximize the interpretations of data (i.e., quantitative data/analysis being used to enhance qualitative analyses and/or qualitative data/analysis being used to enhance statistical analyses). With respect to participant enrichment, prior to the study, the participants were informed about the importance of completing all instruments as comprehensively and as accurately as possible. Also, the students were informed that the ensuing dataset would be used by the instructor as a teaching tool to demonstrate to students how to conduct an array of mixed analysis techniques. The goal here was to motivate students to take ownership of the data they and their classmates were providing. With regard to instrument fidelity, the researchers (a) collected qualitative data (e.g., respondents’ perceptions of the questionnaire) and quantitative data (e.g., response rate information, missing data information) before the study began (i.e., pilot phase) and (b) used member checking techniques to assess the appropriateness of the questionnaire and the adequacy of the time allotted to complete it, after the major data collection phases. Finally, with respect to significance enhancement, the researchers collected a combination of qualitative and quantitative data to obtain richer data both during and after the study than otherwise would have been obtained using only one type of data (e.g., qualitative), thereby enhancing the significance of their findings (Onwuegbuzie & Leech, 2004).
Step 4: Purpose for mixing. Using the framework of Greene, Caracelli, and Graham (1989), the two purposes for mixing qualitative and quantitative approaches were (a) complementarity (i.e., using quantitative and qualitative techniques to measure multiple aspects of a phenomenon resulting in richer and more elaborate data) and (b) expansion (i.e., increasing the breadth of the study by using different methods to assess different components of the inquiry). Figure 1 provides a visual representation of how the RAP model was utilized in the current inquiry. The purposes of this study were fourfold: (a) to identify doctoral students' reasons for reading research articles, (b) to examine the relationships between these reasons for reading empirical research articles and the actual time

![Visual representation of RAP model](image)


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spent reading empirical research articles, (c) to examine the relationships between the reasons for reading empirical research articles and how many empirical research articles doctoral students read in 1 month, and (d) to examine the relationship between reading ability (i.e., reading comprehension, reading vocabulary) and reasons why doctoral students read empirical research articles.

**Step 5: Research Questions.** In this study, quantitative research questions, qualitative research questions, and mixed research questions were addressed.

**Quantitative research questions.** For the quantitative phase of this study, the following research questions were addressed:

1. Outside of class, how often do doctoral students read empirical research articles?
2. How many empirical research articles do doctoral students read each month?

**Qualitative research question.** For the qualitative phase of this study, the following research question was addressed:

3. What reasons do doctoral students provide for reading empirical research articles?

**Mixed research questions.** The following mixed research questions were addressed:

4. What is the prevalence of each of the reasons for reading empirical articles of doctoral students?
5. How do these perceived reasons for reading empirical articles relate to one another?
6. What is the relationship between reading intensity (i.e., frequency of reading empirical research articles, number of empirical research articles read each month) and doctoral students’ reasons they provide for reading empirical research articles?
7. What is the relationship between reading ability (i.e., reading comprehension, reading vocabulary) and the reasons that doctoral students provide for reading empirical research articles?

It was hoped that the results of the present inquiry would contribute to the literature on literacy among adult learners in general and the almost non-existent literature on literacy among doctoral students in particular.

**Method**

**Participants and Setting**

Participants were 205 doctoral students enrolled in either a mixed research design or an advanced qualitative research design course housed in the College of Education at a large Tier 1 research university in the southern United States. At the time the study took place,
the sample size represented 35.47% of the doctoral students in the College of Education and 9.21% of the total doctoral student body at the university where the study took place. These students were enrolled in 32 doctoral degree programs within the institution’s College of Education. The majority of participants was female (n = 121, 59.2%) and White (n = 130, 63.4%). The remaining ethnicity distribution was American Indian or Alaskan Native (n = 30, 14.6%), Hispanic (n = 18, 8.8%), African American (n = 14, 6.8%), and Asian (n = 10, 4.9%). Most of participants were native English speakers (n = 178, 86.8%). The age range of the participants was 22 to 56 years (M = 40.88, SD = 9.81). Finally, with respect to academic achievement, the mean grade point average (GPA) of the participants was 3.80 (SD = 0.21).

**Step 6: Mixed sampling scheme.** All 205 participants contributed data both to the qualitative and quantitative phases of the investigation and were collected concurrently. As such, the mixed sampling design represented a concurrent design using identical samples (Onwuegbuzie & Collins, 2007).

**Research Design**

**Step 7: Mixed research design.** The initial qualitative and quantitative data were collected and analyzed concurrently and both the qualitative and quantitative phases were given approximately equal priority; therefore, this study was classified as a fully mixed concurrent equal status design (Leech & Onwuegbuzie, 2009).

**Instruments and Procedures**

**Step 8: Mixed data collection.** In the first class session, all participants were administered the following two instruments: the Nelson-Denny Reading Test (NDRT) and the Reading Interest Survey (RIS). The NDRT, developed by Brown, Fishco, and Hanna (1993), was used to measure reading ability. This instrument, which is appropriate for Grades 9 to 16, college students, and adults, is a 118-item test containing two subtests: Vocabulary (80 items) and Comprehension (38 items). Each item on the NDRT contains a five-choice response option. This test was selected because of its widespread use among researchers, adequate score reliability, 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). For the present investigation, both the reading vocabulary scores and reading comprehension scores were analyzed. Score reliability (i.e., KR-20) was .85 (95% confidence interval [CI] = .82, .88) for the reading vocabulary subtest and .69 (95% CI = .63, .75) for the comprehension subtest. The RIS contains 62 open- and closed-ended items; therefore, the mixed data collection style used in the present study could be referred to as Type 2 data (Johnson & Turner, 2003).

**Data Analysis**

The mixed analysis framework represented a sequential mixed analysis (SMA; Onwuegbuzie & Teddlie, 2003; Tashakkori & Teddlie, 1998). In this SMA framework, both qualitative and quantitative data analyses occurred in a sequential and iterative manner, be-
ginning with quantitative analyses, followed by qualitative analyses that built upon the quantitative analyses, followed by quantitative analyses of the qualitative data. This iterative analysis sequence involved abductive reasoning whereby inductive reasoning and deductive reasoning interacted with each other throughout the analysis process (Morgan, 2007). Further, the goal of the SMA was typology development (Caracelli & Greene, 1993). The SMA involved six stages. Each stage is described below.

**Stage 1.** The first stage involved the use of descriptive statistics (i.e., descriptive stage) to determine how often doctoral students read empirical research articles outside of class (Research Question 1) and how many empirical research articles doctoral students read each month (Research Question 2).

**Stage 2.** In the second stage, the doctoral students’ reasons for reading empirical research articles were thematically analyzed (i.e., exploratory stage; Research Question 3). The goal of the thematic analysis was to understand the phenomenon of doctoral students’ reasons for reading empirical articles (Goetz & LeCompte, 1984). The thematic analysis was constructive, inductive, and generative because it necessitated the researchers bracketing or suspending all preconceptions or judgments to the greatest extent possible (i.e., epoché) in an attempt to minimize bias (Moustakas, 1994). Clusters of themes were extracted via constant comparison analysis (Glaser & Strauss, 1967), which then were compared to the original descriptions for the purpose of verifying the clusters (Leech & Onwuegbuzie, 2007). This was undertaken a posteriori (Constatas, 1992) in order to ensure that no original statements made by the doctoral students were unaccounted for by the cluster of themes and that no cluster contained units that were not original statements. This five-step method of thematic analysis was used to identify themes pertaining to students’ reasons for reading empirical research articles (i.e., reason themes). Using Constatas’ (1992) framework, the locus of typology development was investigative, stemming from the cognitive constructions of the researchers, as was the source for naming of categories. Peer debriefing (Lincoln & Guba, 1985) also was used to legitimize the data interpretations. In particular, the remaining researcher served as a peer debriefer, whose goal was to examine the audit trail (Lincoln & Guba, 1985) to assess whether all interpretations stemmed directly from the data. This Stage 2 analysis continued until the researchers reached 100% agreement on the themes.

**Stage 3.** The third stage of the SMA involved the use of descriptive statistics (i.e., exploratory stage) to analyze the hierarchical structure of the emergent reason themes (Onwuegbuzie & Teddlie, 2003). Specifically, each theme was quantitized (Tashakkori & Teddlie, 1998) such that if a doctoral student listed a reason that was eventually unitized under a particular reason theme, then a score of “1” was given to the reason theme for the student response; a score of “0” was given otherwise. This dichotomization led to the formation of an inter-respondent matrix of reason themes (i.e., student x theme matrix) (Onwuegbuzie, 2003a; Onwuegbuzie & Teddlie, 2003), which consisted only of 0s and 1s. By calculating the frequency of each reason theme from the inter-respondent matrix, percentages were computed to determine the prevalence rate of each reason theme (Research Question 4). These frequencies served as effect sizes (Onwuegbuzie & Teddlie, 2003).
Stage 4. In the fourth stage of the SMA, the inter-respondent matrix of reason themes, which was extracted in Stage 3, was used to conduct a principal component analysis to ascertain the underlying structure of the emergent reason themes (i.e., exploratory stage; Research Question 5). Specifically, the inter-respondent matrix was transformed to a matrix of bivariate associations that represented tetrachoric correlation coefficients because the reason themes had been quantitized to dichotomous data (i.e., “0” vs. “1”), and tetrachoric correlation coefficients are appropriate to use when one is determining the relationship between two (artificial) dichotomous variables (cf. Onwuegbuzie et al., 2007). Thus, the matrix of tetrachoric correlation coefficients was the basis of the principal component analysis, which led to the determination of the number of factors underlying the reason themes (Onwuegbuzie et al., 2007). An orthogonal (i.e., varimax) rotation was employed, using the eigenvalue-greater-than-one rule (i.e., K1; Kaiser, 1958), coupled with the scree test, to determine an appropriate number of factors to retain (Kieffer, 1999). These factors represented meta-themes (Onwuegbuzie, 2003a) such that each meta-theme contained one or more of the emergent reason themes. As recommended by Onwuegbuzie (2003a), the trace, or proportion of variance explained by each factor after rotation, served as an effect size index for each meta-theme. By determining the hierarchical relationship among the reason themes (Research Question 5), the verification component of categorization was empirical, technical, and rational (Constas, 1992). The meta-themes extracted via the principal components analysis themselves were quantitized to dichotomous data (i.e., “0” vs. “1”), yielding an inter-respondent matrix of meta-themes.

Stage 5. In the fifth stage, a latent class analysis was used to determine the number of clusters (i.e., latent classes) underlying the reason themes. The assumption behind latent class analysis was that a certain number of distinct reason themes prevailed, and that these reasons can be factored into a small number of unique clusters known as latent classes based on their profiles of reason errors, with each doctoral student belonging to only one cluster.

Stage 6. The sixth and final stage of the SMA (i.e., confirmatory analyses) involved the correlation between the reason themes that were extracted in Stage 2 and quantitized in Stage 3 via the inter-respondent matrix and the following variables: (a) reading intensity (i.e., frequency of reading empirical research articles, number of empirical research articles read each month) (Research Question 6), and (b) reading ability (i.e., reading comprehension, reading vocabulary) (Research Question 7). In this stage, the frequency of reading empirical research articles variable was dichotomized into doctoral students who read empirical research articles at least once per week and those who read empirical research articles less than once per week. For both Research Question 6 and Research Question 7, a canonical correlation analysis (Cliff & Krus, 1976; Darlington, Weinberg, & Walberg, 1973; Thompson, 1980, 1984) was used to examine the multivariate relationship between the reason themes and the two sets of reading variables (i.e., reading intensity and reading ability). For each statistically significant canonical coefficient, standardized coefficients and structure coefficients were computed. These coefficients served as inferential-based effect sizes (Onwuegbuzie, 2003a). Similarly, a canonical correlation analysis was conducted to examine the multivariate relationship between the meta-themes.
extracted in Stage 4 and the two sets of reading variables (i.e., reading intensity and reading ability).

**Step 9: Results**

**Stage 1 Findings**

With respect to how frequently the doctoral students read empirical research articles outside of class, 7.7% reported that they never read empirical research articles, with a further 10.3% stating that they read empirical research articles approximately once per year. The remaining distribution was as follows: approximately once per month (45.6%), approximately once per week (29.2%), almost daily (6.7%), and daily (0.5%). In addition, the number of empirical research articles that the doctoral students reported reading each month ranged from 0.5 to 50.00 ($M = 9.86, SD = 10.16$).

**Stage 2 and Stage 3 Findings**

The constant comparison analysis revealed the following five emergent themes that represented doctoral students’ reasons for reading empirical research articles: requirement, guidance, gain knowledge, stay current, and interest/curiosity. Table 1 presents these five themes, together with their corresponding sample significant statements and formulated meanings.

The three researchers who conducted the constant comparison analysis agreed on all five emergent themes (i.e., 100% inter-coder agreement). In fact, the only discrepancies stemmed from the labels given to some of the themes. As a result of these discrepancies, the researchers scheduled meetings to agree on more appropriate labels for the themes. This led to the re-labeling of some of the themes that were maximally meaningful.

The prevalence rate (i.e., effect size) of each theme (Onwuegbuzie, 2003a; Onwuegbuzie & Teddlie, 2003) also is presented in Table 1. Interestingly, requirement and guidance were equally the most endorsed theme, with slightly more than one third of the participants (i.e., 34.1%) providing responses that were given these classifications. The requirement and guidance themes were followed closely by the gain knowledge theme, with an endorsement rate slightly less than one third. The last two themes were stay current and interest/curiosity, which fell between 25.4% and 28.8%. As conducted by Benge et al. (2010), using Cohen’s [1988, pp. 180-183] non-linear arcsine transformation and Cohen’s (1988) $d$ criteria led to cut-points of 1% endorsement as representing a small effect size, 7% endorsement as representing a medium effect size, and 16% endorsement as representing a large effect size. Thus, all five themes represented a large effect size.

**Stage 4 Findings**

A principal component analysis was used to determine the number of factors underlying the five themes. This analysis was conducted because it was expected that many/most of
Table 1. Themes, Frequencies, Formulated Meanings and Selected Examples of Statements of Doctoral Students’ Reasons for Reading Empirical Articles.

<table>
<thead>
<tr>
<th>Theme</th>
<th>Frequency</th>
<th>Formulated Meaning</th>
<th>Sample Significant Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requirement</td>
<td>34.1</td>
<td>External necessity usually related to course assignment, dissertation research, or job</td>
<td>Because they are assigned&lt;br&gt;To fulfill course requirements&lt;br&gt;Required for class</td>
</tr>
<tr>
<td>Guidance</td>
<td>34.1</td>
<td>Using empirical research as a guide, model, or exemplar for one’s practice or one’s research, or as a source for ideas for current and future research</td>
<td>To help with my coursework&lt;br&gt;As examples for my own work&lt;br&gt;To improve my own teaching</td>
</tr>
<tr>
<td>Gain Knowledge</td>
<td>31.7</td>
<td>Learning about or gaining new knowledge or understanding about various topics or research methods</td>
<td>To improve my personal knowledge&lt;br&gt;To gain knowledge about interesting subjects&lt;br&gt;Because I can learn from them</td>
</tr>
<tr>
<td>Stay Current</td>
<td>28.8</td>
<td>Stay current with the latest research in one’s practice or field of interest</td>
<td>To stay current in field&lt;br&gt;To keep up to date</td>
</tr>
<tr>
<td>Interest/Curiosity</td>
<td>25.4</td>
<td>Interest or curiosity about the topic and perception that the reading is important to the respondents’ field of study</td>
<td>They are of interest to me&lt;br&gt;The topic is something I am curious about&lt;br&gt;Professional interest</td>
</tr>
</tbody>
</table>

the themes would be significantly correlated. As recommended by Kieffer (1999) and Onwuegbuzie and Daniel (2003), the correlation matrix was used to undertake the analysis. An orthogonal (i.e., varimax) rotation was employed. This analysis was used to extract the latent constructs. As conceptualized by Onwuegbuzie (2003a), these factors represented *meta-themes*.

The eigenvalue-greater-than-one rule (i.e., K1; Kaiser, 1958) resulted in two factors (i.e., meta-themes) being retained. The scree test, which represents a plot of eigenvalues against the factors in descending order (Cattell, 1966; Zwick & Velicer, 1986), also suggested that two factors be retained. This two-factor solution is presented in Table 2. Using a cutoff correlation of 0.3, recommended by Lambert and Durand (1975) as an acceptable minimum value for pattern/structure coefficients, Table 2 reveals that the following themes had pattern/structure coefficients with large effect sizes on the first factor: guidance, requirement, and stay current; and the following themes had pattern/structure coefficients with large effect sizes on the second factor: gain knowledge and interest/curiosity. It should be noted that in addition to having a pattern/structure coefficient with a large effect size on Factor 1, both guidance and requirement had significant but smaller pattern/structure coefficients on Factor 2 (i.e., cross-loadings).

The first meta-theme (i.e., Factor 1) was labeled *professional*. The second meta-theme (i.e., Factor 2) was termed *personal*. Interestingly, within the *professional* meta-theme (i.e., Factor 1), requirement was negatively related to both guidance and stay current, indicating that doctoral students who were more likely to cite requirement as a reason for
Table 2. Stage 4: Summary of Themes and Factor Pattern/Structure Coefficients from Principal Component Analysis (Varimax): Two-Factor Solution.

<table>
<thead>
<tr>
<th>Theme</th>
<th>1</th>
<th>2</th>
<th>Communality Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guidance</td>
<td>.78</td>
<td>.30</td>
<td>.70</td>
</tr>
<tr>
<td>Requirement</td>
<td>-.64</td>
<td>.39</td>
<td>.56</td>
</tr>
<tr>
<td>Stay Current</td>
<td>.52</td>
<td>-.17</td>
<td>.30</td>
</tr>
<tr>
<td>Gain Knowledge</td>
<td>.02</td>
<td>-.85</td>
<td>.72</td>
</tr>
<tr>
<td>Interest/Curiosity</td>
<td>-.08</td>
<td>.48</td>
<td>.24</td>
</tr>
<tr>
<td>Trace</td>
<td>1.43</td>
<td>1.09</td>
<td>2.52</td>
</tr>
<tr>
<td>% variance explained</td>
<td>28.62</td>
<td>21.93</td>
<td>50.55</td>
</tr>
</tbody>
</table>

1Coefficients in bold represent pattern/structure coefficients with the largest effect size within each theme using a cut-off value of 0.3 recommended by Lambert and Durand (1975).

Table 3. Stage 4 Analysis: Description of Meta-Themes Emerging from Principal Component Analysis.

<table>
<thead>
<tr>
<th>Meta-Themes</th>
<th>Themes</th>
<th>Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional</td>
<td>Guidance, Requirement,</td>
<td>These factors represent doctoral students’ reasons for reading empirical</td>
</tr>
<tr>
<td></td>
<td>Stay Current</td>
<td>literature that are related to job requirements, occupational goals, and/or</td>
</tr>
<tr>
<td></td>
<td></td>
<td>their doctoral education</td>
</tr>
<tr>
<td>Personal</td>
<td>Gain Knowledge</td>
<td>These factors comprise doctoral students’ reasons for reading empirical</td>
</tr>
<tr>
<td></td>
<td>Interest/Curiosity</td>
<td>literature that are related to one’s individual goals</td>
</tr>
</tbody>
</table>

reading empirical articles were less likely to cite guidance and stay current as reasons. Similarly, within the personal meta-theme (i.e., Factor 2), gain knowledge and interest/curiosity were negatively related. The descriptions of both meta-themes are presented in Table 3.

An examination of the trace (i.e., the proportion of variance explained, or eigenvalue, after rotation; Hetzel, 1996) revealed that the professional meta-theme (i.e., Factor 1) explained 28.62% of the total variance and the personal meta-theme (i.e., Factor 2) accounted for 21.93% of the variance. These two meta-themes combined explained 50.55% of the total variance. Interestingly, this proportion of total variance explained is greater than that typically explained in factor solutions (Henson, Capraro, & Capraro, 2004;
Figure 2. Stage 4: Thematic structure pertaining to doctoral students’ reasons for reading empirical articles.

Henson & Roberts, 2006). As such, this total proportion of variance, which provides a latent effect size index, can be considered large. The manifest effect size (i.e., actual endorsement rate per meta-theme) associated with the two meta-themes was as follows: professional (72.7%) and personal (51.7%). The thematic structure, including the latent effect sizes and manifest effect sizes, is presented in Figure 2. This figure illustrates the relationships among the themes and meta-themes arising from doctoral students’ reasons for reading empirical articles.

