Graduate Students' Perceptions of Master Teaching

by

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A dissertation submitted to the Graduate Faculty of
Auburn University
in partial fulfillment of the
requirements for the Degree of
Doctor of Philosophy

Auburn, Alabama
May 5, 2019

Keywords: Master teaching, graduate students, Teacher Behavior Checklist, teaching qualities, teaching behaviors, teaching excellence

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Abstract

This study examined graduate students' perceptions of master teaching qualities and behaviors exhibited by graduate-level faculty. The Teacher Behavior Checklist (Buskist, Sikorski, Buckley, & Saville, 2002) was administered to graduate students who were asked to rate the extent to which their graduate-level faculty exhibited each of the 28 items using a Likert rating method (1 = *never exhibits this quality* to 5 = *frequently exhibits this quality*).

Result indicated that Masters and Doctoral students agreed on seven of the top-ten TBC qualities: (1) knowledgeable; (2) enthusiastic; (3) respectful; (4) confident; (5) effective communicator; (6) promotes critical thinking; and (7) provides constructive feedback. The qualities knowledgeable and enthusiastic were rated first and second by both groups.

Academic demographics (degree type, age, years pursuing degree, foreign or U.S. undergraduate education, reported teaching experience, and academic discipline) were examined to determine their effects on item ratings. Statistically significant differences were found for item ratings on all academic demographics except degree type. Statistically significant differences were also found for subscale ratings on variables degree type, age, and academic discipline.

Comparisons between graduate students and selected undergraduate student samples highlight the apparent differences between the levels of students. Across eight samples of students only two qualities are constant: (1) knowledgeable; and (2) confident. Further, only graduate students and two other samples of undergraduate students included the quality promotes critical thinking. Analysis of each teaching subscale revealed broader differences: Master's and Ph.D. students valued opposite subscales, and graduate students emphasized the professional competency/communication subscale over the caring/supportive subscale. These differences

shed light on the nature of the graduate student learner and serve as an important guide for graduate-level faculty wishing to pursue and maintain teaching excellence.

Acknowledgments

Thank you first to my advisor and committee chair, Dr. Jim Groccia, who agreed to take me on as one final doctoral student. With his help I found a topic that has put me on the right career path and has helped me discover a passion for teaching. Up until this point I had never seriously considered a career in education or in teaching. However, with Dr. Groccia's guidance I found that a career in teaching is something I would not only enjoy, but actually be able to do.

Thank you too to my committee members Dr. Jim Witte, Dr. David Shannon who were patient and always willing to answer my questions throughout this process. I appreciate your support and guidance throughout my classes and especially this process. Finally, thank you to Dr. Parson who graciously agreed to serve on my committee at the last minute. I am very thankful for your willingness to help me complete this process and your guidance as I begin my academic career.

I also want to thank a few others. Thank you to Janie Boles, Kristi Phillips, Janice Robinson, Dr. Kirsten Ingalls, Dr. Mary Ann Taylor, and Mac Matthews. These are my colleagues and friends. Each of them has impacted my life for the better through opportunities, advice, guidance, and support they've given me. You've all had a profound impact on my development as a professional. Thank you, too, to Liesl Reiners and Jan Moppert who gave me the opportunity to teach and serve students in a meaningful way. And, of course, thank you to Sandra Tucci. Sandra and I worked together for three years, and we saw a lot of people come and go, but always we focused on trying to serve our students and mentors. Sandra has helped me understand how to navigate a professional environment, how to accept changes, and has encouraged me to remain positive and innovative, especially when our environment wouldn't

allow. I cannot overstate how instrumental she has been in forming my approaches toward work and service and I will carry her contributions with me throughout my career.

I also want to thank my family. My brother, Carson, has been a constant friend to me, and in his own way he's motivated me to finish my degree by going out and getting his own doctorate. I'm proud and happy to know that you'll be Dr. Edge as well. I owe so much to my girlfriend, Samantha. Your obsessive attention to detail helped this dissertation become as close to perfect as it could be. But mostly, it's your constant support, encouragement, and love that's helped me remain positive about this process and the future. I can't wait to support you through your process and see you walk across the stage.

