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The Squeaky Wheel *Needs* the Grease: Perceptions of Teaching and Learning in Graduate Education

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Abstract

The purpose of this international study was to contrast the differences in graduate student perceptions of professor pedagogical content knowledge, individualized consideration, Student-Professor Engagement in Learning, professor intellectual stimulation, and student deep learning. Sixty-seven graduate business and 70 graduate education students from two professional associations and four universities responded to the survey. The results indicated there was a significant difference between business and education students' perceptions on Student-Professor Engagement in Learning and deep learning.

Keywords: Pedagogical content knowledge, transformational teaching practices, student engagement, deep learning, graduate.

Teaching must become a priority in higher education (Boyer, 1990; Bain, 2004) and professors must use pedagogical approaches that prepare students with knowledge, skills, and values to conquer the challenges in their fields (McGuire, Lay, & Peters, 2009). Burnett, Philips, and Ker (2008) concluded that teaching students how to integrate knowledge into the real world continues to challenge educators across disciplines. Similarly, Hacker and Dreifus (2010) reported that professors spent too much time on research due to the incentive structures in higher education, and they had little or no time to focus on teaching. A contribution to effective college teaching and learning would result if professors were more actively engaged in assessing their own approaches and their impact on student outcomes (Bain, 2004).

Jang (2011) noted that scholars seldom study college students' perceptions of professor pedagogical content knowledge, and there has been a greater emphasis on the development and students' perceptions of secondary teacher pedagogical content knowledge (Tuan & Chin, 2000). It was reported that pedagogical beliefs, decisions, and judgments in the college classroom were more frequently researched than in previous years, however, more research is needed (Major & Palmer, 2006).

Research revealed that transformational leadership behaviors such as charisma, intellectual stimulation, and individualized consideration produced increased performance and satisfaction (Harrison, 2011). Bolkan and Goodboy (2011) affirmed that findings on pro-

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fessor transformational leadership behaviors in the classroom corresponded with previous research on effective teaching and students' perceptions of effectiveness. New research can generate discussions among professors and students regarding effective educational practices, education as an evolving process (Bain, 2004).

The purpose of the study was to investigate the differences in graduate students' perceptions of professor pedagogical content knowledge, individualized consideration, Student-Professor Engagement in Learning, professor intellectual stimulation, and student deep learning.

Theoretical Framework

Deep Learning

Marton and Säljö (1976b) posited that deep learning is a notion based on an explicit and significant connection between students and content. Deep learning takes place when students are provided opportunities to become actively involved in the learning process in order to construct meaning, connect concepts, utilize problem-solving skills (Hacker & Niederhauser, 2000; Weigel, 2001), analyze and explore underlying meaning, participate in cross-referencing, imaginative reconstruction, and independent thinking (Warburton, 2003). Deep learning reflects student internal motivation with the intention to understand rather than earn a desired score (Marton & Säljö, 1976a). Studies have shown (Trigwell & Prosser, 1991; Prosser & Trigwell, 1998) that deep learning approaches are associated with high quality teaching, independence in choosing concepts to learn, clear objectives and goals, and higher quality learning outcomes (Marton & Säljö 1997). Additional research suggests that in order to obtain deep learning, students must engage in student-centered activities in which a professor acts as a facilitator. Floyd, Harrington, and Santiago (2009) concurred that colleges and universities have transitioned from traditional lecture-based pedagogy in favor of learner-centered and collaborative activities because these styles will enhance student-learning experience. As a result, students will adopt significantly higher levels of understanding (Fink, 2003; Majeski & Stover, 2007; Floyd, Harrington, & Santiago, 2009).

Nelson-Laird, Shoup, & Kuh (2005) examined how deep learning varied by discipline area. Participants were college students who studied various disciplines such as (a) arts and humanities (16 percent), (b) biological science (7 percent), (c) business (18 percent), education (10 percent), engineering (6 percent), physical science including mathematics (4 percent), professional fields, such as architecture, urban planning, or nursing (6 percent), social science (15 percent), and other fields, such as public administration, kinesiology, or criminal justice (18 percent). All students completed the National Survey o f Student Engagement (NSSE, 2001-13) to measure deep learning (Nelson-Laird et al., 2005). The results indicated that students occasionally used deep approaches to learning across all disciplines. Overall, deep learning approaches were positively correlated with student outcomes (Nelson-Laird et al., 2005).