Stage 5 Findings

The latent class analysis of the five reason themes suggested that the optimal number of clusters was three ($L^2 = 21.52$, df = 14, $p = .089$, Bootstrap $p = .20$). Figure 3 displays these three distinct groups of doctoral students. Further, it can be seen from Figure 3 that Cluster 1 (comprising 56.16% of doctoral students) is fluctuating with low to moderate endorsement rates. In contrast, Cluster 2 (comprising 32.17% of doctoral students) has relatively low endorsement rates for all reason themes except for requirement, which is extremely high (i.e., conditional probability = 97.33%). Thus, requirement maximally
separates Cluster 2 from the other two clusters. Cluster 3 (comprising 11.67% of doctoral students) also is characterized with relatively low endorsement rates for four of the five reason themes, with a very high endorsement rate for interest/curiosity (i.e., conditional probability = 93.51%). As such, interest/curiosity maximally separates Cluster 3 from the other two clusters. Interestingly, all five reason themes statistically significantly discriminated the three clusters as follows: interest curiosity (Wald = 6.22, \( p = .045, R^2 = 34.16\%\)), gain knowledge (Wald = 10.77, \( p = .0046, R^2 = 14.09\%\)), requirement (Wald = 6.10, \( p = .047, R^2 = 84.29\%\)), stay current (Wald = 7.05, \( p = .03, R^2 = 9.82\%\)), and guidance (Wald = 8.63, \( p = .013, R^2 = 6.26\%\)). Examining the \( R^2 \) values indicates that guidance had by far the most variance explained by the 3-cluster model, with 84.29% var-

Figure 3. Profiles of doctoral students as a function of the five reason themes.
ance explained. That is, requirement played the biggest role in discriminating the three clusters of doctoral students. Interest/curiosity also played a substantive role, albeit a smaller role than did requirement.

**Stage 6 Findings**

**Relationship between reading reasons and reading intensity.** A canonical correlation analysis was undertaken to examine the relationship between the five reason themes and the two reading intensity variables (i.e., frequency of reading empirical research articles, number of empirical research articles read each month). The five reason themes were treated as the dependent set of variables, whereas the two reading intensity variables served as the independent multivariate profile. The number of canonical functions (i.e., factors) that can be generated for a given dataset is equal to the number of variables in the smaller of the two variable sets (Thompson, 1980, 1984, 1988, 1990). Because five themes were correlated with two independent variables, two canonical functions were generated.

The canonical analysis revealed that the two canonical correlations combined were statistically significant ($p < .05$). Also, when the first canonical root was excluded, the remaining root was not statistically significant ($p = .91$; Canonical $R_{c2} = .07$). Together, these results suggested that the first canonical function was statistically significant and practically significant ($p < .05$; Canonical $R_{c1} = .28$) (Cohen, 1988), but the remaining root was not statistically significant.

Data pertaining to the first canonical root are presented in Table 4. This table displays both standardized function coefficients and structure coefficients. Using a cutoff correlation of 0.3 (Lambert & Durand, 1975), the standardized canonical function coefficients revealed that gain knowledge, requirement, and stay current made important contributions to the set of reason themes. With respect to the reading intensity set, both frequency of reading empirical research articles and number of empirical research articles read each month made noteworthy contributions, with frequency of reading empirical research articles making by far the greatest contribution. The structure coefficients pertaining to the first canonical function revealed that interest/curiosity, guidance, requirement, and stay current made important contributions to the first canonical variate, with stay current making by far the greatest contribution. The square of the structure coefficient indicated that stay current explained 65.6% of the variance. With regard to the reading intensity cluster, only frequency of reading empirical research articles made a noteworthy contribution, explaining 90.3% of the variance. Comparing the standardized and structure coefficients identified gain knowledge as a suppressor variable because the standardized coefficient associated with this variable was large, whereas the corresponding structure coefficient was relatively small (Onwuegbuzie & Daniel, 2003). Suppressor variables are variables that assist in the prediction of dependent variables due to their correlation with other independent variables (Tabachnick & Fidell, 2006). Also, number of empirical research articles read each month served as a suppressor variable. Further, interest/curiosity and guidance suggested multicollinearity because the structure coefficient associated with this...
Table 4. Stage 5: Canonical Solution for First Function: Relationship Between the Five Reason Themes and the Two Reading Intensity Variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Standardized Coefficient</th>
<th>Structure Coefficient</th>
<th>Structure(^2) (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reason Theme:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest/Curiosity</td>
<td>-.26</td>
<td>-.31(^*)</td>
<td>9.6</td>
</tr>
<tr>
<td>Gain Knowledge</td>
<td>-.31(^*)</td>
<td>-.15</td>
<td>2.3</td>
</tr>
<tr>
<td>Guidance</td>
<td>.11</td>
<td>.32(^*)</td>
<td>10.2</td>
</tr>
<tr>
<td>Requirement</td>
<td>-.52(^*)</td>
<td>-.60(^*)</td>
<td>36.0</td>
</tr>
<tr>
<td>Stay Current</td>
<td>.65(^*)</td>
<td>.81(^*)</td>
<td>65.6</td>
</tr>
<tr>
<td><strong>Reading Intensity:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency of reading empirical research articles</td>
<td>1.06(^*)</td>
<td>.95(^*)</td>
<td>90.3</td>
</tr>
<tr>
<td>Number of empirical research articles read each month</td>
<td>-0.32(^*)</td>
<td>.04</td>
<td>0.2</td>
</tr>
</tbody>
</table>

*Coefficients with the effect sizes larger than .3 (Lambert & Durand, 1975).

...variable was large, whereas the corresponding standardized coefficient was relatively small (Onwuegbuzie & Daniel, 2003). Interestingly, for both the standardized and structure coefficients, guidance and stay current were negatively related to the three other important variables (i.e., interest/curiosity, gain knowledge, and requirement). Also, for the standardized coefficient, frequency of reading empirical research articles and number of empirical research articles read each month were negatively related.

A canonical correlation analysis also was undertaken to examine the relationship between the two reason meta-themes and the two reading intensity variables. The two meta-themes were treated as the dependent set of variables, whereas the two reading intensity variables again were utilized as the independent multivariate profile. The canonical analysis revealed that the two canonical correlations combined were neither statistically significant (\(p = .65\)) nor practically significant (Canonical \(R^2 = .10\)). Thus, the standardized canonical function coefficients and structure coefficients were not interpreted.

**Relationship between reading reasons and reading ability.** A canonical correlation analysis was undertaken to examine the relationship between the five reason themes and the two reading ability variables (i.e., reading comprehension, reading vocabulary). The
five reason themes were treated as the dependent set of variables, whereas the two reading ability variables served as the independent multivariate profile. The canonical analysis revealed that the two canonical correlations combined were statistically significant ($p < .05$). However, when the first canonical root was excluded, the remaining root was not statistically significant ($p = .83$; Canonical $R^2 = .09$). Together, these results suggested that the first canonical function was statistically significant and practically significant ($p < .05$; Canonical $R_{c1} = .16$) (Cohen, 1988), but the remaining root was not statistically significant.

Table 5. Stage 5: Canonical Solution for First Function: Relationship Between the Five Reason Themes and the Two Reading Ability Variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Standardized Coefficient</th>
<th>Structure Coefficient</th>
<th>Structure (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reason Theme:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest/Curiosity</td>
<td>-.05</td>
<td>-.18</td>
<td>3.2</td>
</tr>
<tr>
<td>Gain Knowledge</td>
<td>.32*</td>
<td>.13</td>
<td>1.7</td>
</tr>
<tr>
<td>Guidance</td>
<td>.85*</td>
<td>.75*</td>
<td>56.3</td>
</tr>
<tr>
<td>Requirement</td>
<td>.54*</td>
<td>.20</td>
<td>4.0</td>
</tr>
<tr>
<td>Stay Current</td>
<td>.46*</td>
<td>.46*</td>
<td>21.2</td>
</tr>
<tr>
<td><strong>Reading Ability:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading Vocabulary</td>
<td>-.02</td>
<td>.44*</td>
<td>19.4</td>
</tr>
<tr>
<td>Reading Comprehension</td>
<td>1.01*</td>
<td>.99*</td>
<td>98.0</td>
</tr>
</tbody>
</table>

*Coefficients with the effect sizes larger than .3 (Lambert & Durand, 1975).

Data pertaining to the first canonical root are presented in Table 5. The standardized canonical function coefficients revealed that four of the five reason themes, namely, gain knowledge, guidance, requirement, and stay current made important contributions to the set of themes, with guidance making by far the largest contribution. With respect to the reading ability set, only reading comprehension made a noteworthy contribution. The structure coefficients pertaining to the first canonical function revealed that guidance and stay current again made important contributions to the first canonical variate, explaining 56.3% and 21.2% of the variance, respectively. With regard to the reading ability cluster, both reading vocabulary and reading comprehension made noteworthy contributions, with reading comprehension making the strongest contribution, explaining 98.0% of the
variance. Comparing the standardized and structure coefficients identified gain knowledge and requirement as a suppressor variable because the standardized coefficient associated with this variable was large, whereas the corresponding structure coefficient was relatively small (Onwuegbuzie & Daniel, 2003). Also, reading vocabulary suggested multicollinearity because the structure coefficient associated with this variable was large, whereas the corresponding standardized coefficient was relatively small (Onwuegbuzie & Daniel, 2003). Interestingly, for both the standardized and structure coefficients, the interest/curiosity reason theme was negatively related to four other variables (i.e., gain knowledge, guidance, requirement, stay current).

A canonical correlation analysis also was undertaken to examine the relationship between the two reason meta-themes and the two reading ability variables, with the former set being treated as the dependent set of variables and the latter set being utilized as the independent multivariate profile. The canonical analysis revealed that the two canonical correlations combined were neither statistically significant \((p = .46)\) nor practically significant \((\text{Canonical } R^2 = .13)\). Thus, the standardized canonical function coefficients and structure coefficients were not interpreted.

**Discussion**

**Step 10: Validating/legitimating the findings.**

*Validity of findings from quantitative phase.* Threats both to internal validity and external validity prevailed with respect to the quantitative findings (Campbell, 1957; Campbell & Stanley, 1963; Onwuegbuzie, 2003b). The biggest threat to the internal validity of the quantitative findings was instrumentation because of the relatively low reliability coefficient (i.e., .69) pertaining to the reading comprehension scores, which can affect statistical power (Onwuegbuzie & Daniel, 2004). However, in the current study, perhaps this threat was minimal due to the finding that reading comprehension was not only a significant predictor of the reason themes but was a better predictor than was reading vocabulary. Nevertheless, replications of this study are needed to determine the generalizability of any findings associated with reading comprehension.

With regard to external validity, because the sample represented doctoral students at a single university (i.e., threat to population validity and ecological validity) from whom data were collected at a single point in time (i.e., threat to temporal validity), it is not clear the extent to which the present findings generalize beyond the sample to doctoral students from other institutions in other regions of the United States and beyond. However, bearing in mind the uniqueness of this population (i.e., doctoral students), the fact that this study involved more than 200 participants is notable.

Notwithstanding, replications of the present investigation are needed using a wide variety of doctoral students.

*Legitimation of findings from qualitative phase.* The biggest threats to the qualitative findings were descriptive validity (i.e., factual accuracy of the reasons provided by the
doctoral students) and interpretive validity (i.e., the extent to which a researcher’s interpretation of the reasons provided represents an understanding of the students’ perspectives and the meanings that they attach to their words and actions) (Maxwell, 1992, 2005; see also Onwuegbuzie & Leech, 2007). However, descriptive validity and interpretive validity were enhanced by member checking (Lincoln & Guba, 1985).

Also, the fact that all the themes secured endorsement rates that yielded at least small-to-medium effect sizes suggests that data saturation took place.

**Legitimation of findings from the mixed research phase.** Onwuegbuzie and Johnson (2006) identified nine legitimation types that are pertinent to mixed research. Each of these legitimation types is defined in Table 6, together with an explanation of how they were addressed in the current investigation. It can be seen that nine threats were addressed to some degree. Nevertheless, despite the extremely rigorous nature of the mixed research design, replications of this inquiry are needed to assess the reliability of the current findings.

**Step 11: Interpreting the findings.**

**Stage 1 interpretations.** The quantitative phase revealed that, on average, a significant proportion (18%) of doctoral students reported reading empirical research articles either never or only once a year. Another nearly one half of the participants reported reading empirical research articles only once per month. Considering the role that empirical research articles play in the social, behavioral, and health science fields, this finding is quite disturbing. Yet, in considering that Benge et al. (2010) found that 75% of the participants noted time as a barrier to reading empirical research, along with high endorsements ratings for interest/relevance and research knowledge, and McMinn et al. (2009) noted that time demands on students created a tension in completing assigned reading, perhaps this finding is not surprising. However, it is problematic and ought to be addressed in doctoral student education.

The number of empirical research articles that the doctoral students reported reading each month ranged from 0.5 to 50.00. Predictably, doctoral students who read empirical research articles at least once per week ($M = 14.28$, $SD = 11.99$) statistically significantly read more empirical research articles per month ($t [99.5] = 4.33, p < .0001$) than did their counterparts ($M = 7.19$, $SD = 7.82$), yielding a large Cohen’s (1988) $d$ effect size of 0.74. Thus, doctoral students who read more frequently also tended to read more empirical research articles.

**Stage 2 and 3 interpretations.** The constant comparison analysis revealed that the reasons for reading empirical research articles are multidimensional in nature. Specifically, from these reasons, the following five themes were extracted: requirement, gain knowledge, stay current, guidance, and interest/curiosity. Interestingly, the endorsement rates of all of these perception themes represented large effect sizes, indicating that these reasons are prevalent among doctoral students. Further, the range of reasons for reading empirical
Table 6. Typology of Mixed Methods Legitimation Types and Approaches Used to Minimize them.

<table>
<thead>
<tr>
<th>Legitimation Type</th>
<th>Description</th>
<th>How Legitimation Type was Enhanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Integration</td>
<td>The extent to which the relationship between the quantitative and qualitative sampling designs yields quality meta-inferences.</td>
<td>Collecting both qualitative and quantitative data on the same group of student participants</td>
</tr>
<tr>
<td>Inside-Outside</td>
<td>The extent to which the researcher accurately presents and appropriately utilizes the insider’s view and the observer’s views for purposes such as description and explanation.</td>
<td>Capturing the participants’ quantitative and qualitative data (i.e., insiders’ views) and including doctoral students on the research team (observers’ views)</td>
</tr>
<tr>
<td>Weakness Minimization</td>
<td>The extent to which the weakness from one approach is compensated by the strengths from the other approach.</td>
<td>Combining descriptive precision (i.e., stemming from qualitative analyses) with empirical precision (i.e., stemming from quantitative analyses)</td>
</tr>
<tr>
<td>Sequential</td>
<td>The extent to which one has minimized the potential problem wherein the meta-inferences could be affected by reversing the sequence of the quantitative and qualitative phases.</td>
<td>Collecting quantitative and qualitative data simultaneously (i.e., concurrently)</td>
</tr>
<tr>
<td>Conversion</td>
<td>The extent to which the quantitizing or qualitizing yields quality meta-inferences.</td>
<td>Obtaining verification of quantitizing of themes via member checking and analysis of audit trail.</td>
</tr>
<tr>
<td>Paradigmatic mixing</td>
<td>The extent to which the researcher’s epistemological, ontological, axiological, methodological, and rhetorical beliefs that underlie the quantitative and qualitative approaches are successfully (a) combined or (b) blended into a usable package.</td>
<td>Using a fully mixed research design (Leech &amp; Onwuegbuzie, 2009), as well as by undergoing all major steps of the mixed research process</td>
</tr>
<tr>
<td>Commensurability</td>
<td>The extent to which the meta-inferences made reflect a mixed worldview based on the cognitive process of Gestalt switching and integration.</td>
<td>Using a team of researchers that was diverse with respect to research training, research experience, research philosophy, college teaching experience (e.g., assistant professor, associate professor, and full professor titles all were represented), and discipline (e.g., literacy educator, research methodologist)</td>
</tr>
<tr>
<td>Multiple Validities</td>
<td>The extent to which addressing legitimation of the quantitative and qualitative components of the study result from the use of quantitative, qualitative, and mixed validity types, yielding high quality meta-inferences.</td>
<td>Using techniques (e.g., intercoder agreement, member checking, debriefing) that addressed as many threats to the legitimation of both the qualitative and quantitative findings as possible</td>
</tr>
<tr>
<td>Political</td>
<td>The extent to which the consumers of mixed methods research value the meta-inferences stemming from both the quantitative and qualitative components of a study.</td>
<td>Using rigorous qualitative and quantitative techniques</td>
</tr>
</tbody>
</table>

Note. This table was adapted from Onwuegbuzie and Johnson (2006). Reprinted with kind permission of the Mid-South Educational Research Association and the Editors of Research in the Schools.
research support the notion that doctoral students, as adult learners, are indeed a heterogeneous group. Perhaps, though, most compelling is that requirement and guidance received the highest endorsement ratings (i.e., 34.1%), thereby accentuating that context is an important aspect of adult learning (Merriam et al., 2006).

The five reason themes were statistically subdivided (i.e., via principal component analysis) into the following two meta-themes: professional and personal. The first meta-theme, professional, comprises guidance, requirement, and stay current. The construct of professional emerges from the idea that the reasons for reading empirical research seem professionally motivated; yet, these motivations to read are also both intrinsic and extrinsic and exemplify the interaction between structure and agency (Giddens, 1984). For example, reading empirical research to stay current is both a demand from an external source (e.g., necessary to be successful in profession—structure) and an internal desire (e.g., desire to be successful in profession—agency). Reading for guidance (e.g., models of writing, ideas for research, help with coursework, and help with teaching) also highlights the interaction between agency and structure in that the structure imposes demands and as actors in this structure, students seek help to meet these professional demands. Although reading as a requirement appears to be the most externally driven reason, agency, or internal desire still exists as students chose to pursue an advanced degree and thus read to fulfill their professional commitment.

Interestingly, requirement is negatively related to guidance and stay current. This finding suggests that students whose motivation to read empirical research is more externally imposed by their professional structure, are less likely to view reading empirical research as a mechanism to enact their agency within the structure. That is, these students seem to perceive reading empirical research as a requirement of their professional development rather than as a means to developing professionally.

The second meta-theme, personal, comprises gain knowledge and interest/curiosity. The construct of personal represents self-directed learning (Knowles, 1980; Merriam & Caffarella, 1999). Choosing to read empirical research to gain knowledge and/or out of interest seem to be intrinsically motivating reasons reflecting a desire of personal growth and autonomy. Not surprisingly, the two themes (i.e., gain knowledge and interest/curiosity) were negatively related, likely due to their shared meaning. Thus, if doctoral students cited one as a reason for reading empirical research, they were less likely to cite the other. It is important to keep in mind that these themes were generated from open-ended responses; and it is quite possible that the students generated a single idea to capture personal motivation. Thus, the negative relationship between these two themes juxtaposed with their large effects sizes within the same factor, strengthens the construct of personal motivation. However, it is also necessary to consider that these personal motivations do not necessarily exist in isolation and might indeed have professional consequences.

*Stage 4 interpretations.* Just as the reasons for reading empirical research reported by doctoral students are complex and multifaceted, so are the relationships found between these reasons and reading intensity. In considering the findings from the canonical correlations between the five reason themes and the reading intensity variables, namely, free-
quency of reading empirical research articles and number of empirical research articles read each month, it seems clear that doctoral students’ reasons for reading empirical research are significantly related to the frequency of their reading. The multivariate relationship between the five reason themes and the reading intensity variables (i.e., frequency of reading empirical research articles, number of empirical research articles read each month) was mainly characterized by the relationship between gain knowledge, requirement, and stay current on one side and frequency of reading empirical research articles on the other side. The negative relationship among some of the reasons, contextualized in the relationship with reading frequency, illustrate the interaction of structure and agency in motivation to read empirical research. That is, doctoral students who state that they read for interest/curiosity, gain knowledge, and requirement, read less frequently. In terms of interest/curiosity and gain knowledge, both of which are personal motivations, and the previous finding of 75% of these students citing time as a barrier to reading (Benge et al., 2010), it seems plausible that, without an imposed structure, doctoral students perceive less time for reading empirical research. Likewise, the negative relationship between reading as a requirement and frequency of reading could be characterized on the other end of the continuum of too much imposed structure in which doctoral students enact their agency by reading less.

In contrast, doctoral students who cite reading to stay current and for guidance, read more frequently, which exemplifies a balance in the structure and agency interaction and their pragmatic approach to learning. That is, the structure or external demand of staying current in their fields and their own professional development as students and practitioners sets the context for reading empirical research; yet, the reason for reading is pragmatic and enacted through agency.

The multivariate relationship between the five reason themes and the reading ability variables (i.e., reading vocabulary and reading comprehension) was mainly characterized by the relationship between gain knowledge, guidance, requirement, and stay current on one side and reading comprehension on the other side. Perhaps, and not unexpectedly, doctoral students with stronger comprehension abilities are more likely to read to fulfill their course requirements and to stay current. Further, they are more likely to read empirical research for guidance and to gain knowledge. Thus, in considering the range of reasons for reading, it seems that stronger readers are more adept at negotiating both external and internal motivations to read empirical research.

That a combination of themes was related to both the set of reading intensity variables and the reading ability variables but the meta-themes were not related either to the reading intensity variables or the reading ability variables, is perhaps best explained by the negative relationships between the two themes. The meta-theme constructs of personal and professional, although inclusive, comprise dichotomous reasons for reading.

This dichotomy is further supported in examining the profiles from the latent class analysis with reading empirical research as a requirement separating Cluster 2 students from Cluster 1 and Cluster 3 students as well as interest/curiosity separating Cluster 3 students from Cluster 1 and Cluster 2 students. The latent class analysis also provides an addition-
al view on the duality of agency and structure. That is, students in Cluster 2, who read because it is required, yet, as determined from canonical correlation, read less, might indeed be challenging the status quo, as they enact their agency within the structure as to challenge reproduction. However, students in Cluster 3, who read because it is required and also who read less, might potentially be reproducing the structure.

**Step 12: Writing the mixed research report.** The present findings have provided evidence that doctoral students undertake the reading of professional literature for reasons that are neither strictly professional nor personal, but complex and multifaceted. The fact that, to date, the exploration of doctoral students’ reading behaviors has received so little attention in the reading literature or beyond supports our contention that this group of students represent an underserved population—hence our transformative-emancipatory stance. Thus, we hope that findings from the present study are disseminated to as many instructors and advisors of doctoral students as possible.

**Step 13: Re-formulating the mixed research question.** Based on the current findings, researchers in the future might consider addressing the following question: What is the relationship between doctoral students’ reasons for reading empirical literature and their perceived barriers to reading empirical literature?

**Conclusion**

Doctoral students’ reasons for reading empirical literature are both professional and personal. In informing their professional lives, they look at their reading as a requirement, one that both guides their practice and helps them to stay current. However, their reasons also are inherently personal, founded from a sense of interest and/or curiosity and the need to gain knowledge. Indeed, the findings from this study provide compelling evidence that doctoral students’ reasons for reading empirical research not only play a role in how they see value in empirical research as a tool that can assist them in their professional lives and in whether they read research out of interest, but also play a role in how successfully (or unsuccessfully) they fulfill the reading requirements of their course of study. Therefore, it is important for teachers of doctoral students to consider that their reasons do not exist absent of context, but rather within the duality of how they enact agency within structure (cf. Giddens, 1984). Thus, the authors of this current study assert that programmatic, instructional, and curricular implications of doctoral programs in any discipline ought to be reexamined. That is, as pragmatic learners, doctoral students need a pragmatic approach to framing their studies. Further, master’s-level programs also should be examined because many of these programs require students to read empirical articles toward framing and informing their own research projects.

Relying on the assumptions that all doctoral or master’s students are both fully prepared for reading and are prepossessed of both professional and/or personal intrinsic motivations to read empirical literature is counterproductive and possibly detrimental to student success. By ascertaining both the levels of readiness and the desire that learners have toward their own learning, instructors can provide scaffolding of reading empirical research that aligns with these levels (see, for e.g., Grow, 1991). Further, knowing and understand-
ing students’ initial professional and personal reasons for reading empirical literature will help instructors to utilize those reasons to design an instructional course that will foster students’ growth as emergent scholars.

**References**


Creating Significant Learning Experiences: 
A Case Study in the College Religion Classroom

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Abstract

In a domain historically dominated by student passivity, instruction that entices students to integrate and assimilate new content into their pre-existing cognitive schema is a new but necessary shift from the traditional teaching paradigm. No longer is college teaching primarily focused on quantity of information, but rather the quality of learning as measured by specific student learning outcomes. To facilitate this change, Fink (2003) identifies what he calls a “significant learning experience” and categorizes it according to a six-part taxonomy. This case study explores one of Fink’s categories, “integration,” in the context of a class in an undergraduate religious studies course. In this class, students explored the work of St. Augustine, a prominent early Christian theologian, and his notion of idolatry (confusion of the world with God). Discussion of St. Augustine was used both as a springboard for understanding the concept of idolatry as well as for critiquing contemporary notions of romantic love. This piece will present specific instructional decisions that exemplify this theory of integration as well as offer advice to other higher education faculty looking to create significant learning experiences in their own classrooms.

Keywords: Conceptual integration, religious education, significant learning experiences.

Creating learning experiences where college students can thoughtfully and intentionally make connections between their own lives and essential course content is one of the many responsibilities of today’s college professor (Fink, 2003). Though perhaps not historically true, in addition to teaching essential content knowledge, contemporary professors must also deliberately focus on the development of critical thinking skills, installation of core human values, and student awareness of and engagement with societal challenges (Svinicki & McKeachie, 2010; Barr & Tagg, 1995; Svinici, 2004). Higher education is being called upon to change the college classroom experience from one in which students listen to lectures, take tests and memorize facts to one where they solve problems and prepared to lead meaningful lives (Bok, 2006; Weimer, 2002). It is not the responsibility of only teachers of one specific content area, but every professor an undergraduate student has from the first class freshman year to their final senior level class (Fink & Fink, 2009; Svinici, 2004). Historically, there have been great deficiencies in

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addressing these needs (National Science Foundation, 1996). In his recent review of higher education, for example, Derek Bok (2006) wrote that colleges and Universities nationwide fail to “make any deliberate, collective effort to prepare their students to be active knowledgeable citizens”. However in recent years, more attention has been drawn to this topic and slowly the traditional means of college teaching are steadily being replaced with a new teaching paradigm—one with a more holistic, comprehensive vision of human conceptual growth.

To address this paradigm shift, Fink (2003) calls for a redefinition of teaching and a progression towards pedagogical approaches that are better aligned with how students learn. To this end, in his work Creating Significant Learning Experiences: An Integrative Approach to Designing College Courses, he introduces a six-part framework for creating meaningful learning experiences. In one of the facets of his framework, “integration” (the focus of this piece), Fink calls for instruction that entices students to connect and relate concepts together and that ultimately help students to transfer their knowledge to novel situations. As Fink puts it, integration is the process by which students are able to “make connections between specific ideas, between whole realms of ideas, between people or between different realms of life” (pg. 31). As intuitive as this may seem, Fink is quick to point out that this is not a typical focus in the traditional college classroom and requires a different approach to lesson-planning and delivery.

Though other frameworks for engaging undergraduate learners exist, Fink’s model is one that has been field-tested and the results published in many different content areas. The concept of significant learning experiences is not bound of curricular obligations or field of study but is a comprehensive, adaptable way of shifting towards a more student-centered learning environment. Case studies of Fink’s model in action have been published in the areas of undergraduate level economics (Miners & Nantz, 2009), Spanish (Davis, 2009), biology (Mester, 2009), art history and philosophy (Rose & Torosyan, 2009), music (Kelley, 2009) and education (Nicoll-Sentf, 2009). Thus, this study attempted to examine its success in religious studies, an area of the undergraduate curriculum yet to be considered.

**Methods**

Given recent shifts in the field of education, this piece seeks to add to the existing research base on Fink’s model of conceptual integration in the context of an undergraduate religious studies classroom. The setting for this study was a religious studies course at Niagara University, a small, private university in Western New York. The course, entitled “Christian Visions of the Human Person,” was designed to help students understand religious concepts such as grace, sin, freedom, and conscience, both from a traditional Christian perspective and other contemporary points of view. The course, which served as one of the three religious studies requirements for undergraduate students, met three times a week for fifty-five minutes for sixteen weeks.

The lesson that was the focus of this study occurred four weeks into the semester, during students’ consideration of St. Augustine. St. Augustine was a Christian theologian from...
the fourth and fifth centuries whose most famous piece, *The Confessions*, is widely considered a classic, spiritual autobiography. In this particular class, students explored excerpts from Book IV, in which Augustine reflects on the grief he experienced at the death of his childhood friend, though other sections of the text had been considered in previous classes.

This research was conducted using the participant observation protocols of qualitative research set forth by Spradley (1980) and Glesne (1999). Data was collected using both interview data from the teacher and students as well as field notes from classroom observations and course documents. Congruent with the Spradley’s method of participant observation, the researcher systematically and intentionally recorded notes about the experience while concurrently participating (when appropriate) to classroom discussions and activities. Handwritten field notes that were recorded during the experience and then rewritten several hours later to ensure sufficient detail could be recalled and documented. During this process, descriptive notes were combined with analytic notes to create a holistic account of the events that transpired.

**Creating Significant Learning Experiences through Integration**

According to Fink (2003), one of the ways significant learning experiences can be categorized is in terms of the changes they cause in the learner. These changes are at the very root of what learning does (and intends to do), but can take diverse forms. As the category of integration seeks to capture, change occurs in the way the learner views a specific type of knowledge and its connections to other content matter. Fink (2003) states there are three main ways educators can empathize integration through lesson design. These means are not discipline specific and are designed to be applicable in every college class regardless of specific content matter. They are (1) through thematic-based, interdisciplinary learning, (2) the use of learning communities and student interaction, and (3) by connecting academic work with other areas of life. These avenues of integration will serve as the lens by which the learning experiences in this religious studies class will be considered and their effect on students’ conceptual understanding.

**Thematic, Interdisciplinary Learning**

The field of education has long known that meaningful, transferable learning takes place when general concepts and essential questions are explored using critical thinking and reasoning skills students know and have experience using (Dewey, 1933; Bruner, Goodnow, & Austin, 1956; Darling-Hammond & Bransford, 2005). In authentic, “real world” scenarios, problem-solving is not bound by discipline-specific modes of inquiry (as they are at the university setting), but is explored from multiple, diverse perspectives. Davis (1993) notes that institutions of higher education have a duty to focus on these broader perspectives, since it more closely resembles the sort of large-scale, meaningful decision-making that is realistic in the workplace. Thus, Fink (2003) recommends professors of all disciplines create learning experiences that transcend a single way of thinking and take a general conceptual approach.
In “Christian Visions of the Human Person,” such an approach was taken in examining Augustine’s classic spiritual autobiography, *The Confessions*. In Book IV of this text, Augustine reflects on the tremendous grief he felt following the death of his childhood friend. His ruminations become the occasion for a lesson on idolatry, or the dangers that arise when love, which should primarily be directed at God, becomes fixated on something (or in this case someone) else. Augustine ultimately chastises himself for having been overly invested in his friend, when his energy should have been focused on God, his heart’s true desire. In class, students were encouraged to use Augustine’s reflections as a starting point for reflecting on what it means to have a relationship with God, as opposed to relationships with fellow human beings, not only in Augustine’s time, but also today.

The class began with a reading of select passages from Book IV that exposed the text’s general themes, such as Augustine’s preoccupation with his friend and its consequences for his relationship with God. Next, there was a discussion to ensure that students properly understood Augustine’s meaning, especially his lesson on idolatry. After collectively settling on a satisfactory interpretation, the class then moved to apply the text to more distinctly contemporary concerns. Augustine’s views on idolatry were used to question present-day notions of romantic love. Specifically, Augustine’s over-investment in his friend was compared to what seemed to be an equivalent over-investment by many people today in romantic partners. Using an online discussion post as a springboard for discussion, students were asked to consider whether the modern language often used to describe love for another human (including “the One,” “soul mate,” and “destiny,” as provided on this discussion board) were in fact examples of idolatry analogous to those considered in the Augustine example. By focusing on parallels between Augustine’s examples of idolatry in his relationship with his friend and modern relationships between romantic partners, students were given opportunities to analyze critically and to begin questioning modern notions of romantic love. Students were required to use textual evidence combined with personal experience to share well-articulated hypotheses and observations.

In this class, Fink’s notion of thematic integration and a focus on broader thinking skills were critical components in the planning and delivery. Contrary to the traditional lecture on St. Augustine, which would undoubtedly be littered with minute facts and fragmented quotations, this class focused on the broader concept of idolatry and modern examples of it in action. By taking this holistic approach, students were required to take a critical look at their own cultural assumptions and personal beliefs. The set of skills used in this lesson were not specific to the study of St. Augustine or the study of religion, but were a way of critically analyzing and making meaning from personal experience and textual evidence. These are the skills Davis (1993) would agree are universal to advanced studies.

**Learning Communities**

Fink’s next suggestion for creating significant learning experiences through integration is through the intentional use of learning community and small-group interaction. Of increased interest since the 1990’s, cooperative learning has been shown to help students integrate diverse perspectives, while sharing their ideas with diverse people with varied
expertise (Johnson, Johnson & Smith 1998; Vermette, 1998; Terenzini, Cabrera, Colbeck & Bjoklund, 2001). By its very nature, cooperative learning places student questions, curiosities, and inquiries at the heart of the lesson by legitimizing the role of student discussion and questioning during instruction. As a result, not only is greater ownership on learning placed on the students, but instruction is naturally differentiated to better fit students’ collective learning needs.

In this religious studies class, learning communities were used to help students negotiate their own conceptual understanding before whole group discussion took place. Using a traditional think-pair-share model (Lyman, 1981), students were given time in their student teams to consider questions such as, “Do these notions of romantic love make sense with what you have experienced?”; “Are these generalizations about romantic love fair representations of modern understanding?”; and “Is St. Augustine providing a reasonable example of idolatry?” These collaborative opportunities were intentionally infused at points of the lesson where student consolidation and codification of new ideas was essential, and were always followed by a period of whole-group sharing and debrief. Most often, debriefing cooperative work time also resulted in revisiting or reinterpreting St. Augustine’s text, as students were encouraged not only to provide their opinions but also to point to textual evidence to substantiate their claims.

It is important to note that by infusing Fink’s model of learning communities into classroom instruction, not only was greater conceptual meaning actualized but the interrelationships among the teacher, students, and subject matter changed. Inherit to working collectively with the instructor and fellow students is a sense of shared goals and joint ownership in learning. This process not only enabled students to overcome the isolation typical of traditional schooling, but also promoted interaction with the subject matter in a way that would be impossible without the input of diverse ideas.

Connecting Academic Work to Other Areas of Life

The final means of integration proposed by Fink (2003) is closely related to the first (thematic, interdisciplinary integration) but suggests a more explicit connection between student work to other, non-academic areas of students’ lives. Unlike Fink’s first suggestion, the focus here is not on the thematic, broad nature of student inquiry but its connection to students’ personal and social lives. While this facet is seemingly the most complicated of the three means of integration, it stands to have the most significant impact on student understanding by making the content culturally and personally relevant. Decades of work on culturally relevant teaching suggests that especially with diverse student populations, this sort of integration helps provide meaning between home and school experiences as well as between academic abstractions and lived realities (Gay, 2000; Ladson-Billings, 2009; Jones, Jones & Vermette, 2010). Fink also adds that with college students (and others engaged in higher-level academic pursuits) this is the facet of integration that is most likely to be neglected.

In this particular lesson, connections between students’ academic work and other areas of life were made throughout the lesson, but especially so through the use of three contem-
porary music videos. After having considered the textual evidence for St. Augustine’s notion of idolatry as well as an online discussion board and students’ insights of modern views of romantic love, the instructor selected three music videos to illustrate how common idolatry is in contemporary society. As students watched the videos (made publically available on YouTube), they were encouraged to pay close attention to the language used by these artists and how St. Augustine’s thesis was supported. Using the think-pair-share model mentioned above, students not only shared their personal reactions, but also gave informed commentary both on current perceptions of human love as well as St. Augustine’s thesis of a misplaced love for God.

In what was described by one student as an “eye-opening experience,” this activity not only enabled learners to consider evidence of the pervasive nature of idolatry, but also helped all make meaningful connections between the text and lives outside the world of academics. Students understood the thesis of St. Augustine at the conclusion of this lesson in large part because they had multiple, authentic opportunities to make connections and draw conclusions. Even as class ended on this particular day, the discussion among students continued as they thought up more examples in print sources, other online forums, and other musical outlets. This personal reflection, Fink would claim, is critical in the creating of significant learning experiences.

Implications

This qualitative case study was designed to explore the creation of significant learning experiences via conceptual integration as suggested by Fink (2003). Using the research methodologies of Spradley (1980) and Glesne (1999), this piece explored the instructional decisions that aligned with this model and the effects on student learning. Since Fink’s framework is designed to be universal and applicable to all disciplines and at all universities, there are two implications of this research that stand as suggestions for other professors looking to create similar learning experiences for their students. They are: (1) there is promise in teaching all academic content in a way that is highly integrated and intentionally designed to foster student active engagement and inquiry, and (2) the dispositions required to make conceptual meaning of important course content must be intentionally taught and scaffolded for undergraduate learners.

Teaching academic content using conceptual integration

In this qualitative case study, conceptual integration was embedded into classroom instruction via three avenues:

1. through thematic-based, interdisciplinary learning,
2. the use of learning communities and student interaction, and
3. by connecting academic work with other areas of life.

One important implication of this work is the realization that conceptual integration should not be an “add on” to an existing curriculum or supplement to instruction, but an embedded, meaningful component in the daily classroom experience. Teaching in the
way proposed by Fink (2003) (and in the way previously considered) requires a new way of viewing student learning and a new perspective on the role of the teacher in facilitating student learning. This view of teaching and learning is not subject-specific or applicable only with certain topics or units of study, but is a new intentional focus on the learning process and the opportunities students are given in class to make conceptual meaning.

It is also important to note that in the previously described lesson, it was not the activities themselves that were critical for deepening students’ understanding of the work of St. Augustine, but the nature of the thinking in which they engaged. Instead of using music videos, for example, this educator could have asked students to consider representations of human love in art works, rap songs, poetry or any other contemporary medium, as long as it forced the conceptual consolation and personal reflection necessary for cognitive and affective growth. For educators of other disciplines looking to use Fink’s theory of integration in their own classes, increased attention should be placed on creating learning experiences that force learners to integrate actively new ideas into their existing, cognitive framework rather than sitting as passive vessels to be filled with knowledge.

**Scaffolding the Dispositions Required to Promote Conceptual Understanding**

According to Halpern (1989), critical thinking is "thinking that is purposeful, reasoned and goal directed. It is the kind of thinking involved in solving problems, formulating inferences, calculating likelihoods, and making decisions" (p. 5). Contrary to the widely held misconception that critical thinking is of a higher order or one that requires a different type of cognitive processing, decades of research have shown the critical thinking is the amalgamated use of a comprehensive set of intellective and affective abilities (Chaffee, 1988; Halpern, 1989; Norris & Ennis, 1989). As higher education faculty members, it is important to recognize that these skills are not inherently known by students and must be taught as part of the general curriculum. It is unwise to assume that students already know how to analyze critically a document, for example, or can successfully make inferences from a piece of text, but rather critical thinking (like all other skills) must be taught and assessed and feedback must be provided to the student.

In this study, critical thinking skills were taught and informally assessed in nearly every activity. This professor spent a great deal of time modeling, explicitly discussing, and providing students with feedback on the affective and cognitive components of critical thinking. While discussing the contents of the online board posts on “soul mates,” for example, the process of supporting claims with evidence was not only intentionally modeled, but also continually prompted. Students were frequently sent back into the text to find evidence to support their generalizations and often asked probing question such as, “What evidence in the text makes you think that?” and “What in St. Augustine’s writing verifies that notion?” Rather than simply assuming students have the critical thinking skills to make Fink’s notion of integration successful, educators should prepare opportunities for student to learn and practice these techniques.
Conclusions

In this qualitative research study, Fink’s model of creating significant learning experiences was explored via the application of conceptual integration in an undergraduate religion classroom. Through a participant-observer, data was collected using field notes, class documents, and teacher and student interviews and synthesized into a case study of Fink’s theory in action. The results of this study imply that conceptual integration of knowledge is not discipline-specific, but a new way of thinking about instructional design. This piece adds to the body of existing case studies on the use of significant learning experiences at the Undergraduate level such as those which have already been published in the areas of economics (Miners & Nantz, 2009), Spanish (Davis, 2009), biology (Mester, 2009), art history and philosophy (Rose & Torosyan, 2009), music (Kelley, 2009) and education (Nicoll-Sentf, 2009).

In all, this study points to the fact that educators must consider how the learning experiences they implement in the classroom can foster student conceptual growth. Decades of research has shown that implementation of learner-centered, engaging instruction that forces the learner to negotiate actively their own meaning of important content causes student learning and ultimately academic achievement (Vermette, 2009; Perkins, 2009; Hattie, 2011). It is this personalization of meaning making that can happen in all college classrooms with every concept, given certain instructional components are in place, such as those described in Fink’s model.