Likewise, Nelson-Laird, Shoup, Kuh, and Schwartz (2008) determined deep learning approaches result from greater student engagement and satisfaction. Specifically, "the shift

from passive, instructor dominated pedagogy to active, learner-centered activities promised to take students to deeper levels of understanding and meaning as they apply what they are learning to real-life examples in the company of others" (Tagg, 2003). Prior to this study, Dennen and Wieland (2007) found when a professor consistently facilitates real world experience; students are more engaged in learning.

Pedagogical Content Knowledge

Colleges and universities require professors to be experts in their academic discipline in order to be effective. In the 1970s, this was challenged by educational sectors and the improvement of college teaching was initiated using professional development for professors (Major & Palmer, 2006). Shulman (1986; 1987; 1991) was the first to recognize that professor knowledge includes several layers including both subject and pedagogical knowledge.

Cochran, DeRuiter, and King (1993) clarified that in higher education, pedagogical content knowledge and teaching are different; "teachers differ from biologists, historians, writers or educational researchers, not necessarily in the quality or quantity of their subject matter, but in how that knowledge is organized and used" (p.5). Pedagogical content knowledge in higher education entails having a well-developed yet flexible plan to teach specific content in order to bridge the gap between professor knowledge and student understanding (Rahilly & Saroyan, 1997; Shepherd, 2009). Kreber and Cranton (2000) added that pedagogical content knowledge requires an understanding of four elements such as learning style, cognitive style, the cognitive learning processes, and group dynamics.

Shepherd (2009) found that professional development initiatives, such as continued training, ongoing engagement with training, use of reflection to inform teaching, use of various teaching methods, and general professionalism, contributed to increased pedagogical content knowledge and improved student learning outcomes. Jang (2011) evaluated college students' perceptions of professor pedagogical content knowledge development using a new instrument and workshop intervention. Students' perceptions of the professor's pedagogical content knowledge after the pre-test were compared to the post-test, and indicated the factors that contributed to changes in professor's pedagogical content knowledge after self-reflection and participation in the workshops. The students recognized that the professor's content knowledge was rich in both tests. However, they also noted that professor's knowledge of student understanding needed improvement. It was clear that the workshops and questionnaires provided the professor with a deeper understanding of pedagogical content knowledge for students according to their level. Additionally, these intervention strategies helped the professor use more appropriate analogies to explain abstract concepts to students, improve teaching objectives, revise the difficulty of test items, and make connections to the course content (Jang, 2011).

Individualized Consideration

According to Bass (1985), individualized consideration is a behavior in which a leader acts in support of followers with thoughtfulness and concern for individual needs (Bolkan & Goodboy, 2011). Dionne, Yammarino, Atwater, and Spangler (2004) determined that one who practices individualized consideration addresses issues of competence and encourages perpetual individual development (Modassir & Singh, 2008). A professor who practices individualized consideration represents professor willingness to provide help outside of class (Pounder, 2008). Bolkan and Goodboy (2011) further examined individualized consideration according to student responses and determined specific professor behaviors that convey individualized consideration. These professor behaviors include availability, individual feedback, verbal immediacy, and personalized content, conveying interest, special considerations, remembering student history, and promoting participation. Harvey, Royal, and Stout (2003) found that individualized consideration proved to be the largest indicator of student involvement in the classroom.

Student-Professor Engagement in Learning

Astin (1984) contended that student involvement, or engagement, is a major contributor of student-learning outcomes. Student involvement and student engagement theories served as theoretical frameworks for Student-Professor Engagement in Learning, in which students and professors are both active in the learning process (Astin, 1984). Researchers (Petress, 2006; Weaver & Qi, 2005) regarded participation as a way to bring students together to become more active in the educational process. Ultimately, participation results in increased student motivation (Junn, 1994), improved communication skills (Berdine, 1986), group interactions (Armstrong & Boud, 1983) and self-reported gains in character (Kuh & Umbach, 2005). Further, participation enhances critical thinking (Crone, 1997; Garside, 1996) and sophisticated learning including interpretation, analysis, and synthesis (Smith, 1977). Sidelinger and Booth-Butterfield (2010) reported, "The entire responsibility for student involvement should not fall on students alone" (p. 166). Professors must promote a supportive and connected learning environment for students to be academically successful. Furthermore, professors need to connect with students, as well as provide opportunities in the classroom for students to connect with one another.

Intellectual Stimulation

Intellectual stimulation results in enhanced learning outcomes when linked to intrinsic motivation theoretically (Bass, 1985; Bass & Riggio, 2006) and empirically (Piccolo & Colquitt, 2006). Bolkan and Goodboy (2009, 2011) postulated that if transformational leadership produced positive learning outcomes in an organization when associated with intrinsic motivation, it is likely that the same will occur in the classroom. Therefore, it is theoretically possible that professors who engage in intellectual stimulation have the ability to encourage intrinsic motivation in students (Bolkan & Goodboy, 2011). Accordingly, Harvey et al. (2003) found that intellectual stimulation predicted student perceptions of professor performance and proved to be the largest indicator of positive student in-

volvement in the classroom. Similarly, Bolkan and Goodboy (2011) concluded that challenging students through class discussion encourages intellectual stimulation. During this activity, students can engage in scholarly conversation and simultaneously stimulate one another by sharing various perspectives. Overall, intellectual stimulation leads to innovative ways of thinking (Bolkan & Goodboy, 2011).

Data Sources and Research Methodology

The data for this quantitative study originated from a dissertation study conducted by Jennifer Economos in partial fulfillment of the requirements for the degree of Doctor of Education at Dowling College, School of Education, Department of Administration, Leadership, and Technology (2013). Permission to conduct this research was obtained through the Internal Review Board for the Protection of Human Subjects in Research (IRB) at Dowling College, two professional associations, and one university. Permission to survey graduate students was not required for the three remaining universities, as student contact information was published online.

The original survey instrument was adapted from research literature (Kane, Sandretto, & Heath, 2004; Bolkan & Goodboy, 2011) and two published questionnaires with permission from the authors (Shepherd, 2009; NSSE, 2001-13). The instrument asked graduate students to rate their level of agreement of each statement regarding graduate student perceptions of actual professor charisma, intellectual stimulation, and individualized consideration, pedagogical content knowledge, and deep learning. A five-point Likert scale with the possible responses accompanied the statements.

Both paper and electronic surveys were distributed to graduate students. The paper surveys were distributed to graduate students by United States Postal Service mail with an invitation letter to participate in the study and a self-addressed stamped return envelope. An electronic copy of the paper survey and invitation letter was created using Survey Monkey and distributed to students via e-mail. A total of 3,232 female and male graduate students currently enrolled in full-time and part-time business and education programs were invited to participate in the study. Of those students, 1,055 were graduate business students and 2,177 were graduate education students. The total response rate was 360 with 359 usable surveys (11 percent). Responses from graduate business students totaled 67 while responses from graduate education students totaled 292.

A factor analysis of 359 participant survey responses was employed to determine if each item measured the variable that it was designed to measure. The items were analyzed using principal component analysis extraction method and varimax with Kaiser Normalization rotation method. The rotation converged in 35 iterations. The results yielded seven of five, interpretable variables and five were selected for this study. Following the factor analysis, the dimensions of the study were subjected to reliability testing. Cronbach's Alpha coefficient of internal consistency was computed to assess the reliability of each of the five variables in the survey instrument. The Cronbach's Alpha coefficients for the factors ranged from .752 - .881. Finally, the entire response pool was randomized in order to minimize the chance for type one or two error. After the data were randomized,

67 useable surveys were from graduate business students and 70 useable surveys were from graduate education students. A total of 137 surveys were used for data analysis in this study.