The results of this study also suggest that it must be assumed that students do not necessarily know how to think critically in the same sophisticated manner most faculty members would like or may expect. Thus, these skills must be identified, taught, and assessed in a way that scaffolds student understanding so it can be transferred to other avenues of scholarship. Though changing instructional paradigms takes time, attention, and energy, it stands to have enormous payoffs in the cognitive and affective advances of undergraduate learners.

References


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Enhancing Student Collaboration in Global Virtual Teams

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Abstract

With the growth in the global economy and the rapid development of communication and information technologies, global virtual teams are quickly becoming the norm in the workplace. Research indicates, however, that many students have little or no experience working in such teams. Students who learn through these experiences benefit from higher task achievement, richer personal reflections, better social skills, increased cultural sensitivity, and greater psychological health. This paper discusses the challenges of integrating and managing global virtual teams (GVT) in the virtual classroom and strategies to help realize the unique opportunities they present in helping teach students the skills necessary for success in contemporary organizations.

Keywords: Global virtual team, student collaboration, virtual collaboration, virtual teams.

The growing capability of and access to communication and information technology along with the increasing movement toward globalization have created new teaching and learning opportunities in higher education. Further, institutions of higher education are being challenged to address the connectivity demands of prospective students and meet growing expectations for higher quality learning experiences and outcomes (Garrison & Kanuka, 2004). As classroom learning environments transform to meet the demands of a global and technologically challenging world, students need to experience virtual collaboration and teamwork that prepares them to communicate across cultural and organizational boundaries (Savin-Badin, et al., 2010; Williams, 2002). The Association to Advance Collegiate Schools of Business, the premier accrediting body for business schools, notes that a primary objective of higher education in business is to prepare students for challenges of the global work world (AACSB International, 2010). In spite of this recommendation, however, there is a surprising dearth of attention related to the development of global student collaboration opportunities. This may be due to the rather daunting perception some instructors may have in designing and delivering such an experience.

Employing global virtual teams (GVT’s) to teach course content can yield benefits for students, instructors, and institutions of higher learning. For students, learning through collaboration, as compared to individual learning, usually results in higher task achievement, better social competence, and greater psychological health (Ruhleder & Michael, 2000). Collaboration enhances learning by encouraging students to exercise and improve.
their mental models through discussion and information sharing while working on tasks (Alavi, 1994). For instructors, global virtual collaboration helps bring together heterogeneous participants and exposes them to a diversity of cultures, opinions, and communication styles while encouraging the development of higher order thinking skills through such experiences (Schultz, 2003). For educational institutions, GVT’s offer new ways of producing, distributing, and receiving university education (Orton-Johnson, 2009), and complement traditional teaching and learning methods. Additionally, adopting pedagogies that allow for the development of transferable collaborative skills to meet the expectations of prospective employers and which facilitate lifelong learning helps build reputations that are contemporary and attractive (Colbeck, Campbell, & Bjorklund, 2000; Correia, 2008).

Thanks in part to the power of communication and information technologies, organizations have become more geographically distributed and have employed GVTs to solve problems and create opportunities. Several multinational corporations such as Cisco Systems, IBM, Intel, Shell Oil Company, Toshiba, Siemens, Microsoft Corporation, Accenture, and Alcoa utilize integrated global teams that interact through virtual interfaces to service dispersed customers and pursue international business opportunities. Microsoft maintains global sales teams consisting of members drawn from its 8000 geographically dispersed sales representatives, 1000 call center employees, and 1000 sales partners. These teams share and access customer data, record sales opportunities and transactions, and manage global accounts to improve global sales activities and customer support (Badrinarayanan, Madhavaram, & Granot, 2011).

Many universities promote study abroad programs as a way to expose students to cultural differences and help prepare them for careers in a global work world. According to the Institute of International Education, 270,604 U.S. students studied abroad during the 2009-2010 academic year (Institute of International Education, 2011). However, when compared to the over 21 million individuals enrolled in degree-granting higher-educational institutions (National Center for Education Statistics, 2012), only a small fraction of enrolled students (1.3 percent) participate in study-abroad opportunities. GVTs can be viewed as a way to extend cultural lessons learned by studying abroad to those who could not or did not participate. However, the coordination involved in such a collaboration can present some real challenges.

Advantages of GVTs

Kristof, Brown, Sims, & Smith (1995) defined global virtual teams as those that are temporary (no common history), electronically mediated, culturally diverse, and geographically distributed. Advantages of using such teams for teaching and learning include students’ exposure to a variety of ideas, perspectives, and approaches to problem solving; generation of cognitive disequilibrium that is conducive to learning, creativity, and cognitive and social development; and a gain of sophistication in building arguments, sense-making, position-taking, and consensus reaching (Johnson & Johnson, 2003).
Global virtual teams are being used across a spectrum of college disciplines. For example, in nursing GVTs are viewed as innovative alternatives to overseas clinical placements as they help nurses develop global citizenship behaviors through authentic international learning experiences (Strickland, Adamson, Bligt, & McInally, 2011; Williamson & Harrison, 2010). Further, GVTs address engineering skill gaps in areas such as working globally in a multicultural environment; working in interdisciplinary teams; sharing tasks on a global, around-the-clock basis; and working with digital communication tools in virtual environments (Brodie & Porter, 2008; Oladiran, Uziak, Eisenberg, & Scheffer, 2011). GVTs have also been employed in sociology to understand interaction behaviors (Dekker, Rutte, & Van den Berg, 2008), in legal education to help in the global expansion of law practices (Cherry, 2010), in management education to facilitate virtual teamwork (Shea, Sherer, Quilling, & Blewett, 2011), and in project management and software development to address localized skill shortages (Guzman, Ramos, Seco, & Esteban, 2010; Tuffley, 2012).

Critical success factors for GVTs are similar to those for a traditional team. Teams in both forms need a clear purpose, measurable goals (Huszczo, 1996), appropriate team size of 3-5 people (Lipnack & Stamps, 1997), team norms or operating guidelines (Scholtes, 1998), and effective communication and decision making skills and processes (Aranda, Aranda, & Conlon, 1998). In addition, strong leadership is also needed for the success of a virtual team although it is recognized as being more difficult to establish in virtual situations. Research (Lipnack & Stamps, 1999) indicates that a shared or distributed leadership among team members rather than centralized leadership is more likely to achieve team success. This means that team members need to have self-directing freedom to manage their team project in a collaborative fashion.

Hudson (2000) observed that a virtual team, unlike a face-to-face team, needs to address simultaneously at least three types of issues: pedagogical, technological, and cultural. These three types of challenges pose unprecedented challenges for people with diversified backgrounds to work effectively together (Lurey & Raisinghani, 2001). In addition, factors such as team roles, power, trust, time and distance, and organizational relationship building begin to emerge.

The literature has presented guidelines for managing virtual teams but relatively little advice on how GVT’s can be managed and integrated into course projects and how to best guide students toward successful outcomes. The purpose of this paper is to present strategies for educators who would like to successfully integrate GVTs into their courses and enhance the collaborative skills of students in such teams.

**Guidelines for Managing GVT Learning**

Getting started in creating a GVT learning experience for students is not as imposing as it once was. Many schools have offices of international and/or exchange programs that can offer potential contacts for collaboration. In addition, teaching and research networks, particularly through professional meetings, are another way to cultivate global contacts.
Finally, some universities offer teaching abroad opportunities for faculty and this is an excellent avenue to create the necessary links to develop GVT opportunities.

However, simply assigning students to GVTs and asking them to work collaboratively will not guarantee that they will collaborate. (Kreijns, Kirschner, & Jochems, 2003; Johnson & Johnson, 2004). Johnson and Johnson (2004) identified five elements needed for effective collaboration: (1) positive interdependence, (2) promotive interaction, (3) individual accountability, (4) appropriate use of social skills, and (5) group processing. Positive interdependence occurs when each team member perceives that he or she cannot succeed unless the team does. The second element, promotive interaction, exists when team members act as trustworthy members by acknowledging and challenging each other’s ideas and facilitating each other’s efforts. The third element, individual accountability, can be achieved when each team member’s performance is objectively assessed. The fourth element, appropriate use of social skills, involves the development of trust, clear communication, and constructive conflict resolution. The fifth element, group processing, includes monitoring all members’ work to ensure quality of the contributions while facilitating social interaction and ensuring reciprocal interaction so that team members can collaborate effectively. Following are suggestions for applying the preceding five elements to GVT’s.

**Composition of the GVT**

In virtual environments, larger groups are less productive and have more difficulty arriving at decisions, so consider 3-5 members per team as a target. An odd number is recommended for greater success in working through conflicts. If possible, teams can be organized on talent and experience so that an “expert” in the team is able to provide modeling of skills as well as opportunities for other team members to learn. Tasks should be designed around a single competency area or a small number of skills and they should be communicated through clearly stated objectives.

The greatest value of GVT learning may also be its greatest challenge. That is, a team is made up of people with a diversity of talents, strengths, and experiences. This brings with it the foundation for stimulating discussion, creativity, and effective problem solving. However, it also means that each member of the team arrives with established work habits, learning styles, and preferred team roles. GVTs work best when team members balance task roles (accomplishing goals) and maintenance roles (satisfaction with process and efficiency). Task roles and maintenance roles take on a new character in virtual environments. Task roles dominate and are performed both online and offline. Maintenance roles, although critical to team connectivity, may not be performed until conflict arises and inefficiency is perceived (Harasim, 1993).

Assigning the members of the team is integral to the success of the team. Some instructors allow students to self-select their teams; however, this has some disadvantages. Self-selected teams often have members gravitate toward their friends. This can result in students self-segregating and spending more time socializing with each other rather than on the task. Other instructors prefer to randomly assign students to teams. While this has an
advantage of maximizing heterogeneity of the team and can be an effective way of assigning team members in large classes, disadvantages exist for GVT’s. For one, instructors and students know little, if anything, about each other. Additionally, some of the more important cultural differences affecting team behavior relate to whether a person was from an individualistic or collectivistic culture. Individualists are more task centered and are more likely to engage in competitive behavior, while collectivists favor the emergence of charismatic leadership and adopt collaborative behaviors (Oetzel, 1998; Pillai & Meindl, 1998). An understanding of how national as well as organizational culture influences global virtual team dynamics is crucial to developing a successful knowledge-sharing and problem-solving base and culture for the virtual team. Thus, blending individuals with those with different backgrounds can help GVTs leverage the diversity of their members to maximize performance (Hamilton, Nickerson, & Owan, 2003; Uber-Grosse, 2002). Research suggests that teams which are assigned by the instructor and perhaps realize the advantages of diversity tend to perform better than self-selected teams (Felder & Brent, 2001; Oakley, Brent, Felder, & Elhajj, 2004).

**GVT Member Responsibilities**

Although it may appear appropriate for each team member to address a task in which he or she excels, it is important to remember that students must master a wide range of proficiencies in order to be competitive in the workplace. Although specialization can enhance strengths, it can also reinforce weaknesses and limit opportunities to enhance important qualities. Thus, in order to recognize as many benefits from virtual collaboration, team members should accept responsibility for tasks requiring skills already developed, but also for tasks requiring underdeveloped skills that can be acquired during the process to complete the assignment.

**Managing GVT Processes**

The numerous advantages of GVTs have been identified in the literature (Sarker, Ahuja, Sarker, Kirkeby, 2011; Maynard, Mathieu, Rapp, & Gilson, 2012). Using communication technology reduces the emotional components of communication, promotes rationality and task focus and reduces the influence of personal status and potential domination of the team by a few members (Mezgar, 2005). Such factors help make global virtual teams more efficient than face-to-face teams, however, they are more difficult to manage and require more time to achieve peak performance than face-to-face teams. Following are some recommendations to help educators make GVTs more effective learning experiences for students.

**Cohesiveness within the GVT**

Instructors can help build connections within the GVT by sending a detailed advance email at the beginning of the team activity. This email should include a friendly welcome, a concise description of the team goals and the desired outcome, and recommendations on being a successful team member in a virtual learning setting. Team members should be asked to contribute personal information about themselves as a first communi-
cation of the virtual team. They should include information about their backgrounds, contributions they will bring to the team, and familiarity with the task and/or technology being utilized. Sharing this information can help create connections among team members. It is also important to help establish ground rules for the frequency of checking communications where such communications set the stage for future work. Team-based discussion allows collaborative learning to occur and encourages the development of important teamwork skills for students.

**Communication Media**

Students need to possess or be trained (a brief FAQ would suffice) to have enough computer literacy so that the technology does not interfere with their communication. Many communication and integration challenges are attributable to the lack of “richness” in media, where richness refers to the amount and quality of available feedback from a medium. Lean media are those communication technologies that allow for limited socio-emotional cues whereas rich media are those that allow for immediate feedback, nonverbal cues, and personalization.

While email is not a rich medium, it is frequently the communication medium of choice for global virtual teams. Email has the advantage of allowing team members more time to edit their messages, making it easier for non-native speakers to communicate (Warkestin, Sayeed, & Hightower, 1997). Further, the lack of nonverbal cues and the resulting social distance may be desirable when handling negative feedback from one member to another (Sivunen & Valo, 2006).

Baker (2002) found that the synchronous effects of collaborative technologies (such as video and audio from sources such as Skype and Google You+), rather than the use of a single form of media, resulted in better decision making by virtual teams. Hedlund, Ilgen, & Hollenbeck (1998) found that while face-to-face communication was more beneficial at an earlier stage of the decision-making process, media that filter social cues led to more accurate decisions at a later stage. For example, they found that in face-to-face meetings, leaders were often influenced by the confidence level of the individual offering the opinion; leaders were also likely to perceive team members who spoke most frequently as more knowledgeable. These social cues may present a significant disadvantage to individuals coming from collectivist cultures where it may be considered inappropriate to speak too much.

**Trust in the GVT**

Communication barriers, cultural differences, the absence of a well-defined system of social relationships and the lack of sufficient time to interact among team members hinders the development of trust in global virtual teams (Govindarajan & Gupta, 2001; Jarvenpaa, Knoll, & Leidner, 1998). Jarvenpaa, et al. (1998) stated that the level of trust in a global team depended on each member’s perceptions of each other’s ability, benevolence, and integrity. Traditional teams build trust over time by observing each other’s work, behavior and performance. Several experiences of successful performance are
necessary for one team member to build trust with another, but a single event of poor performance can destroy that trust. When trust is damaged, informal communication and nonverbal cues play a critical role in identifying the problem. Instructors can help build trust in global teams by promoting the sharing of views and perspectives. One tool that has shown value has been a value ranking exercise where team members identify how various concepts such as achievement, autonomy, and dominance are valued in their native cultures. This exercise is illustrated in Figure 1.

Some research has indicated that global virtual teams create their own cultural rules (Pauleen, 2003; Earley & Mosakowski, 2000). Other authors suggest that teams tend to develop a “hybrid” culture that allows them to share a set of assumptions, norms and terminology (Hambrick, Davison, Snell, & Snow, 1998). Instructors may want teams to formalize the process of creating a shared culture by writing down the assumptions, norms and terminology adopted by the team.

**Links between Culture and Team Communication**

Teamwork can be problematic for student teams operating in a face-to-face setting because students may overreact to nonverbal cues. Moreover, in a virtual environment

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<th>Value Ranking Exercise</th>
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<tr>
<td>Rank each of the 10 values below according to what you think they are in the Chinese, Indian (from India), and U.S. cultures. Use “1” as the most important value for the culture and “10” as the least important value for that culture.</td>
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<tr>
<th>Value</th>
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**Discussion Questions**

1. What are some main similarities and differences among the cultures? Were you surprised by the results? Explain.
2. What advice could your team offer for those doing business with individuals from the United States, China, or India based on their value systems?

**Figure 1. Value Ranking Exercise**
these problems may be exacerbated when nonverbal cues are not observed and where immediate responses and feedback are seldom provided. Conversely, Barry (2002) argued that virtual teams may allow teams to focus more clearly on the task and avoid non-constructive discussion. Dickey, Wasko, & Thatcher (2006) suggested that miscommunication among team members is the result of lack of shared understanding. They proposed that text-based communication can result in shared understanding, but that the development of mutual knowledge may take longer in a virtual setting.

Effective communication and the development of a shared culture during the formation stage of team development help develop what Meyerson, Weick, and Kramer (1996) have called “swift trust”, a trust that forms to perform a common, finite task. Jarvenpaa and Leidner (1999) discovered that swift trust formed as a result of initial actions and frequent, predictable patterns of task and social communication. Coppola, Hiltz, & Rotter (2004) found that trust developed in online courses where a positive social atmosphere and predictable patterns of communication were established early in the semester. Thus, it is important early in the team formation stage that GVTs establish norms for communicating within the team.

**Problem Solving and Decision Making in the GVT**

Instructors may want to suggest a variety of tools to support the different phases of problem solving. Different tools better address different parts of the problem-solving process. For example, if the problem or case study will take several sessions to solve, teams will benefit from an asynchronous tool that can keep a chronicle or history of the team’s discussions. If problem solving can be resolved in a single session, a synchronous tool for discussing and defending individual perspectives or even voting can be useful. Asynchronous problem solving (email, discussion threads) is best supplemented with a synchronous tool (on-line meetings) during decision making to build closer connections to team members.

While it is often helpful to point out that consensus is often unrealized in team decision-making, suggesting such a course of action as a team member has limited value. Thus, teams frequently benefit from the intervention of a neutral facilitator when it comes to making critical decisions or selecting among alternatives. Brief summaries of progress are another effective tool for leading to quality decisions. Often team members are too busy looking forward to see where they have been. Thus, teachers can review and summarize a team’s progress as illustrated in the following example. “I see that you are developing three distinct alternatives. The first appears to focus on user needs. The second focuses on the simplicity of design. The third addresses the cost advantages. Which do you feel are a priority given the goal of immediate success?”

**Content and Format of GVT Deliverables**

The pedagogical purpose of a project can serve multiple purposes: first, to provide students with opportunities to experience international and virtual interaction; second, to challenge the students to apply concepts learned in the class. Although the actual com-
pletion of the task is a measure of team success, task performance may not be the main goal of the project. The main goal may be to teach team members how to collaborate internationally through communication technology.

It must also be mentioned that identifying formatting requirements such as spacing, pagination, font size and style will help students to avoid relying solely on their memories from earlier conversations or other classes. Indeed, formatting norms may vary widely with individuals from different cultures. Therefore, it may be wise to include samples of content, as well as title pages and citations.

A schedule that indicates the due dates for interim assignments and other preliminary tasks can be given when the project is assigned. Teams can use the schedule to plan and complete the activities in a timely manner.

A team status report midway through the project can assess the completed work, the present work, the work remaining, problems that occurred and how they were overcome, and any changes in the approach to the project. Instructors can ask teams to summarize their work and consider incorporating the write up in the final paper so as to not leave all of the writing until the end of the term.

**Instructor Feedback to the GVT**

It is important to help team members sustain participation. A major reason why some team members “disappear” at times has to do with students’ feelings of not being connected (Crouch & Montecino, 1997). Instructors should consider frequent email prompts to help team members overcome procrastination. Email reminders are useful in helping keep the team task in the forefront of the learner’s thoughts. Emails should not be nagging, but serve as friendly reminders to contact the instructor or other team members if assistance is required or for periodic reports on team progress.

Skill building depends on frequent practice and feedback. The instructor can use semi-private or private communications for feedback. Semi-private communications can be established by providing “exclusive” discussions accessible only by team members. Individual feedback should be conducted by email. The instructor should plan and use check points for communication, reporting, and questioning on a project’s progress. Synchronous tools are effective for conducting such checkpoints. When the activity is completed, conduct an asynchronous debriefing or “lessons learned” discussion.

**Discussions Within the GVT**

Activities that develop new concepts and meaning may include reading, information searching and sharing, discussion, inquiries, and reflection. The facilitator (instructor) of knowledge construction may be skilled at scaffolding discussion, and encouraging exploration and elaboration. Effective scaffolding involves asking appropriate questions. Asking if there are any questions is not enough. In a virtual environment, you have to ask specific questions about specific content, solicit opinions, and follow up to engage stu-
students in discussion and reflection. The structure can be minimal. If the discussion topic is new to students, post a topic along with 1-2 open-ended questions to initiate thinking. This allows the students to develop the concepts, ideas, and details. Instructors (facilitators) should avoid dominating discussions by using relay questioning techniques and only participating when necessary. Relay questions involve rephrasing a question from one GVT member and then relaying it to another member for her/him to answer. For example, “Serena has asked for the best way to respond to this situation. In light of your experience, Wanda, will you tell us your view of the best course of action?”

To encourage continued contributions, instructors can model rewards for participants’ thoughtful responses with short affirmations. Finally, when discussion objectives have been met, the instructor can quickly “point to” the learning with a brief summary. This can serve as powerful positive reinforcement for future work.

As in face-to-face questioning, effective questioning techniques are useful to encourage elaboration. Open-ended questions are valuable to stimulate responses that build on prior concepts. For example, “Ricardo, you indicated a survey as one of the ways to capture primary data. What other techniques could you employ?”

Instructors can intervene, when necessary, to highlight areas of common ground. Responses to comments that are clearly not constructive should be carefully phrased. For example, “While I realize that we will not always agree with all points of view expressed on the project, this is a reminder to reflect and build on ideas, not judge the person for offering the idea(s).” This type of conflict can be avoided if teams adopt ground rules or “rules of engagement” that encourage members to suspend judgment and accept diverse views. An instructor may ask that the team post the rules at the beginning of the team activity. Then the instructor can monitor the interaction and remind members when a contribution is outside of the accepted rules. In this way, surprises linking sanctions to inappropriate behavior seldom occur.

Team members will expect the facilitator (instructor) to intervene when conflicts get personal or unproductive. Instructors can help the team members see areas within their conflict that they agree upon. For example, “Ruth and Henry, you seem to be at a standstill. In reviewing your contributions, it appears that you are both concerned that the end product be visually appealing. Is that correct?” Instructors can stress that not all conflict is “bad” and that it can generate an examination of alternatives leading to a better solution. Instructors can also propose the use of synchronous tools to resolve heated conflict in a timely fashion. Phone or video conferences may be more effective than computer-mediated communication to resolve personal conflict. Maznevski and DiStefano (2000) proposed that diverse teams must not suppress conflict by ignoring differences, but must instead generate an understanding of each team member’s abilities and take advantage of distinctive competencies. This cognitive state of the team is a global extension of the collective mind. Differing perspectives in the team are, in fact, the sources of maximum creative potential. To tap this source, team members must know, respect, and trust one another.
Evaluation of the GVT Task

Evaluating a team and its task(s) is a difficult endeavor and instructors should have a clear idea of how they want to evaluate the team work. A good beginning is to determine what is being evaluated: the final product, the process, or both. Next, it is necessary to decide who assigns the grades: the instructor, the team members, or both. If process is going to be evaluated, it is important to give students an opportunity to assess the effectiveness of their team. At the end of the process, they should be able to list their contributions, their team member’s contributions, and comment on the process as a whole. They should be able to identify those aspects that worked and those that did not. Peer evaluations allow the instructor to evaluate the team process in the most well informed, objective manner. Figure 2 illustrates an example of a peer rating form. Researchers argue that qualitative examination is needed to better understand what global team members perceive as challenging and rewarding (Finegold & Cooke, 2006; Song, Singleton, Hill, & Koh, 2004). Such understanding will help develop strategies for making GVT’s a more satisfying experience for both students and instructors.

The instructional goal and the type of team activity has a direct impact on how team members explore and define objectives, plan a course of action, and their perceptions of success. A clearly communicated instructional goal and desired performance outcomes of the team are essential regardless of the delivery system. One method to convey this information is through a grading rubric which identifies the criteria by which the work will be graded. Stevens and Levi (2005) recommended rubrics because they help convey clear expectations to students, increase their focus on their efforts, improve task achievement, and reduce instructor grading time.

Reviewing each of the items on the grading rubric will help to emphasize the criteria that are to be met in completing the assignment (Mckeown, 2011). The grading form also can serve as a tool for students to use in evaluating their own work before submitting it to the instructor.

Finally, the role of peer and self-evaluations is a controversial topic. While some educators believe that the concept of the team working together means that the entire team should receive the same grade, others question this approach on the grounds that it may cause more conscientious team members to assume a disproportionately larger share of the work in order to compensate for the lack of productivity from less diligent team members. How this issue is resolved is ultimately at the discretion of the instructor. However, to reduce potential confusion and address issues of fairness, it is important to articulate the system of evaluation when the task is first assigned.

Discussion

Transferring what is known about collaborative learning to a global virtual team requires careful thinking, planning, and execution. It requires thinking about the differences in the styles of interaction, and adaptive behaviors that will help students realize the full
potential of the experience. Establishing relationships needs to be one of the purposes for exploring GVTs. The concept of a collective presence is critical in designing effective GVTs that focus not just on talking to each other but in building a community and making students realize that they are a part of something. Studies (Maynard et al., 2012; Parkinson, Zaugg, & Tateichi, 2011) indicate that GVT experiences are highly valued by students since they provide a sense of reality and timeliness to the work world.

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<th>Dimension</th>
<th>Person Being Evaluated: Rating (0-10)</th>
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<tbody>
<tr>
<td>Quality of Deliverable (s)</td>
<td>Name</td>
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<tr>
<td>Ability to see the big picture / How parts of the project fit together</td>
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<td>Capacity to meet deadlines</td>
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<td>Communication within the team</td>
<td></td>
</tr>
<tr>
<td>Initiative</td>
<td></td>
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<tr>
<td>Carrying out assigned duties (from the team)</td>
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<tr>
<td>Responsibility</td>
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<td>Resourcefulness</td>
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<td>Professionalism</td>
<td></td>
</tr>
<tr>
<td><strong>Total Number of Points (0-100)</strong></td>
<td></td>
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</table>

Please provide an explanation/rationale for each rating:

**Figure 2. Confidential Peer Rating Form**
Educators can easily adapt the suggestions offered in this paper and introduce GVT’s into their courses. The key is to remember that better communication among the teacher and students will foster deeper understanding and build the trust critical for the success of GVTs. It is also important to adjust the expectations of the project to resources and limitations, particularly time. Finding ways to accelerate team building is essential. For example, the task should have a clear road map to completion and the instructor should facilitate decision making, thus relieving tension and frustration. Learning through global virtual experiences will give students a competitive edge in the global marketplace and offer them the opportunity to develop global leadership skills. This approach will also help educators and institutions of higher learning build fertile international connections and play a key role in reaching an overarching goal of promoting and teaching global collaboration.

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A Review of Teaching Methods - Lecturing and Facilitation in Higher Education (HE): A Summary of the Published Evidence

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Abstract

Several studies have documented that teaching methods in HE (generally involves work towards a university or college level education), are the most important aspect of a curriculum. This is because they serve as an interface between the learners and the philosophy of the curriculum. It is, however, difficult to define how knowledge is conceptualized and in what way it influences the choice of effective teaching methods in HE.

A literature search using the major databases – Medline, PubMed, EMBASE, CINAHL, JSTOR, PsycINF, and Web of Science – was carried out. This research aimed to focus on two important dimensions: lecturing and facilitation, within the same learning and education process, rather than challenging and demanding it, concerning their roles in teaching and learning. This paper shows that in many areas of teaching and learning, the positivist notions of knowledge are not always sufficient or appropriate. The latter has been conceptualized as a ‘banking’ model of learning, where the teacher is an expert and a storehouse of knowledge and this is transmitted (deposited) to the student over time who ‘banks’ this knowledge. The same considerations apply to teaching and learning, with respect to many areas of ‘academic’ courses, which require the students to explore values. This is where facilitation can be considered an important approach to learning. The context for much of this might be conveyed through a lecture, but to enable the students to develop a deeper understanding and to reflect on their own values, dialogical approaches to learning are needed. It will ensure that the issues are discussed and explored through interaction and the sharing of perspectives, views, and values through which new understandings (learning) can emerge.

Keywords: Teaching methods, lecture, facilitation, higher education, critical review.

Teaching is often considered to be an activity which enables students to learn. It applies to both the arts and sciences. As Centra (1993) argues, teaching is an intellectual process that ‘produces beneficial and purposeful student learning through the use of appropriate procedures’ (p.42). Jarvis (2002) argues that the process of teaching involves ‘the transmission of knowledge/theory, or the teaching skills - it was an instrumentally rational activity’ (p.40). Teaching methods are an integral part of the teaching environment within HE (universities and colleges). It is, however, difficult to examine how knowledge is conceptualized and how it influences the choice of effective teaching methods in HE.

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conceptualized, and how this influences the choice of teaching method, what ‘effective teaching’ should look like, and most importantly, how it should be done (Braskamp & Ory, 1994). Braskamp and Ory highlight that ‘effective teaching is the creation of situations in which appropriate learning occurs; shaping those situations is what successful teachers have learned to do effectively’ (p.40). There is, however, still a huge debate regarding different teaching methods in terms of the choosing of an appropriate method for ‘effective’ teaching.

It has been argued that effective teaching methods are often determined by the integration of nature and skillful teachers/tutors (inter-professional), as well as appropriate means of communication, which is often considered a key competence for those professionals who intend to engage in teaching in HE institutions (Health Professions Council, 2007; Department of Health, 2004; Howe, Campion, Searle, & Smith, 2004; Egnew & Wilson, 2010). The topic of teaching methods, especially with those methods as common and commonly appreciated as lecturing and facilitation, has been explored before by many others, but such methods have not yet been reviewed critically in the light of the available empirical and conceptual evidence. Therefore, this review examines two important teaching methods, namely ‘lecturing’ and ‘facilitation’, with the aim of providing some practical and/or theoretical implications for the improvement of teaching and learning in HE institutions.

**Methodology**

A literature search using the major databases - Medline, PubMed, EMBASE, CINAHL, JSTOR, PsycINFO, Web of Science, and Physics Education Research - was carried out, examining two important teaching methods, namely lecturing and facilitation, and exploring their roles in teaching and learning at HE institutions. 7461 references were initially identified, which were then reduced to 101, once duplicate references were removed (compared to a Google search, i.e. 6,850,000 using ‘free’ terms). Once relevant articles had been identified, I adopted Sandelowski and Barroso’s (2007, p.51) process of excluding papers at different stages, i.e. checking through the titles, abstracts, and reading full articles, including checking the bibliographies and author citations. In addition to this, a literature search was carried out to see what previous analysis had been undertaken in relation to lecturing and facilitation.

With large quantities of information available in relation to teaching methods, this paper is limited to the best substantial theories and accepted principles, using the following criteria for inclusion:

(a) Articles related to teaching methods lecturing and facilitation in HE institutions published since 1974 were sought, with special reference to academic and research policy contexts, on the assumption that more recent evidence would have greater applicability to the current context;

(b) Studies published in English, regardless of the location of the research site (conducted in both the English and non-English languages);
(c) In addition, the author reviewed some abstracts from key journals to cast a wider net to increase methodological rigor, including the search functions of Google, and relevant databases utilized, to search for the keywords ‘teaching methods’, ‘lecture’, ‘lecturing’, ‘facilitation’, and ‘higher education institutions’, in order to ensure that statements were not missed.

Though this paper did not employ any specific quality selection criteria, I utilized the following criteria as a checklist for the selection of the relevant articles (adapted from Huth 2009, p. 251):

- Statement of problem with relevant question or hypothesis
- Presenting of the relevant evidence
- Usefulness of the evidence
- Significance of findings
- Assessing the answer’s validity in the face of conflicting evidence
- Conclusion

Findings

The following three key themes emerged as a result of the review of relevant literature:

- Lecturing – ‘to go on’
- Facilitation – ‘a dynamic process’
- Factors (environmental, social, and psychological) - influencing teaching methods

These themes were not mutually exclusive, but overlapped and contained contradictions.

Lecturing – ‘to go on’

Lecturing, in lay terms, means ‘to go on’, usually at some length, about an issue to a willing or unwilling listener. But in educational terms, to lecture means ‘a particular type of educational encounter in which a teacher transmits information to a number of students’ (Williams, 2002, p.3; also see Quinn, 2000, p.337). The essence of lecturing is to enable students to gain information, disseminate knowledge, generate understanding and develop interest in a particular subject (Brown, 1978). Al-Modhefer and Roe (2009, p. 45) conducted an empirical study of 300 students’ view of an effective lecturer and found that five key characteristics were considered to be important for an effective lecturer: clear and effective speaking, an emphasis on exam topics, stimulation of students’ interest, linking theory to practice, and well-structured presentation. Similarly, Al-Modhefer and Roe (2009) carried out a study to examine associated biomedical tutorials among nursing students in a large class (n = 300), and they noted that the most effective teaching involves: tutor provision of all questions and answers, tutor presentation of problems, and sharing with students both individually and in group settings. In this respect, one can argue that the interactive component between the students and tutor is considered to be an effective means of teaching and learning. However, it has been greatly debated among scholars whether lectures are the best means of imparting knowledge in HE institutions.
(Al-Modhefer & Roe, 2009, p.42). At one end of an effective/ineffective continuum, lectures can be passive, outdated, rigid, one-way and ineffective routine knowledge transmission (Al-Modhefer & Roe, 2009, 2010; Biggs & Tang, 2007; McIntosh, 1996). But on the other hand they can be structured, well-planned and challenging learning events which trigger students to come out of a passive stenographic role (Fry et al., 2003). Cohen, Manion, Morrison, and Wyse, (2010) argues that ‘teachers are largely the agents of, the implementers of, major decisions taken elsewhere’ and the role of teachers in decision-making is rather democratic, using students’ ideas in amalgamation with their own classroom role (p.15). Al-Modhefer and Roe (2009) further note that students should be encouraged ‘to start a learning process that will continue for the duration of their professional lives’ (p.43). It is therefore some patterns of interaction which trigger learning, and these could be informal, formal or semi-formal (Cohen et al., 2010, adapted by Oeser, 1966): teacher-led sessions; the lecture-discussion; active learning; active learning/independent planning; task-centered learning, and independent working (bureaucratic learning). It has been argued that these interactions would make teaching, teaching methods and the teaching/learning environments more productive.

Medlicott (2009) states that effective lecturing should be reflected in the design aspect. This has an economic benefit, in that the time of only one teacher is needed, and only one, albeit large, teacher space needs to be provided (Quinn, 2000; Race, 2000; Williams, 2002). Further advantages are motivation of students, helping students to make sense of concepts and views from various sources, and the complementing of written information, or even the provision of up-to-date research not yet available in textbooks (Brown, 1978; Quinn, 2000; Race, 2000; Williams, 2002). From Hartly’s (1989) point of view, effective teaching fulfills four major principles: the integration of learning activity in teaching is important as learners will learn by doing; repetition, generalization and dissemination are important notions; reinforcement is considered a cardinal motivator for learning; and learning is helped when the objectives and purposes of learning are clear. Race (2000) also states that surface, rather than deep, learning is the resulting impact of lectures (also see Race & Walker, 2003; Fry et al., 2003). Quinn (2000), however, opposes the view that lecturers are not resource-efficient, claiming that often learning does not take place during lectures and does not therefore result in knowledge acquisition and transmission.

Several authors (Bastick, 1995; Tootoonchi, Lyons, & Hagen, 2002; Mohidin, Jaidi, Sang, & Osman, 2009; Al-Modhefer & Roe, 2009, 2010; Williams, 2002; Sajjad, n.d.) back up effective teaching as a means of integrating teaching methods (teaching-centered approaches), and the characteristics of the teacher (knowledge, experience and personal attributes). Bastick (1995, p.x) attempts to see it as an intellectual form of ‘technical skills, professional competence and professional attitude’, in practice. Both Schon (1987) and Price (2004) strongly argue that once there is an integration of ‘knowledge’ and ‘competence’, this makes teaching methods more effective. Smyth (cited in Boud & Miller, 1996, p.53) describes it as a process of ‘(re)construction’, meaning ‘how might I do things differently?’ (See Table 1).

There are, however, some cynical views of lecture methods in HE. As Williams (2002) notes, a significant criticism of lectures is the ‘passive role often adopted by students,
Table 1. Lecturing as an appropriate method of teaching

- Stimulation to create ideas as factual material can be delivered in a direct and logical manner (McCarthy, 1992);
- Appropriate to teach large classes (Al-Modhefer & Roe, 2009);
- Opportunity for students to ask for clarifications at the end of the lecture; and
- Efficient and economic approach (Bligh, 1998; Al-Modhefer & Roe, 2009);
- Teacher may be ‘role model’ for students’ learning; and
- Students develop listening and note-taking skills (Kochkar, 2000, p.345)

with them sitting and taking copious notes, sometimes verbatim’ (p.4). This reinforces the idea that students can be taught all they need to know (Race, 2000; Ramsden, 2003; Williams, 2002), and equates with the concept of ‘pouring new ideas into an empty brain’ (Al-Modhefer & Roe, 2010, p.365). In this particular context, it is questionable ‘how effective a learning strategy the lecture is, when it is well-established that adults respond best to teaching that relates to their own pace of learning, and within their own context and experience’ (Knowles, 1990; Williams, 2002, p.4). Therefore, Al-Modhefer and Roe (2010) note that effective teaching is a combined form of more than one factor, for example, socio-economic, cultural, political, environmental, and organizational aspects of the curriculum, as well as instructional choices of teachers or educators (also see Turpen & Finkelstein, 2009).

Similarly, it has been argued that poor and ineffective lectures have many shortcomings, including the potential for ‘teacher bias and boredom’ (Quinn, 2000; Williams, 2002, p.4). These should not be used as criticism of lectures as a teaching method, because they relate more directly to the actual skills of the teacher (lecturer) than to the teaching method itself. Williams (2002) suggests that:

‘The learning taking place, however, using this (lecture) teaching method is questionable; at its best, it can motivate learners and help them to make sense of a variety of competing views, but at its worst, it can support the ethos of learner as a passive empty vessel’ (p.4).

Some criticisms of lecturing methods have been summarized in Table 2.

**Facilitation**

Facilitation is an interactive learning process. Burrows (1997) defines facilitation as ‘a goal-oriented dynamic process in which participants work together in an atmosphere of genuine mutual respect, in order to learn through critical reflection’ (p.401). This concept fits well with the understanding of facilitation highlighted in the literature (Johnston and Tinning, 2001) which is seen as having its basis in a ‘humanistic approach to learning’ which helps students to learn through shared and interactive learning (Rogers, 1983; Regmi, 2009, p. x). Jarvis (2002, p. 80) argues that:
Table 2. Criticisms of lecturing methods

- Passive, no interactivity and one-way traffic (Weinstein, 1988; McIntosh, 1996);
- Not appropriate methods for changing attitudes, and may not be a useful approach to analyse, synthesise and reflect ideas and experience (Al-Modhefer & Roe, 2009; Bligh, 1998; Price, 2004);
- Limited learner participation and less rapport-building;
- Not able to transmit the wonder and excitement – facts and figures of scientific discovery (Sokolove, 1998, cited in Al-Modhefer & Roe, 2009, p.42); and
- Difficult to cope with a wide diversity of ability/heterogeneous groups (Bligh, 1998).

‘Humanistic education and pragmatic constructivism assume(s) that learning is a recovery of or remembering (of) that which we already know. Some believe that this inner knowledge is lost in the plethora of what we are told we should know and from a tendency, it would seem, to forget what we know.’

In Rogers’ (1983) view, the notion of a humanistic learning approach is to enable learners to gain a deeper self-understanding (also see Regmi, 2009). This concept led Rogers towards the learner-centered approach to learning.

It has been further argued that the role of the teacher in this process is considered to be ‘as a facilitator of learning rather than (a) transmitter of information’ (Johnston & Tinning, 2001, p.161; Quinn, 2000). It is also very important to ensure that a conductive environment is created, in which the learner feels able to share and be listened to attentively (Murrell, 1998; Regmi, 2009). Jarvis (2002, p.80) further notes that facilitation is a process of ‘reawakening our talents and (the) store of unconscious wisdom’, to help learners to realize their capacity to learn. Several authors (Biley & Smith, 1998; De Grave et al., 1995; Williams, 2002, p. 5) note that the facilitator is seen as ‘central to the learning process’ which may be either constructive or destructive.’

The advantages of facilitation relate very closely to the principles of adult learning (Regmi & Regmi, 2008). First, facilitation provides relevance of the learning to the learners by building upon their own experiences - ‘reality of practice’ (Quinn, 2000; Rogers, 1983; Tuohig & Oleson, 1995; Wilkinson et al., 1998). Second, using ‘critically analyzing and reflecting’ on personal experience, the learner will be able to contextualize and internalize the learning, with the ‘whole experience being about thinking, feeling and developing insight’ (Durgahee, 1998; Welsh & Swann, 2002; Williams, 2002), resulting in deep learning (Biley & Smith 1998; Johnston & Tinning 2001). Third, the process of learner-centered facilitation brings individual learning styles (Murrell, 1998), and finally, this enables the learner to be ‘an active participant’ with their own pace of learning (Durgahee, 1998; Quinn, 2000; Rogers, 1983; Welsh & Swann, 2002; Wilkinson et al., 1998). From this point of view, one can argue that that facilitation can be a very important component of lecturing because learning in this way can have a consciousness-raising, em-
powerment) effect, for e.g. exploring the changing role of women in society could give rise to students developing more of a feminist perspective.