Data Analysis

Research question

When graduate students are separated into graduate business and education programs, how do they differ in their perceptions of professor pedagogical content knowledge, individualized consideration, Student-Professor Engagement in Learning, professor intellectual stimulation, and student deep learning? The research question was analyzed using independent samples *t* tests to contrast the groups.

Results

Table 1 reports the group statistics and independent samples *t* tests results between groups for each of the five variables surveyed. The variables in the study were analyzed to determine which variables are perceived differently among graduate students and within business and education programs.

Table 1. Independent Samples t tests for Comparing the Differences of Graduate Students' Perceptions.

		N	Range	Mean	SD	*t*	*p*
Pedagogical Content Knowledge	Business	67	9 - 45	33.23	5.91	-0.97	.332
	Education	65		34.21	5.59		
Individualized Consideration	Business	67	8 - 40	28.70	5.5	-1.27	.204
	Education	64		29.95	5.65		
Student–Professor Engagement in Learning	Business	66	5 - 25	20.48	3.21	-1.99	.048
	Education	66		21.54	2.87		
Intellectual Stimulation	Business	67	6 - 30	23.37	3.91	-1.57	.117
	Education	68		24.42	3.83		
Deep Learning	Business	66	6 - 30	22.60	4.25	-2.59	.011
	Education	66		24.45	3.92		

Overall, Table 1 shows that graduate education students reported higher mean scores (M) consistently. There were no significant differences among the variables except Student – Professor Engagement in Learning (p = .048), and deep learning (p = .011). Graduate business and education students agreed that their professors participate in Student – Professor Engagement in Learning, and they themselves also participate regardless of their business (M = 20.48) or education (M = 21.54) distinction. However, business students reported they somewhat agreed and agreed that they engaged in deep learning while education students reported they agreed that they engaged in deep learning. In order to determine which items were significantly different between graduate business and education students, a frequency analysis was conducted for the variables Student – Professor Engagement in Learning and deep learning.

Table 2 presents the frequency analysis for comparing the difference of graduate students' perceptions based on Student-Professor Engagement in Learning items. One of five items were responsible for the significant difference between the groups. The table illustrates a trend between business and education students who agreed and strongly agreed.

Table 2. Frequency Analysis for Student-Professor Engagement in Learning Item 4.

I experienced professors who keep up to date with the latest developments in the content area.

		N	Percent	Valid Percent	Cumulative Percent
Business	1) strongly disagree	1	1.5	1.5	1.5
	2) disagree	3	4.5	4.5	6.0
	3) somewhat agree	17	25.4	25.4	31.3
	4) agree	23	34.3	34.3	65.7
	5) strongly agree	23	34.3	34.3	100.0
	Total	67	100.0	100.0	
Education	2) disagree	2	2.9	2.9	2.9
	3) somewhat agree	9	12.9	13.0	15.9
	4) agree	29	41.4	42.0	58.0
	5) strongly agree	29	41.4	42.0	100.0
	Total	69	98.6	100.0	

Tables 3 – 4 present the frequency analyses for comparing the difference of graduate students' perceptions based on deep learning items. Two of six items were responsible for the significant difference between the groups. The tables demonstrate a trend between business and education students who somewhat agreed and disagreed.

Table 3. Frequency Analysis for Deep Learning Item 10.

I learned how to integrate diverse perspectives (different races, religions, genders, political beliefs, etc.) in class discussions or writing assignments.

		N	Percent	Valid Percent	Cumulative Percent
Business	1) strongly disagree	3	4.5	4.5	4.5
	2) disagree	8	11.9	11.9	16.4
	3) somewhat agree	22	32.8	32.8	49.3
	4) agree	21	31.3	31.3	80.6
	5) strongly agree	13	19.4	19.4	100.0
	Total	67	100.0	100.0	
Education	1) strongly disagree	2	2.9	2.9	2.9
	2) disagree	6	8.6	8.7	11.6
	3) somewhat agree	15	21.4	21.7	33.3
	4) agree	22	31.4	31.9	65.2
	5) strongly agree	24	34.3	34.8	100.0
	Total	69	98.6	100.0	

Table 4. Frequency Analysis for Deep Learning Item 30.

I reflected on the strengths and weaknesses of my own views on an issue in an effort to consider different perspectives.

		N	Percent	Valid Percent	Cumulative Percent
Business	2) disagree	3	4.5	4.5	4.5
	3) somewhat agree	20	29.9	30.3	34.8
	4) agree	24	35.8	36.4	71.2
	5) strongly agree	19	28.4	28.8	100.0
	Total	66	98.5	100.0	
Education	2) disagree	2	2.9	3.0	3.0
	3) somewhat agree	9	12.9	13.4	16.4
	4) agree	29	41.4	43.3	59.7
	5) strongly agree	27	38.6	40.3	100.0
	Total	67	95.7	100.0	

Conclusions and Scholarly Significance

There was a significant difference between graduate business and education students on Student-Professor Engagement in Learning even though both groups appeared to share similar perceptions. Merrill (2002) found that students that engaged in the course and learning activities agreed that they applied knowledge, and integrated new

knowledge into their world. Similarly, Nelson-Laird et al. (2008) reported that deep learning approaches resulted from greater student engagement and satisfaction. A frequency analysis showed that a greater amount of business students disagreed and strongly disagreed than education students did on Item 4: *I experienced professors who keep up to date with the latest developments in the content area.* McArthur , Hudson, Cook, Spotts, & Goldsmith (2001) reported that students from marketing, general business, accounting, finance, and graphic arts worked together to design and market postcards for their higher education institution. Because of the content change, student-learning outcomes included effective management skills, team leadership, interpersonal communication, project planning skills, sales skills, and oral and written presentation skills. In conclusion, business programs would greatly benefits from such initiatives.

There was a significant difference between the groups on deep learning, in which business students somewhat agreed or agreed, and education students agreed and strongly agreed. As previously noted, Nelson-Laird et al. (2005) examined how deep learning varies by discipline areas. Nelson-Laird et al. found that students occasionally used deep approaches to learning across disciplines, which supports the finding in this study reported by business students, but does not support the finding reported by education students. Nelson-Laird et al. also found that students who studied social sciences had the highest score on the deep learning scale, just as education students in this study. In contrast, Braxton and Hargens (1996) found that faculty members promote deep learning regularly across academic disciplines (Braxton & Hargens, 1996).

A frequency analysis showed that a greater amount of business students disagreed or strongly disagreed on Item 10: *I learned to integrate diverse perspectives (different races, religions, genders, and political beliefs, etc.) into class discussions or writing assignments*. The research literature indicates that integration or transfer of learning leads to learning outcomes such as making connections, application, and synthesis (Barber, 2012), otherwise known in this study as deep learning. In Barber's (2012) qualitative study, it was reported that a student made connections among her courses as well as with her experiences abroad, in which she integrated knowledge from a class called Race and Ethnicity to obtain a deeper understanding of Plato in her literature class. Another student reported how a new course he was taking allowed him to compare and contrast varying religious and scientific ideas, and synthesize them into his own belief system. In conclusion, if graduate professors integrate diverse perspectives such as race, religion, and politics into their courses, graduate students will likely obtain a higher level of deep learning.

The frequency analysis revealed that Item 30*: I reflected on my strengths and weaknesses of my own views on an issue in an effort to consider different perspectives* contributed to the significant difference between the groups. Waddock (1999) and Ramasamy (2002) found that many business students approached reflective learning tasks with skepticism, and regarded them as irrelevant. As a result, students were disengaged and professors perceived reflective practices as a waste of time due the little or no impact on student learning outcomes. Moon (1999) found that reflection facilitates the problem-solving process, presents students with solutions to problems with no right or wrong solution. Reflection also allows students to use prior knowledge to make judgments and investigate

knowledge rather than accept all knowledge as valid information. Bisman (2011) studied the use of structured reflective journals as part of a journaling project in a graduate management accounting course, and found that learning objectives such as improved higher-order thinking, content mastery, and better quality learning experiences were achieved to varying degrees. Students also demonstrated a shift from surface learning to deep learning. In conclusion, if graduate professors encourage reflective practices in the classroom, students may find ways to consider new perspectives and will likely learn deeply.