It has however brought some pitfalls. As Quinn (2000, p.56) highlights, the disadvantages of facilitation include the ‘lack of empirical evidence available to support its claims’ (effectiveness). Potentially, the emphasis on facilitation can ‘(devalue) intellectual aspects of learning’, such as knowledge and facts, which have an important role in human development and understanding (p.56). Facilitation needs to take place in either a one-to-one or small group setting, and is therefore time-consuming for teachers - and in general it is difficult to cover a set syllabus when the learner has control over the learning (Williams, 2002; Fry et al., 2003). Other important disadvantages are that, firstly, despite all the rhetoric about the development of a ‘partnership-like’ relationship between student and facilitator, there are inevitable inequalities, especially when the facilitator also takes on the role of assessor (Murrell, 1998). As Fry et al. (2003, p.112) point out, facilitation is rather a process of ‘interpersonal skills, which can prove far more difficult to learn.’ Secondly, it may well be that facilitation is now welcomed by all learners, and there may be an expectation that the role of the teacher is to teach (Williams, 2002). Fry et al. (2003, p.113), however, note that in the process of facilitation, the agreement of a ‘working relationship’ between learners and teachers is critical. Williams and Horobin (1992, p.43) consider this process to be creating a ‘we culture’. Williams (2000) states that learners do not always accept a self-directing role, and can view this as a soft option for the teacher, which can be complex due to the lack of understanding by the facilitator, who may see their role as inactive rather than leading to the employment of active facilitation skills (also see Durgahee, 1998).

As a result of the work of Rogers on learner-centered learning, it is seen as a collaborative venture between teacher and student in terms of creating a safe and trusting environment conducive to learning (Quinn, 2000). Roger (2002, p. 80) further points out that the facilitation process often ‘seeks to understand the frame of reference of self and the other, to reflect on how knowledge is derived from experience through (an) implicit and explicit theoretical lens.’ In the same vein, Williams (2002, p.6; also see Jarvis, 2002) considers the role of the facilitator to be to empower participants to learn. The key aspect of facilitation relates closely to adult learning theory, in that it works from the position that for learning to take place, the teaching must be appropriate and relevant (content, context and consistency), based on the learners’ experiences, and learner-centered and reflective (Quinn, 2000, pp.52-53).

**Factors influencing lecturer and facilitation methods**

It has been widely recognized that teaching and learning do not operate in a vacuum, free from the values and norms of their working context (Williams, 2002; Al-Modhefer & Roe, 2009, 2010). Instead, they are required to fulfill their function within a given situational context with a variety of environmental, social and psychological influences impacting on their choice of teaching method (Reece & Walker, 2003; Fry et al., 2003; Quinn, 2000). Environmental influences may include the availability of particular resources, such as suitable teaching rooms, and the appropriate skilled teachers, equipment
and teaching aids (Williams, 2002). As Williams states, the teacher may be forced into adopting the lecture method when they are faced with large groups of students and a limited amount of teachers and rooms. The facilitation method, in contrast, would require the teacher to break the learner group into small numbers, ‘to supervise a group of students working outside what supervisor might perceive to be his or her own area of expertise’ (Fry et al., 2003, p.112).

Alongside environmental factors, socio-political factors further impact on the choosing of appropriate teaching methods (Williams, 2002). Learners often expect to receive lectures, and to learn from a teacher who is wise and knowledgeable (Durgahee, 1998; Wilkinson et al., 1998; Biley, 1999). This can make teaching methods such as facilitation unpopular with the students, who might prefer to receive teaching through more traditional methods such as lectures (Murrell, 1998; Biley, 1999). In Merriam and Caffarella’s (1991) view social learning theory considers that people learn from observing other people, and such observations take place in a social setting.

In the 21st century, teaching is being evolved and is developing to become outcome-based with a focus concerning ‘what is actually being learned’. It will also be able to foster the deeper understanding required for contemporary practice (Welsh and Swann, 2002). Teaching methods such as facilitation in practice will be necessary if the ‘knowledgeable doer’ called for by educators, health professionals and policy-makers is to become a reality (Quinn, 2000).

Williams (2002, p.9) therefore notes that ‘the increasing body of research evidence relating to effective teaching practice based on adult learning theory should ensure that this renewed interest by universities in providing good quality teaching would result in the adoption of appropriate teaching methods independent of the resource pressures’ (also see Regmi & Regmi, 2008). These teaching methods in the context of professional education should include facilitation by teachers of small groups and one-to-one encounters, both in the university and practice setting. As Al-Modhefer and Roe (2009) argue, to be an effective teacher, ‘lectures need to be explored and applied to practice situations, grounded […] in the assessment and discussion that students have to engage in’ (p.42). Davies et al. (2000) and Wynne, Brand, and Smith. (1997) state that creating appropriate content and context for learning would make teaching more effective in practice. However, counter-pressures to this are the high visibility and accountability of the lecture method, which fills up timetables so that courses can be seen to exist and lecturers to be gainfully employed (Race, 2000), and the resource-intensiveness of alternative teaching methods. Several authors (Race, 2000; Williams, 2002; Exley and Dennick, 2004, cited in Al-Modhefer and Roe, 2009, p.43) argue that effective teaching ‘provide(s) a focus, challenge(s) assumptions and beliefs’, highlighting significant aims to motivate learners.

Similarly, psychological influences play an important part in the determination of the teaching methods employed. These psychological influences can be within the teacher or the student (Fry et al., 2003; Reece & Walker, 2003). There may be a temptation for the teacher to lecture students because they enjoy lecturing, or because they had to endure them so their learners will also suffer (Race, 2000). Equally the contrasting situation may
be that the teacher does not like the focus of ‘all eyes’ on them, which is inherent in the lecture situation (Race, 2000; Williams, 2002), or they may have been inspired to provide learners with a more positive learning experience than they themselves had. The practice of teachers is determined by their personal theories of teaching and learning (Johnston & Tinning, 2001; Williams, 2002). The teacher’s belief about how learners learn using the best approach to teach or facilitate, and the nature of the relationship between the learner and the teacher, will have an impact (Al-Modhefer & Roe, 2009, 2010).

In some cases, the relationship between learners and teacher is paramount, while others will remain separate or avoid contact due to some previous negative experience during their schooling (Quinn, 2000; Regmi, 2009; Regmi & Regmi, 2008). Jarvis (2002) therefore argues that effective learning will take place ‘when there is flexibility for different forms of knowledge to be engaged with using different methods of teaching and facilitative relationships as appropriate’ (p.87).

In the light of these psychological influences, one can argue that ‘teaching methods and curriculum philosophy should be flexible enough to adapt to the needs of individual learners’ (Williams, 2002, p.11; also see Reece & Walker, 2003; Fry et al., 2003). Williams (2002) further argues that a variety of teaching methods is likely to be a better approach than the dogmatic adoption of all lectures or no lectures. It has also been argued that in many practices, learning from one another, i.e. a team/sharing approach, has been considered a strong approach - for example, traditionally, medical practice has been argued to be a single ‘odd man out’ approach as medics often claim themselves to be experts and do not want to learn from other professions, but recently this field has changed. Peyton (1998, p.x; also see McKimm & Jollie, 2003) pointed out that these days, healthcare practice becomes:

‘Less reliant(t) on a particular individual’s knowledge base or skill but rather on a team approach…which includes representatives of all health professions… Doctors must be prepared to teach and learn, not only within their own profession, but also across (all) disciplines.’

The ‘self’ in learning is a ‘hallmark of humanistic psychology’ (Tennant, 1997, p.12), as this approach claims that learning always integrates with learners’ feelings, freedom, motivations and choice. Some argue that learning could be considered a ‘form of actualization’ (Sahakian, 1984, cited in Merriam & Caffarella, 1991, p.133). Svinicki (1998, cited in Al-Modhefer & Roe, 2009, p.45) highlights that effective teaching involves the ‘internalization of new information into existing mental schemata; creating new memory networks, or reorganizing old networks to fit the new information.’ In the light of the issues or challenges explored and discussed in the paper, the author has highlighted some important aspects (Table 3) and the factors to enhance effective teaching (Figure 1).
Figure 1. Factors to enhance students learning

Table 3. Effective teaching methods

- Enables learner interaction and participation;
- Consider the content (who, what you teach), and context of learning - environmental, social and psychological aspects in education;
- Showing concern and respect for students;
- A commitment to encouraging student independence;
- An ability to improvise and adapt to new demands;
- Using teaching methods and academic tasks that require students to learn thoughtfully, responsibly and co-operatively;
- Students and teacher share talking (conversation);
- Giving the highest quality feedback on students' work; and
- A desire to learn from students and other sources about the effects of teaching and how it can be improved.

Source: Ramsden, 2003; Svinicki, 1998; Michael, 2006; Williams, 2002; Biggs & Tang, 2007; Dancy & Henderson, 2007

Limitations

There are some methodological limitations in this paper:

- assessing the internal validity for many of the studies is difficult as ‘little information is provided on the research and sampling design’ to those selected articles for the paper (Liu, Hotchkiss, & Bose, 2008, p.12);
there is a risk of publication bias, with both peer-reviewed and non-reviewed papers which report positive results being more likely to be published (Regmi,Naidoo, & Pilkington, 2009);

• though the author adopted analytical procedures to standardize the review using quality review criteria, including iterative review/analysis process - this paper is not a comprehensive review of the topic, as the author argues that review articles are sometimes handled differently than empirical research manuscripts in terms of process, contents, contexts and consequences. Rather, it seeks to provide sufficient information to raise awareness of some important teaching methods that exist in the current provision of HE; and

• in addition, time and resources were severely constrained in this study as it was not externally funded.

Discussion

In this paper, we found that in many areas of learning, particularly in relation to professional education and development in HE, positivist notions of knowledge (which arguably lend themselves to lecture approaches) are not always sufficient or appropriate. The latter has been conceptualized by Friere (2001) in the ‘Pedagogy of the Oppressed’ as a ‘banking’ model of education: the teacher is the expert and retains knowledge and this is transmitted (deposited) to the student over time who ‘banks’ this knowledge. The problem is that professional knowledge and many professional decisions are ‘messy’ because they have to take into account the perspectives of different participants (students/users, relatives, other professionals), but also important considerations in relation to the law, ethics, cultural expectations, professional standards, and national and local policies etc. The professional/student is confronted by an array of competing values (some or all of which are equally valid). Frequently, professional decisions mean making a professional judgment. How, then, does the student develop ‘knowledge’ which helps to inform such decisions and judgments? What teaching and learning approach might be appropriate?

The same considerations apply to teaching and learning in respect of many areas on ‘academic’ courses which require students to explore values. For example, issues around health inequalities, issues related to ethnic minorities, politics etc. This is where facilitation can be considered an important approach to teaching and learning. The context for much of this might be conveyed through a lecture, but for students to develop deeper understanding, and to reflect on their own values, dialogical approaches (Mezirow & Associates, 1990; Shor & Freire, 1987; Mezirow, 2000) to learning are needed where the issues can be discussed and explored through interaction and sharing of perspectives, views and values, out of which new understandings (learning) can emerge. Similarly, a plethora of teaching and learning techniques have been widely used in many educational disciplines including physics education research (PER). In 1998, Hake used this method (PER) to examine the use of pedagogical innovations in teaching undergraduate physics courses, and he revealed that interactive engagement methods, as opposed to traditional lectures, would always be linked to better student performance (Hake, 1998). One of the primary methods of interactive engagement used among 6,000 students at the University of Colorado was ‘Peer Instruction’ (Mazur, 1997). According to Mazur (1997), peer edu-
cation was considered a pedagogical method, often used in large-scale teaching, where lecturers stop lecturing every 15-20 minutes (approximately) to ask questions of the students in order to get their views, responses, and understanding of the subject matter. This approach would also help students to, not only think about the possible responses, but also to test themselves about their understanding with their peers. Therefore, Mazur (1997) and Crouch, Watkins, Fagan, and Mazur (2007) strongly believe that such a process would enhance students’ learning ability though conceptual and traditional, technical understanding (also see Turpen & Finkelstein, 2009).

I argue that Mazur’s style of peer instruction would equally apply in many social science fields. Promoting such a dialogue in a learning environment is where facilitation comes in. Facilitation can be viewed as more than a set of technical skills that are applied to promote discussion. Effective facilitation also requires emotional intelligence on the part of the facilitator as well as an awareness of the power dynamics within the classroom (Brookfield, 1995). A conceptualization of facilitation has been advanced by Harvey et al. (2002), which tries to promote better understanding of what activities are associated with facilitation. This paper has also highlighted that depending upon the content and context of learning, the methods must be teacher-centered (lecturing), or student-centered (facilitation), or all shades in between. Therefore, teachers need to be trained about the complexities of teaching and learning in practice. It is therefore ‘important to remember that what the student does is actually more important in determining what is learned than what the teacher does’ (Sheull, cited in Biggs, 1993). The paper concludes that the adoption of effective teaching methods, employing learner-led or learner-centered approaches, more interaction between the students and teachers, as well as the inclusion of adult learning as a relevant platform to analyze teaching methods, would all have important implications for the HE experience.

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Research-based Personas: Teaching Empathy in Professional Education

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Abstract

Graduate students enrolled in professional education degree programs are increasingly challenged by the need to acquire the complex skills/competencies of their respective professions on the one hand, while retaining empathy for the individuals they will be serving on the other hand. This paper suggests a technique which uses the Persona, a narrative representation of a desired client’s or user’s behavior patterns that is grounded in the philosophy of User-centered Design (UCD), to integrate empathy into professional education, and includes an example from a graduate-level program in instructional design. Opportunities for adopting this technique in various disciplines at the undergraduate level are also identified.

Keywords: Professional education, empathy, personas, collaborative learning, instructional design.

The number of students participating in education for the professions has been increasing steadily. Enrollments in post-baccalaureate professional degree programs (medicine, law, teacher licensure, etc.) in U.S. institutions of higher education are projected to exceed 425,000 by 2016 (National Center for Education Statistics, 2007), outpacing the growth of previous decades. Accompanying these trends is a concern about the lack of emphasis on the human touch in professional education. In the 36 years since Morrison and Leslie (1975) first challenged professional education to teach students to be more sensitive to the people they would be serving, calls for integrating empathy into the education of physicians (Afghani, Besimanto, Amin, & Shapiro, 2011; Neumann, et al., 2011; Spiro, 1992), therapists (Arizmendi, 2011; Elliott, Bohart, Watson, & Greenberg, 2011), engineers and product designers (Kouprie & Visser, 2009; Wright & McCarthy, 2008), and other professions remain firm. The question is: How can we teach empathy, particularly when the job-oriented focus of professional education encourages students to view themselves as problem-solvers, solution architects who have the right combination of technical and communication skills to meet the needs of their intended audiences and contribute to the success of their respective organizations?

This paper offers a technique for facilitating the integration of empathy into the practicum component of professional education by teaching students to construct research-

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based personas of the intended audience, a technique that draws upon the philosophy of User-centered Design (UCD). The paper begins with a brief review of the empathy and User-centered Design literature, including how personas are used for creating empathy into the design process. It will then describe an example of how this technique was used in a recently completed collaborative project practicum in a graduate-level instructional design program. It will also provide some suggestions for using this technique in virtual learning environments, as well as in education for other professions.

The Meaning of Empathy

The concept of empathy has generated a rich body of knowledge, primarily in counseling and psychotherapy and secondarily from social and developmental psychology. First used to describe a process of projecting human feelings into objects (Titchener, 1924), the term “empathy” has a variety of definitions, theories and constructs. Some scholars define it as emotional perspective-taking, our ability to understand other people’s feelings (de Vignemont & Singer, 2006; Decety & Jackson, 2006; Preston & de Waal, 2002; Gallese & Goldman, 1998; Allport, 1961). Another perspective on defining empathy seeks to segment emotional empathy into components. There are the subjective components, including empathic concern or feelings of warmth and concern toward another or feelings of distress and discomfort (Batson, Darley, & Coke, 1978; Eisenberg & Miller, 1987). There are also physiological components, with most studies of this component focusing on electrodermal and cardiovascular measures as physiological indices of emotional empathy (Eisenberg & Fabes, 1990; Krebs, 1975). Empathy may also be defined as a sequential process that begins with emotional resonance, then becomes empathic knowledge gained from that resonance, which is, in turn, used to form an empathic response and a temporary role identification with another (Stern, 1985).

In their review of the literature on empathy from 1969-1995, Duan and Hill (1996) conclude that empathy has been used to represent divergent theories and constructs, all of which can be justified by the content and context in which they are studied. However, common to the various definitions and approaches is the core concept of empathy as the ability to emotionally identify with another, the feeling that persons and their problems or circumstances arouse in us as projections of our feelings and thoughts, when “I and you” becomes “I am you” or “I might be you.” (Spiro, 1992). It is this concept of empathy that underlies the discussion in this paper.

Empathy and User-centered Design

One field in which empathy is deemed integral to professional success is the field of design. In the design literature, there is a general consensus that understanding and focusing on the end user during the design process is essential to the success of the final product (Roozenburg & Eekels, 1995; Griffin & Hauser, 1993). User-centered Design (UCD) is a multidisciplinary approach, the central premise of which is that user analysis should be an ongoing activity throughout the design and development process. Whether designing a product or a service, UCD addresses concerns that go beyond standard ease of use and satisfaction and considers the end user’s characteristics, focuses on gathering, analyzing
and specifying their tasks, their work environment and usability requirements (Brown & Green, 2006; Van Duyne, Landay, & Hong, 2007). Empathy is incorporated into the design process by visualizing the end user utilizing product prototypes, interacting with specific aspects of a design, or utilizing previous designs that the designer is attempting to build upon (Rifkin, 1994; Dahl, Chattopadhyay, & Gorn, 2001; Coleman, Lebson, & Myerson, 2003). The goal is to enable designers to make appropriate design choices for users who are unlike the designers themselves.

One way design students are taught to gain empathy with the audience for whom they are designing is to construct personas. Written in narrative form, personas are fictitious representations of the “archetypical” user intended to convey the needs, wants and attitudes of the user in the context of the product/service being designed (Baek, Cagiltay, Boling, & Frick, 2007; Norman & Draper, 1986; Rothwell & Kazanas, 2008). Personas are intended to make the user “real”, so that students can develop empathy for the user and use that empathic connection to view design decision’s from the persona’s perspective.

Generally, the process of creating personas begins with qualitative research – one-on-one interviews or focus groups – conducted among the target audience. Interview or focus group notes are reviewed in order to find patterns that enable the designer to group similar people together into types of users based on their attitudes, behavior or goals. Each category is then reduced to an “individual” with a name, a photo, demographic information and key characteristics (see Figure 1). To ensure that the personas created are representative of the target audience as a whole, quantitative data collected from surveys or other large scale studies of the target audience, can be used to validate the personas. Quantitative validation is particularly important when the target audience is large or when designing business web sites where hard data is required to defend decisions (Mulder &

Figure 1. Example persona used in the design of a website (Barlow-Busch, n.d.)
Yaar, 2007). However, while there is ample information about the importance of personas, there is little published information about teaching students how to create research-based personas.

**Example from a Student Project**

**Context**

In the 2010-2011 academic year, I taught students how to create personas as part of a collaborative project practicum in instructional design. The students were enrolled in a full-time, one-year Master’s degree program in which they participated as a single design team in a real-world, real-client project. The students learned the process of instructional design while applying that process to create a proof-of-concept prototype of an instructional product sponsored by the client. The four-member student design team was granted a project by the Virginia Department of Education to create a website for the parents and families of children with special needs. The ultimate goal was to make the new site a one-stop-shop for parents and families to plan for and remain engaged with the education of their children. Two dedicated subject matter experts (SMEs), one client liaison, and one programmer supported the student design team. In addition to my teaching duties, I served as the project manager.

To gather data about their target audience, the student team conducted three focus groups in fall 2010 with parents recruited from the Northern Virginia area. The focus groups were intended to address four research questions: 1) How do parents of children with special needs articulate/verbalize their special education information needs? 2) Why do they deem some pieces of information to be important? 3) How do parents find information they need and why do they search in the way they do? 4) What do parents believe is missing in terms of available content and why is that missing information important?

Assisting with participant recruitment were three local parents’ advocacy groups recommended by the subject matter experts (SMEs) and the client liaison. The parents’ advocacy groups also offered their facilities and logistical support for the focus group sessions, while I served as focus group facilitator. Topics in the focus group discussion guide included participant stories about their best and worst experiences as parents dealing with the special education needs of their children; the types and sources of information used to remain engaged with their children’s education needs; the extent to which current information sources fill all of their special education information needs, and; participant perceptions of the ideal special education information source(s). The student team compiled, synthesized and analyzed all focus group notes and audio recordings, then presented the results of their analyses in class.

**Persona Creation Process**

Following the presentation of focus group results, I introduced the concept of personas and displayed some examples of user personas developed in website design. Emphasizing the sensitive nature of our target audience and the potential impact of underlying emo-
tions associated with the topic of disability, I stepped them through the process illustrated in Figure 2.

First, I passed out packs of sticky notes to each student. Next, I asked each student to recall one particular parent that stood out in his/her mind and, using the sticky notes, write down the characteristics of that parent, one characteristic per sticky note. I had the students line up their sticky notes in separate columns on the whiteboard, so that each column represented one student’s description of his/her most memorable parent. Next, I directed the students to review and discuss each of the sticky notes and ask the note’s author for clarification, if needed. The goal was to ensure that everyone had a common understanding of what was on each sticky note.

I then had the students work as a team to cluster similar characteristics together across all of the columns. Sticky notes that were not placed into clusters were re-examined to make sure that they were indeed unique characteristics. After that, I had the students return to their seats and, working individually, form a mental model of a single person using the sticky note clusters on the whiteboard. I had each student write narrative representations of their mental models, then work as a group to compare and consolidate their narratives. The persona that emerged at the end of this one-hour process is shown in Figure 3. The
The process was repeated in subsequent class sessions to yield a total of three distinct user personas for fall 2010.

Mary is a 39 year old mother. She has an 8 year old son, Johnny, who was diagnosed with autism at the age of 2. Johnny understands what is being said to him, but is only able to say a few words and has trouble articulating them. When upset, he either pinches or tries to run away. Mary is a college graduate and a Certified Public Accountant (CPA). She spent the last six years researching treatment options and resources related to autism and special education on the Internet. She works closely with advocacy organizations and runs a support group for parents of children on the autism spectrum.

Mary is involved in her sons’ education. She is always in contact with the school principal and teachers to follow up on his progress. She thinks that her son would be better served in a self-contained classroom, with more behavioral support than he is currently receiving. She is concerned that he does not have more than a rudimentary communication system with limited picture symbols to say “yes” or “no” “hungry” and “bathroom”. She tries to share strategies she has learned through her extensive research, but doesn’t think that they are listening to her. She wants to know more about the Federal and State regulations to get a better idea of what her rights are so she can be a better advocate for her child.

Figure 3. Research-based persona: Portrait of Mary.

Validation

Because the personas were based on focus groups conducted among Northern Virginia parents, there was a need to ensure that parents from other regions in the state shared similar characteristics, attitudes and behaviors. Liaising with client representatives at the Virginia Department of Education, the student design team formed a 16-member Parents’ Panel drawn from a list of volunteers across the state and conducted a web-based survey of panel members in early-spring 2011. The survey consisted of seven items drawn from the fall 2010 focus group results. The survey asked panel members to rate their agreement with each item on a 5-point scale. The survey results affirmed most of the previous research outcomes, and contributed additional insights. The design team used those additional insights to construct a fourth user persona. All four personas served as key input to the design and development of the website prototype, with usability testing providing further validation.
Discussion

Research-based personas are an excellent tool for helping students gain empathy with the individuals they eventually will be serving. The opportunity to “walk in the shoes” of the client, patient or product user helps student to acquire and retain a holistic view of their intended audience. Though generally associated with education for the design professions, personas as a technique for creating empathy can be applied to education for other professions. In teacher education, for example, using personas enables aspiring teachers to better understand the challenges of the 21st Century classroom, particularly when those future teachers come from socio-economic backgrounds that differ dramatically from the schools to which they will subsequently be assigned (Kelchtermans, Ballet, & Piot, 2009; Cooper, 2007).

The collaborative team-based approach used to create personas enables the use of the technique in large classes in which group work supports the course’s learning objectives. In law, medicine and special education, for example, the teaching case is a common instructional strategy in which students must delve into the characteristics, attitudes and behaviors of their “subject” (Stevens, et al., 2006; Hammond, 2009). Personas help to flesh out that “subject” into a real person which, in turn, can teach students what it is to be the lawyer/doctor/educator and what it is to be the client/patient/pupil. Medical education already makes use of the narrative when teaching students history-taking. Personas-writing could be readily integrated into that part of the curriculum. Persona-writing also offers an excellent professional development opportunity for teaching assistants (TAs) assigned to large classes, enabling them to enhance their group facilitation skills as they learn a new technique for developing patient- or client-related narratives.

Technology-based learning enhances the number of opportunities for integrating personas into professional education. Virtual teams working with threaded discussion boards, web conferencing tools, wikis or other communication and collaboration tools can use the same processes for creating personas as used in the face-to-face classroom. Institutions of higher education that have adopted enterprise-wide course management systems such as Blackboard, Moodle or Sakai, already have these collaborative tools in place. Studies have shown how professional education faculty have been using these tools to design learning tasks that support and promote student engagement (Sanders, Homer, Pell, & Croker, 2008; El Tantawi, 2010; Fahser-Herro & Steinkuehler, 2009). As such, creating personas in a virtual environment would complement existing online collaborative activities.

At the undergraduate level, research-based personas are closely aligned with some well-established active learning strategies used in a variety of disciplines. In psychology, for example, Fitch and Marshall (2008) describe the use of psychobiography as a teaching technique. This technique enables students to develop a comprehensive and enriched perspective on the study of influential figures by exploring the figure’s personality, motivations, and relationship styles, traits that are also explored in research-based personas. Grauerholz (2007) focuses on student perspectives on the world through the lens of sociology and employs role-taking exercises to enable students to experience being members
of an oppressed group. DeWelde and Hubbard (2003) used an individualized variant of personas by having students in a sociology class write “coming out” letters in a sociology course exploring perceptions of what it means to be gay. In English literature, Orzulak (2006) employs collaborative theater exercises to support reading comprehension, vocabulary building and understanding of controversial issues, with role-playing exercises that require students to immerse themselves in the “personas” of particular characters. Smith (1999) emphasizes the value of role-playing and personality portraits to improved writing skills in any discipline.

In conclusion, research-based personas offer an excellent opportunity to integrate empathy into professional education and also undergraduate education in a variety of disciplines. I have found that teaching design students to create research-based personas enables them to remain focused on the individuals for whom they are designing, in order to better address the feature/function requirements of the product they are creating. This balance of human and functional requirements is as applicable to other disciplines as it is to the field of design.

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Film in the College Classroom:  
Using Twilight to Examine Adolescent Development

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Abstract

The hit movie saga Twilight has made an impact on viewers of all ages. This article seeks to explore the uses of film in psychology classes with a focus on ways in which instructors may find scenes from the Twilight series helpful and engaging for students. The authors describe scenes and themes from the first three movies in the series (Twilight, New Moon, and Eclipse) that relate to adolescent development theories, as well as other disciplines, such as English, Sociology, and History. Authors also provide a list of suggestions for using film as a teaching tool.

Keywords: Film, Twilight, teaching.

Adolescence is a time of exploration that often leads to questioning one’s sense of self. This questioning often leads to wanting to better understand what is reality and what is fiction. Adolescents begin to explore their lives, focusing on who they are in the present and the possibilities of what they can become in the future. Through this search, many adolescents may engage in fantasy as a means of changing their realities. Such adolescents can become interested in exploring elements of fantasy and supernatural events such as angels, ghosts, zombies and vampires. By reading novels and viewing films regarding supernatural events, young adults can delve into the “darker side of humanity while validating one’s belief in the supernatural” (Meloni, 2007). This helps adolescents to better develop an enhanced sense of identity. In addition, by exploring new ways of thinking outside of their own daily lives, adolescents become aware that there is a big world outside of themselves to discover. One way in which college students are able to engage in fantasy is through media, particularly film. As such, film is particularly useful in helping adolescents to better understand themselves as well as essential to helping inform those that work with adolescents. The purpose of this article is to discuss how educators can use film to help teach an adolescent development course. Specifically, we focus on the Twilight movie series and demonstrate how it can help college students to better understand adolescent development theories. We also discuss how film can be used in other disciplines for enhanced instruction.

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Media, Adolescence, & Twilight

There has been a growing impact of media on the lives of adolescents (Strasburger, 2005). For instance, there are magazines and web sites that are dedicated to addressing the interests of adolescents. Advertisers even focus on the adolescent population in order to help sell a variety of products ranging from beverages to clothing. There are numerous books and book series that feature adolescent protagonists. Also, there are many songs that discuss the lives of teenagers. In addition, there have been an increasing number of films over the last few decades that feature adolescents as the central characters and/or focus on adolescent themes. One such film, Twilight, has been extremely influential to the lives of adolescents.

The Twilight movie series is based upon the similarly titled book series written by Stephenie Meyer (Interview with Stephanie Meyer, 2006). The Twilight book series has sold over 116 million copies world-wide and the movie trilogy has made over $1 billion world-wide (Publishers Weekly, 2010). The movie series has been so successful that there will be two more installments, in both 2011 and 2012 (Access Hollywood, 2010). Meyer began writing the series after awakening from a vivid dream:

I can see a young woman in the embrace of a very handsome young man, in a beautiful meadow surrounded by forest, and somehow I know that he is a vampire. In the dream there is a powerful attraction between the two. When I started to write this, I had no idea where it was going; I had no idea at all in the beginning that I was writing a book. I started writing out the scene from my dream, and when I got done I was so interested in the characters that I wanted to see what would happen to them next. And so, I just wrote and let whatever happened happen. (Interview with Stephenie Meyer, 631)

The series focuses on Bella, a human adolescent that is attracted to a vampire named Edward. The movies explore the many adventures that result from their love affair in “a place where anyone could believe magic existed. A place where you just expected Snow White to walk right in with her apple in hand, or a unicorn to stop and nibble at the rosebushes” (Meyer, 2005, 479). Through the development of Bella and Edward’s relationship, the movies help explicate a variety of topics that are relevant to an adolescent development course.

Using the Twilight Films as Teaching Tools for Adolescent Development

The use of film to help illustrate concepts is a pedagogical technique that has been commonly used in the college classroom. Film has been used to teach a variety of academic disciplines including education (English & Steffy, 1997), counseling (Higgins & Dermer, 2001), psychology (Blustone, 2000; Boyatzis, 1994), sociology (Leblanc, 1998), business (Champoux, 1998), theology (Mercaante, 2007), foreign language (Sturm, 2012) and medicine (Alexander, Pavlov, & Lenahan, 2007). Instructors may select a film based on the type of lesson or assignment that will follow the film. Key characteristics of films that work well in the classroom include strong themes, good character development, pretty faces (such as well-known celebrities), a quickly paced plot, and cultural significance.
Assignments which utilize film in the classroom range from creating a film adaptation of a literary work and remaking the film in another language or through the lens of another culture (Sturm, 2012) to having students write a review of the film, screen-write alternative endings for the film, or act out scenes from the film (Fluitt-Dupuy, 2001).

The second author uses film in her classrooms in a variety of ways. One particular way is a film assignment in her undergraduate and graduate adolescent development classes that are largely composed of pre-service teachers and counselors. The assignment allows students to review and analyze a movie that pertains to adolescence. For the assignment, students have to analyze a movie of their choosing in terms of four major theories or concepts that are relevant to adolescent development. There are several key themes that are discussed in both undergraduate and graduate adolescent development courses that students can choose from: puberty, cognition, families, culture, gender, peer groups, schools, work and leisure, media, identity, sexuality (including relationships), and psychosocial problems (Santrock, 2009). Students are required to explain why the movie is relevant to the study of adolescent development; explicate how the movie has impacted their understanding of adolescents or their interactions with adolescents; and describe a psychological, counseling, or classroom implication for the movie. Students are also required to provide outside sources to help support their claims.

Although the second author has used this assignment for several years, many students are increasingly choosing to review one of the Twilight movies, including the first author when she was enrolled in the second author’s graduate adolescent development course. Because of this increased interest, the authors have begun to further explore how the Twilight movies can be used in conjunction with course readings to explore a variety of adolescent development theories. In writing this article, the authors reviewed the first three movies in the series: Twilight (I), New Moon (II), and Eclipse (III). We then picked significant scenes or themes from the various movies as they related to a variety of adolescent development theories and topics. We also examined how those theories and topics related to specific topics that can be explored using readings other than course core texts (see Table I for details). It must be added that this table can be expanded with the addition of the fourth and fifth installments to the film series.

The summary provided in Table I highlights the many ways in which connections can be made between Twilight and adolescent development theories. It also summarizes how the films can be segmented to help showcase particular themes. Using Twilight in teaching adolescent development is useful for both individual and whole class activities. When using individual activities such as the aforementioned assignment, students are able to make connections between the film and almost all major adolescent development theories. When using whole class activities, educators can emphasize specific adolescent theories. Educators can use specific film clips to reinforce the course readings and to expand students’ applications of the theories.
### Table I: Adolescent Development Themes in Twilight

<table>
<thead>
<tr>
<th>Movie</th>
<th>Scene/Theme</th>
<th>Adolescent Development Topic(s)</th>
<th>Additional Reading Topics</th>
</tr>
</thead>
</table>
| I, II, III | Interactions with parents  
Talks with parents about love and sex | Families  
Sexuality                           | Single Parent Homes                       |
| I, II, III | School—cafeteria, gym, bio class, prom, around town, graduation | Schools  
Peer Groups                          | Popularity  
Peer Influences                      |
| I, II, III | Town of Forks                                | Culture                                 | Bronfenbrenner’s Ecological Theory           |
| I | Bella’s questioning and observing of Edward’s behavior  
Exploring Quileute legend and learning about vampires | Cognition                               | Piaget’s Stages of Development  
Brain Development                      |
| I, II, III | Social system of vampires                       | Family  
Peer Groups  
Culture                           | Bandura’s theory of reciprocal determinism |
| I, II, III | Edward & Bella relationship                              | Sexuality  
Identity  
Puberty                      | Romance relationships  
Sexual desire                        |
| I, III | Jacob/Quileute tribe and reservation  
Tribal meeting/history  
Tribal legends                           | Identity  
Cognition  
Culture                           | Native American adolescent development  
Racial/Ethnic Identity of Native Americans |
| I, II, III | Activities with the Cullen Family  
Cullen Family’s protection of Bella | Peer Groups  
Family                           | Blended families  
Non-traditional families,            |
| I, III | Fighting with other vampires  
Vampire gang                                        | Peer Groups  
Psychosocial Problems                   | Adolescent Aggression  
Gangs                                       |
| II | Bella’s isolation and nightmares                             | Psychosocial Problems                     | Depression                                   |
| II | Bella’s riding with biker  
Bella’s riding motorcycles with Jacob  
Bella’s jumping in water off the cliff | Psychosocial Problems                     | Attention-Seeking Behavior  
Suicidal Behavior                      |
| II, III | Visit to Volturi  
Bella’s deciding to become a vampire  
Friends’ reactions to Bella’s decision to become a vampire | Identity  
Peer Groups                                   | Erikson’s Stages of Man  
Marcia’s Identity Statuses               |
| II, III | Women Vampires  
Men Vampires  
Werewolves  
Bella  
Bella’s girl friends | Gender  
Identity                           | Sex roles and stereotypes                |

### Implications for Using *Twilight* and Other Popular Films in the College Classroom

The *Twilight* series presents an exciting variety of uses for the college classrooms. There are numerous relevant themes that can be further explored in many disciplines. For example, in English classes, teachers can draw direct parallels between the books and the movies, having students explore the similarities and differences between literature and film. Also, English professors can explore the role of myths in literature through the use
of film. Writing instructors could have students model their own review of the movie after organizational patterns of exemplary reviews; this method could be useful for teaching students about rhetoric and the structure and argumentative writing (Fluitt-Dupuy, 2001). Another discipline that can utilize the Twilight series is history. When discussing Native Americans, history professors can discuss the Quileute tribe as well as customs, traditions, and legends associated with various Native American tribes. They may use the movie to help illustrate how films can promote a distorted view of history. In addition, a variety of disciplines (e.g. English, Psychology, Sociology, etc) could use Twilight to help create writing assignments in which students use vampire lore as a lens to view cultural phenomena. Students can think of the identity associated with a vampire and use that to analyze a cultural concept. One could argue that vampires deviate from the norm much like those whom society considers outsiders. By creating assignments that require students to take on the role of the other, professors can help students attain deeper levels of understanding identity. One of our colleagues who teaches English at a local university has successfully used this approach. Instructors may find it useful to create a table like the one below for their discipline before using film in the college classroom. The table could become a useful tool for insuring that the chosen film has plenty of scenes and themes appropriate to the classroom content. It may be useful, as well, to place the responsibility of creating a table in the students' hands; this way, they could view the video with the intent of identifying scenes which exemplify the theories and/or themes already discussed in class.

In addition, it is important to acknowledge that films in general can be used to help teach a variety of college courses. For instance, the Harry Potter series could be used in English and Communication classes; The Wire series could be used in teaching criminal justice courses; Precious provides a range of elements that are relevant to social work, while Wall Street: Money Never Sleeps can accompany the teaching of business management. With the substantial amount of films available, there are a plethora of opportunities to incorporate film in just about every discipline. However, when choosing to use film as a teaching tool, it is important to take several issues into consideration:

1. **Determine purpose of film use.** Films can be used in both individual assignments and whole-class activities. When using film for individual assignments, create activities that require students to examine the film as an entirety. For whole-class activities, choose films that can be segmented in order to highlight relevant course themes in short increments.

2. **Choose recent films.** Students are less distracted when the film has been made in recent years. For instance, students will not get caught up in outdated clothing and ways of speaking. More recent movies appear more socially and culturally relevant to the students.

3. **Demonstrate multiple levels of relevance.** Make certain that the film is relevant to the subject area you are teaching in a variety of ways. It is best to use films that address several major themes or constructs in your disciplines.

4. **Use external readings as support.** Find related readings outside the assigned texts to help support the themes that are found in the films. In order to insure learning,
it is important to provide readings that extend the themes captured in the films and extend the core class texts.

5. **Provide opportunities for self-reflection.** Activities that accompany films should provide opportunities for students to discuss the relevance of the film to their lives or future lives. Relating the film to their lives allows students to better understand the themes discuss as well as make better connections between themes.

The *Twilight* series is relevant to various courses due to its portrayal of numerous adolescent theories. The series can better help educators understand adolescents’ motives. The film reminds educators and helping professionals that adolescents are exploring reality and the supernatural. Adolescents are expanding their dreams and goals as well as pushing the boundaries during this period. They have a fascination with those different from themselves and sometimes adolescents are more accepting of others than adults.

It is important for adolescents to recognize the changes occurring within their minds and bodies as completely normal parts of becoming an adult. Films like *Twilight* can help ease and shed light on the complex adventure that is adolescence, particularly for those who are being trained to work with adolescent populations. It is the authors’ hope that the suggestions in this article may help instructors design learning environments that are stimulating, informative, and relevant.

**References**


The Effects of Lesson Study on Classroom Observations and Perceptions of Lesson Effectiveness

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Abstract

This study examined the effects of lesson study on participants’ classroom observations and perceptions of lesson effectiveness, by investigating the focus of their observations during a mathematics lesson and their ratings of the lesson’s effectiveness, both preceding and subsequent to the lesson study experience. Prior to the lesson study, subjects viewed a videotaped lesson, rated the lesson’s effectiveness on a scale of 1 to 10, and provided a detailed rationale for their ratings. After the lesson study experience, the process was repeated. Pre- and post-lesson study ratings were compared, and comments were categorized as relating to teacher behavior, student behavior, or other. Analyses revealed that the focus of participants’ observations remained relatively constant, while perceptions of lesson effectiveness, particularly with regard to teacher instruction, showed some change. Implications of the study and questions worthy of further exploration are discussed.

Keywords: Teaching, lesson study, observation, effectiveness.

"Learning would be exceedingly laborious, not to mention hazardous, if people had to rely solely on the effects of their own actions to inform them what to do. Fortunately, most human behavior is learned observationally through modeling.”
Albert Bandura

As suggested by Bandura (1977), observation is a critical part of developing any ability; and there is a growing body of research that supports the observation of both skilled teachers and peers as valuable practices for the development of teachers (Anderson, Barksdale & Hite, 2005; Madsen & Cassidy, 2005). For this reason, experiences that allow preservice and inservice teachers to observe teaching are considered a key component of teacher education and professional development, and there is even a growing movement to use observation in higher education, for the purpose of enhancing the quality of university teaching and learning (Hammersley-Fletcher & Orsmond, 2005). Unfortunately, while the assumption is that all observations have a positive effect on future teaching performance, research has shown that just sitting in a classroom observing experienced teachers does not necessarily help one learn to teach (Ben-Peretz & Rumney, 1991). Studies suggest that, in general, inexperienced and novice teachers do not possess...
well-developed observation skills (Star & Strickland, 2008), and typically attend to fewer specific teaching activities when viewing a lesson, perhaps because they lack the frame of reference to classify a teaching activity as significant or insignificant. There is also evidence that inexperienced observers do not include student outcomes as readily in their examinations of effective teaching as they do the behaviors of the teacher (Madsen & Cassidy, 2005; Van Zoest, 1995). Although being able to identify traits of effective teachers is viewed as an important component of observations, since student learning is typically considered a necessary outcome of effective teaching – a process whereby students are affected in the desired direction by the instruction, decisions, and behaviors of the teacher (Madsen & Cassidy, 2005) – it could be argued that observations might be better focused on students than teachers.