Implications for Graduate Classrooms

This paper postulated that pedagogical content knowledge, transformational teaching practices, engagement, and deep learning are important to ensure the quality of college teaching and learning. However, Young and Shaw (1999) found that consensus in the definition of effective teaching may not be possible, as effective teaching varies according to subject, class size, student ability, and assessment practices. It has been noted that there is much diversity in the research literature regarding the specific components of effective teaching in higher education (Devlin, 2007; Devlin & Sanarawickrema, 2010). Several attempts to identify the characteristics of effective teaching have been made using different theoretical perspectives, qualitative and quantitative methodologies, and various disciplinary perspectives (Devlin & Sanarawickrema, 2010; Vulcano, 2007), although some scholars believe that there is no universally accepted definition of effective teaching in higher education (Devlin & Sanarawickrema, 2010; Paulsen, 2002). Devlin and Sanarawickrema (2010) added that effective teaching consists of a set of skills and practices that meet particular requirements of the context in which it takes place.

While the definition of effective teaching remains controversial, there are similarities between previous research literature and this study that challenge the notion that universal effective teaching practices are not possible. Kane, Sandretto, and Heath (2004) studied 17 exemplary science professors and identified several attributes that are common among professors, such as (a) subject knowledge; (b) skill; (c) interpersonal relationships; (d) teaching-research connection; (e) personality; and (f) reflective practice. Participants maintained that for professors to be excellent, they need to:

- maintain their subject matter knowledge;
- keep up to date in the content area;
- demonstrate clarity (clear communication);
- make real-world connections between the subject and student experience;
- stay organized and prepare accordingly;
- remain adaptable;
- be life-long learners;
- communicate subject matter in meaningful ways;
- act as mentors who show empathy, trust, and the ability to understand students' issues;
- connect research to practice and integrate research into teaching;
- demonstrate enthusiasm;

- be humane;
- be approachable;
- engage in purposeful reflection

This study, along with Kane et al. (2004) found that keeping up to date in the content area; making real-world connections and integration, and reflection are common practices that yield positive student learning outcomes and teaching excellence. These similarities suggest that perhaps there are common effective teaching practices to ensure the quality of college teaching and learning.

Implications for Graduate Education

The results of this study also suggest that the quality of graduate education needs improvement. All graduate students described that they somewhat agreed and agreed that their current professors demonstrate pedagogical content knowledge, individualized consideration, intellectual stimulation, and deep learning in their current program. Despite the fact that graduate students agreed and strongly agreed on Student – Professor Engagement in Learning, there is room for improvement in graduate education to help prepare students for the future. Research (Wendler et al., 2010) suggested that graduate programs played a significant role in preparing students to become productive members of society and leaders of the global economy. By 2018, approximately 2.5 million jobs will require a graduate degree (Friedman & Mandelbaum, 2011). By 2020, efforts to improve the preparation of 21st century professors will be in effect in some institutions, although, a national effort is needed (Wendler et al., 2010).

Lastly, the findings of this study may benefit graduate students, graduate professors, prospective graduate students, and professors by providing valuable information for teaching practices in graduate courses that promote deep learning outcomes. Once there is insight into graduate student perceptions of teaching and learning, the information can enhance graduate business and education programs.

Limitations and Recommendations

The dispositions of those entering a graduate program were not assessed in this study, and this may have affected the findings. This study was limited to male and female graduate students enrolled in graduate business and education programs from the United States and other unknown countries. It was unknown if the participants were attending a teaching or research-extensive university. The class size in which the graduate students were enrolled was unknown.

Subsequent research should be conducted to determine whether perceptions identified in this study are applicable to other regions or academic disciplines. The researcher suggests that future researchers replicate this study in other academic disciplines within research universities and teaching universities to determine if each have a unique impact on graduate students. In addition, it is also recommended that the study be replicated in

online learning programs to determine if graduate students enrolled in distance learning perceive the variables differently.

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