In light of this evidence, it is clear that if observation is going to be a worthwhile experience, it is crucial to prepare teachers to recognize and identify key teacher and student behaviors in the learning environment. The literature offers a few recommendations for making observation activities more effective (Acheson & Gall, 2003) – namely, ensuring that the observer is provided with a focus for the observation and knows what to look for, that a specific procedure is used for the observation, and that the observer strictly maintains his or her role as an observer. Additionally, within the realm of peer observation, the research suggests that individuals are most likely to benefit from peer observation if the process is approached as an experience in collaborative research in which all participants are co-researchers (Richards & Lockhart, 1992), and as an opportunity for colleagues to collect information, perhaps about a specific need or issue that they choose to look at in greater detail.

An activity that embodies all of these characteristics is lesson study. This professional development practice, which originated in Japan, engages teachers in a process of systematically examining their teaching, with the goal of becoming more effective. The process centers on teachers working collaboratively on a "study lesson" – first planning it, then teaching it, observing it, reflecting on it, critiquing it, revising it, and optionally repeating the process. To provide focus and direction throughout the process, the teachers select an overarching goal and related research question to explore. The research focus, as well as the collaborative qualities of lesson study and guidelines for peer observation, makes it the ideal candidate for fostering the development of observation skills that will positively affect future teaching. Moreover, considered by many Japanese educators as a process that gives teachers “the eyes to see children” (Lewis, 2002, p. 27), lesson study facilitates the focused observation of students, with an emphasis on gathering evidence about how the instruction, decisions and behaviors of the teacher affect student thinking and learning.

Lesson study has been established as a valuable model for improving teacher effectiveness (Dubin, 2010), and has seen growing use at all levels, from inservice and preservice teacher education to higher education. For preservice teachers, the practice serves as a mechanism for bridging theory and practice, and provides a means of initiating them into the practice of collaborative planning, teaching, observation and reflection (Burroughs & Luebeck, 2010; Chassels & Melville, 2009). Within the college environment, lesson
study has demonstrated its value for producing lively exchanges of ideas about teaching and learning among faculty, graduate students and undergraduate students in a non-evaluative setting (Alvine, Judson, Schein, & Yoshida, 2007). For all teachers, it provides opportunities to build professional learning communities, to learn from one another, and to think deeply about content and student learning (Dubin, 2010). Furthermore, the literature suggests that it possesses great potential as a powerful tool for facilitating teacher growth in content knowledge and understanding of curriculum, pedagogy, and student learning, and for developing habits of critical observation, analysis, and reflection (Burroughs & Luebeck, 2010; Chassels & Melville, 2009; Murata & Takahashi, 2002; Perry & Lewis, 2003; Stigler & Hiebert, 1999).

Research Question

While the literature asserts the value of lesson study as an avenue for facilitating critical observation skills, and specifically the focused observation of students, there is no evidence to suggest that these skills become habits that are carried forward into observations outside the context of lesson study. In order to gain preliminary insight into this matter, this study began by investigating the issue with a small group of preservice teachers. Thus, the question of the study was as follows: How does lesson study affect preservice teachers’ observations and perceptions of lesson effectiveness? Specifically, how do the focus of preservice teachers’ observations and perceptions of lesson effectiveness compare pre- and post-lesson study?

Context

The subjects of the study were 20 preservice teachers enrolled in a mathematics methods course at a small four-year university in Hawaii. The course was the second of two required mathematics methods courses required of all students in the elementary teacher education program, and included a 35-hour practicum, which was at least the third field experience for all of them. At the beginning of the course, all subjects had observed and worked in the field for at least 80 hours, and at the end of the course, those hours totaled more than 115.

A primary focus of the course was the implementation of a lesson study. The aim of the assignment was to give preservice teachers an opportunity to experience the process of lesson study, so as to facilitate critical observation and understanding of student learning, and engage them in systematically examining their practice, with the ultimate goal of helping them to become more reflective and effective teachers.

For the lesson study, the subjects were placed in groups ranging in size from three to five members, and required to complete one lesson study sequence, which included collaboratively creating a study lesson, implementing and observing the lesson, debriefing the lesson, and revising it. At the beginning of the process, the subjects received an in-depth introduction to the practice of lesson study and were then guided through a process of selecting an overarching goal for their students, as well as a related research question, in order to provide focus and direction for their work.
After collaboratively planning the lesson, each group chose one group member to teach the lesson within his or her practicum classroom, while the remaining group members served strictly as observers of the lesson. Prior to the observation, group members received a detailed explanation about the role of the observer in lesson study, and instructions about who to observe, what to observe and how to observe. Included was an explanation about observation as a window into student thinking, and an emphasis on observing students over teachers, and gathering evidence about how instructional activities affect student learning and thinking. After the lesson was taught, the groups reconvened to share their observations, to reflect, to discuss strengths and weaknesses of the lesson, and to revise the lesson accordingly. Groups were given the option to implement the study lesson for a second time, after revision, either in the same class or within a different class. If a second implementation occurred, the group was instructed to meet again to debrief and revise the lesson plan for a second time. At the conclusion of the lesson study process, groups were required to write a lesson study report. The report format was an adaptation of the format developed by the Lesson Study Research Group (Chokshi, Yoshida & Fernandez, 2001), and required groups to document the process, and to discuss the motivations, goals, achievements, and challenges at each stage. In addition, reports included a group reflection and individual reflections, which addressed resulting changes in thinking, general techniques or principles that were learned from the process and specific ideas that would be taken to future classrooms.

Each group was advised by the course instructor throughout the process. As advisor, the instructor was invited by group members to occasionally provide subject matter expertise, new ideas and different perspectives. The instructor also attended all study lessons and participated in all post-lesson debriefings, in the capacity of advisor, and in order to facilitate discussions and foster further reflection.

Method

Prior to the lesson study process, the subjects were required to watch a video of a math lesson taught by an experienced teacher who had served as a model for a lesson study experience. The subjects were required to take notes throughout the lesson, and at the conclusion of the lesson were asked to rate the overall effectiveness of the lesson by circling a number from 1 (low) to 10 (high) on a number line, and directed to “describe in as much detail as possible your rationale for assigning the above rating,” with instructions to comment on both teacher and student behavior. At the conclusion of course, the subjects were required to complete the same exercise using the same lesson.

The data collected were from all 20 students initially noted as subjects of the study. Numerical ratings were recorded for comparison pre- and post-lesson study. If a subject marked the line in between numbers, regardless of where the mark occurred in relationship to the numbers on either side, a number one-half higher than the lower number was assigned. For example, if the assigned rating was a mark between 7 and 8 on the number line, the data point assigned was 7.5.
Using a framework developed by Madsen & Cassidy (2005), comments were categorized as teacher-related or student-related. Teacher-related comments were further coded as pertaining to instruction (planning, accuracy, sequence of lesson), delivery (pacing, enthusiasm, and body language), classroom management (behavior control, routines, transitions from one activity to another) or other (general teaching comments such as "he's effective," "he's good with the kids"; judgments stating that the teacher should or could have done something a different way; or generic comments about the classroom that did not clearly fall into one of the above categories such as "nice job," or personal comments such as "I liked this lesson"). Student-related comments were categorized as relating to academic (task performance, accuracy) or social behaviors (on- and off-task behavior, following directions). Additionally, comments were marked as being positive, negative or neutral.

For the purpose of establishing interrater reliability, two researchers independently categorized comments from six of the twenty subjects. Subsequently, they reviewed each other's categorizations and worked until it was agreed that 100% of comments were sorted accurately and consistently. At that point, one of the researchers categorized comments from the remaining 14 subjects.

Additional data came in the form of post-lesson study reflections written by each of the subjects. Within the reflections, the subjects wrote about how lesson study influenced what they looked for in an effective lesson. This data was used to provide additional insight regarding the subjects' impressions of the effect of lesson study on their observations and perceptions of lesson effectiveness.

Results

All comments were marked and tallied. Frequency data are displayed in Table 1. The resulting data allowed for the comparison of descriptive comments and ratings pre- and post-lesson study. The total number of comments dropped from 209, before the lesson study experience, to 144 following the lesson study experience. Percentages of teacher-related comments and student-related comments remained relatively constant pre- and post-lesson study, with teacher-related comments constituting 71.0% of total comments before lesson study and 68.1% of the total comments after lesson study, and student-related comments constituting 16.3% and 18.8% respectively.

Of the six written response categories (teacher instruction, teacher delivery, teacher classroom management, other, student academic learning, and student social learning), subjects made the most comments regarding teacher instruction (67.1%, combined pre- and post-lesson study total), followed by student academic behavior (17.0%, combined pre- and post-lesson study total), and the least number of comments regarding student social behavior (0.3%, combined pre- and post-lesson study total), preceded by teacher management behavior (0.8%, combined pre- and post-lesson study total).

Noteworthy, are the percentages of negative comments pre- and post-lesson study. Negative comments, as a whole, dropped considerably, from 27.3% prior to lesson study to
6.9% subsequent to lesson study, as did negative comments about teacher behavior (from 18.7% to 3.5%), and negative comments regarding instruction (from 16.9% to 3.5%). Additionally, positive comments about teacher instruction increased from 47.8% to 59.0%.

Overall, the subjects’ ratings of lesson effectiveness rose after the lesson study experience, ranging from 2 to 10 with an average rating of 7.6 at the beginning of the course, and from 7 to 10 with an average rating of 9.2 after lesson study.

Table 1. Subjects’ Pre- and Post-Lesson Study Comments According to Focus.

<table>
<thead>
<tr>
<th>Focus</th>
<th>Pre-Lesson Study</th>
<th>Post-Lesson Study</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>P</td>
</tr>
<tr>
<td>Teacher Instruction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td>100</td>
<td>47.8%</td>
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<tr>
<td>Negative</td>
<td>34</td>
<td>16.3%</td>
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<tr>
<td>Neutral</td>
<td>8</td>
<td>3.8%</td>
</tr>
<tr>
<td>Teacher Delivery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td>1</td>
<td>0.5%</td>
</tr>
<tr>
<td>Negative</td>
<td>3</td>
<td>1.4%</td>
</tr>
<tr>
<td>Neutral</td>
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<td>0.0%</td>
</tr>
<tr>
<td>Teacher Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td>1</td>
<td>0.5%</td>
</tr>
<tr>
<td>Negative</td>
<td>2</td>
<td>1.0%</td>
</tr>
<tr>
<td>Neutral</td>
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<td>0.0%</td>
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<tr>
<td>Student Academic</td>
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<td></td>
</tr>
<tr>
<td>Positive</td>
<td>27</td>
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</tr>
<tr>
<td>Negative</td>
<td>3</td>
<td>1.4%</td>
</tr>
<tr>
<td>Neutral</td>
<td>4</td>
<td>1.9%</td>
</tr>
<tr>
<td>Student Social</td>
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<td></td>
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<tr>
<td>Positive</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Negative</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Neutral</td>
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<td>0.0%</td>
</tr>
<tr>
<td>Other</td>
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<tr>
<td>Positive</td>
<td>11</td>
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<tr>
<td>Negative</td>
<td>15</td>
<td>7.2%</td>
</tr>
<tr>
<td>Neutral</td>
<td>0</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

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Discussion

The purpose of the study was to examine how lesson study affects participants’ observations and perceptions of lesson effectiveness. The results of the analysis were unexpected, yet revealing. It was anticipated that the focused observation of students, which is asserted to be a major strength of lesson study, would become a developed inclination that was carried forward into observations outside of the context of lesson study. However, the data revealed a different story. It appeared that lesson study did not change the focus of observations, as the percentage of teacher-related comments, student-related comments and other comments remained relatively unchanged from pre- to post-lesson study. The results showing that the subjects tended to focus more on teacher behaviors than on student behaviors are consistent with existing research, and, in particular, a study which demonstrated that preservice teachers, both pre- and post-practicum, wrote more teacher-related comments than student-related comments, even when asked to focus on student behavior during an observation task (Madsen & Cassidy, 2005).

In addition to the broad classification of the observations, a more in-depth look at the data revealed other unanticipated findings. Interesting was the relatively low number of comments related to teacher delivery (1.9% pre-lesson study and 2.1% post-lesson study), considering the large base of research that supports the delivery style of the teacher as having the greatest effect on observers’ perceptions of teaching effectiveness (Hamann, Baker, McAllister, and Bauer, 2000; Madsen, 2003; MacLeod & Napoles, 2011). Also noteworthy was the fact that both before and after the lesson study, the participants made more comments related to the teacher’s instruction than about the teacher’s classroom management and student social behaviors. This contradicts studies which suggest that inexperienced teachers are more likely than experienced teachers to focus their attention on the behavior of students, particularly as it pertains to the classroom management skills of the teacher (Madsen, 2003), but may be explained by the fact that observers may be more influenced by off-task behavior than on-task behavior (Madsen, 2003), and there were no evident issues with student behavior within this lesson.

Beyond basic findings about the focus of observations, the data revealed additional information about the participants’ perceptions of teaching effectiveness and student learning. Of particular interest was the change in percentage of negative comments post-lesson study. Negative comments as a whole dropped considerably, as did negative comments about teacher behavior – primarily teacher instruction. Moreover, positive comments about teacher instruction increased. In essence, it appeared that the participants were much less critical of the teacher, and even, in fact, more complimentary following the lesson study experience. While the reason for this change is not clear, perhaps, through the lesson study experience, participants came to notice and place greater value on the subtle aspects of teaching related to the teacher’s interaction with the students, and how the teacher’s behavior affected the students, than on the practical and more obvious matters of teaching such as the planning and implementation of the lesson. In fact, the most frequent negative comments prior to the lesson study related to the teacher’s inability to complete the lesson as planned, his failure to adhere to the lesson plan, and his failure to achieve the stated objectives of the lesson, whereas comments about the teacher follow-
ing the lesson study focused more on things such as the teacher’s questioning techniques and how he engaged the students. Although comments such as, “The teacher really encouraged problem solving by having students brainstorm and asking them what they needed to solve the problem. He never just gave them the answer. Instead, he had the students think for themselves,” were necessarily classified as teacher behavior rather than student behavior, they do demonstrate the subjects’ awareness of how the teacher’s behavior might affect student behavior. Additionally, analysis of the subjects’ post-lesson study written reflections showed some evidence of changes in the focus of their observations. For example, one participant wrote, “I think that lesson study has forced me to think outside of my comfort zone and really think about the student, the learner. For a long time I thought I was creating lessons based on my observations, but honestly, I was basing my lesson design on the standards, what I needed to teach.” Another participant wrote, “The lesson study showed me that effective mathematics learning experiences are experiences where mathematics is made relevant to the child, and the child makes a connection of the mathematical concept to something important to themselves. The lesson study showed me that it’s not enough to use real-world examples; it has to be relevant to the student.” And yet another participant wrote, “Now I will definitely consider what students will say and how they will react to the instruction that the teacher gives. Before the lesson study, I don't think I ever actually considered how students would react.” Remarks such as these clearly demonstrate a newfound appreciation for the importance of considering the learner in the observation and evaluation of a learning environment.

It should be noted that the study sample was one of convenience. This sampling technique, while useful in documenting the particular quality of a phenomenon within a given sample, and for detecting relationships among different phenomena, is not representative of the entire population, and, thus, must be considered with regard to the generalizability of these results. The results from this study may differ from the results of a similar study with different populations, such as teachers at other levels and with differing amounts of experience, and these limitations should be taken into account when considering the implications of this study.

Implications

The results of this study support existing literature that suggests that preservice teachers tend to focus more on teacher behavior than on student behavior, and further reveal that a single experience in lesson study, alone, may not influence the focus of their observations. On the other hand, the analysis also reveals that lesson study may alter participants’ perceptions of teacher effectiveness. Together, these results point to important considerations and measures for those wishing to use lesson study with preservice teachers, and those attempting to facilitate the development of observation skills amongst this population. Furthermore, while the population of the study was limited to preservice teachers, this group is subset of all those learning to teach, and thus there are key lessons to be learned for all those who desire to facilitate the development of observation skills for the purpose of improving teaching and learning.
**Future Practice**

Foremost, the study brings to light the notion of observation, and a need to consider its meaning, its purpose, and how teachers are prepared to engage in it. First, what is meant by observation? Is it enough for participants to watch passively? Or does it imply a more intentional process – one of careful directed attention? Moreover, is observation intended as an evaluative process or a non-evaluative process aimed at facilitating reflection? Although the practice is used widely in education circles, the definition of observation varies just as widely, and thus so does its use. In order to improve the usefulness of this practice, we must be clear about what is meant by observation, and what is desired of teachers, in this regard. Furthermore, given that observation is used extensively in pre-service teacher preparation, and commonly with inservice teachers and university faculty, it is worthwhile to consider how individuals are prepared to engage in this practice. Teaching individuals what it means to observe, and how to observe is clearly a requisite step in getting them to do so throughout the lesson study process and beyond.

For educators interested in using lesson study to facilitate more effective observation and understanding of student learning, the following measures are suggested:

- **Include explicit instruction on observation.** It cannot be assumed that quality observation will automatically happen as a result of lesson study. Within the lesson study experience, participants must be provided with explicit instruction on observation, particularly as it pertains to lesson study. In addition to an explanation of the role of the observer in lesson study, detailed instructions must be given about who to observe, what to observe, and how to observe. If possible, participants should receive preparation, in the way of small tasks, which allows them to practice critical observation, prior to observing the study lesson.

- **Emphasize student thinking and learning.** Rather than merely focusing on “watching” students, a greater and more deliberate emphasis must be placed on looking for evidence of student thinking and learning. Within the instruction on observation, a detailed explanation about observation as a “window into student thinking” should be included, as well as a discussion about the importance of gathering evidence on how instructional activities affect student thinking and learning, and thus the value of observing students over teachers. In addition, at each step throughout the lesson study process, participants should be asked questions that will require them to look for evidence of student thinking and learning.

- **Provide quality support.** An important aspect of effective lesson study experiences is attention from a mentor or a professional. In addition to providing participants with subject matter expertise, new ideas and different perspectives, this individual plays an essential role in teaching and coaching participants to become more effective observers of student learning and thinking, and thus should model critical observation, guide participants’ observations, and ensure that participants’ observations remain appropriately focused throughout the process.

As a final consideration, it appears that although lesson study is an avenue for facilitating critical observation, a single lesson study experience may not be sufficient to create de-
developed habits that are carried forward into observations outside of the context of lesson study. While this does not detract from the usefulness of the practice, it serves as a reminder that establishing “habits” typically requires repeated exposure and practice. Thus, it is recommended that participants receive extended or additional experiences with lesson study, if possible.

**Future Research**

Given the results of the study, it is prudent to continue to investigate how lesson study can best be implemented in order to promote observations that will have the greatest positive impact on future teaching performance, and their sustained use. In particular, it would be worthwhile to determine if repeated or longer-lasting experiences with lesson study would have a greater impact on the focus of participants’ observations. Additionally, repeating this study using lessons that demonstrate a range of teaching experience and styles of teaching, and that reveal various issues and problems, might provide additional insight into the focus of participants’ observations and how they perceive effective teaching and learning. Finally, the issues presented as limitations of the study point to the need for further research which incorporates various and extended populations.

**Conclusion**

In conclusion, this investigation substantiates the complexities of the commonly used and seemingly simple practice of teacher observation. Without a doubt, effective observation – that which is capable of positively affecting teaching and learning – is a difficult skill that does not happen naturally, and cannot be considered an automatic byproduct of opportunities to observe. Furthermore, this study suggests that even with quality practices such as lesson study, well-developed observation skills cannot be guaranteed. Nevertheless, if these abilities are desired of teachers, it is essential that we persist in teaching them these skills, give them ample opportunities to practice them, provide the necessary support to facilitate them, and continue with the search for the most effective ways of doing so.

**References**


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Since the revamping of the journal in late 2006, we have had over 360 submissions. We have processed over 340 articles and produced fourteen issues of The Journal of Effective Teaching totaling 89 articles. The overall acceptance rate is about 25%. The contents of these issues are provided below as an overview of the variety of papers we have published. These are accessible at http://www.uncw.edu/cte/et/.

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