Finally, to my mom and dad, who made sure I understood the value of excellent work and strong work ethic from an early age. Mom, you've helped me be a smart and effective writer and you've taught me how to ask the right questions. Without those long nights dragging me through undergraduate scholarship applications, this might not have been possible in the first place. Dad, you taught me how to study smart and impressed on me how important it was to understand the power of communication. "Can't never did nothing" is something I've thought a lot about during this process, and without encouragement like that, I couldn't have finished this. But mostly, it's y'all's support, patience, and love that's gotten me to this point. I don't know if I can adequately express to you the roles you played in this process, but I figure you know.

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ANOVA	Analysis of Variance
MANOVA	Multivariate Analysis of Variance
TBC	Teacher Behavior Checklist

Chapter 1: Introduction

Teaching effectiveness and teaching excellence have been the focus of educational research for many years. They have been subject to analysis at various levels of education including the high school level (Smalzried & Remmers, 1943), community college (Schaeffer, Epting, Zinn, & Buskist, 2003), and the undergraduate level (Buskist, Sikorski, Buckley, & Saville, 2002). In the past 20 years, there has been an outpouring of research related to teaching effectiveness and teaching excellence at the college and university level. Such research has been conducted in part due to the increasingly fervent calls for accountability in higher education focusing on improving teaching quality and effectiveness, thus adding value to the college education (Reid & Johnston, 1999; Devlin & Samarawickrema, 2010).

Calls to improve teaching quality stem, in part, from an increased emphasis on research in universities contributing to a deemphasis on teaching (Daly, 1994; Park, 1996; Groccia & Buskist, 2011). As institutions incentivize research and publications and make faculty tenure and promotion decisions based on research output, teaching quality falls by the wayside (Bak & Kim, 2015). In response to this shift, Keeley, Christopher, and Buskist (2012) state quite plainly, "institutional reward structures need to place more balanced emphasis on excellent teaching" (p. 388). As a result, stakeholders in higher education (parents, employers, legislators, and students) are looking for quality in teaching and learning in undergraduate and graduate settings (Austin & McDaniels, 2016). Notably, Boyer (2016) urged higher education institutions and faculty to rediscover research through the "scholarship of teaching" in an attempt to redefine research and renew higher education's focus on teaching quality. Additionally, Gurung, Richmond, and

Boysen (2018) note that teaching and teacher preparation assessment in higher education are not the same as the stricter standards used in K-12 educational settings. Further, they explain studies of teaching in higher education "have taken a relatively informal track" (p. 11) mainly in the form of guides and how-to books. On the whole, research regarding college and university teaching existed in the form of lists, "discrete studies," and the "musings of individuals" considered excellent teachers (Buskist & Keeley, 2018, p. 95).

Graduate school enrollment and the number of degrees conferred have grown in the last two decades (Okahana, Feaster, & Allum, 2016). According to Hussar and Bailey (2016) between the academic years 1998-99 and 2011-12 the number of masters and doctoral degrees awarded increased 69 percent and 46 percent, respectively. Estimates of projected masters and doctoral degrees conferred suggest that by the academic year 2023-2024 the number of awarded masters and doctoral degrees will exceed one million and two-hundred thousand, respectively (Hussar & Bailey, 2016). As a result of this growth, graduate programs will become the focus of increasing public scrutiny much the same way that undergraduate programs are scrutinized for value. Such scrutiny will likely be focused on the teaching effectiveness of graduate level professors and the extent to which they are creating successful learning environments for graduate students. To continue fostering successful learning and strengthening teaching effectiveness at the graduate level, researchers and professors must possess a deeper understanding of the qualities and behaviors that graduate students consider essential to effective teaching at the graduate level. When an instructor understands how a student learns best, they may adapt teaching to increase learning potential (Cassidy, 2004; Romanelli, Bird, & Ryan, 2009) and an understanding and communication of effective teaching behaviors may also aid in developing teaching excellence at the graduate level (Ford, 2016).

Researchers have examined the perceptions of undergraduate students regarding the qualities and behaviors of college and university teachers (Buskist et al., 2002; Schaeffer et al., 2003). Ismail (2014), McConner (2017), and Soomere, Lepp, Groccia, and Mansour (2018) have each examined perceptions of teaching effectiveness in separate faculty samples. Ford (2016) conducted research exploring the perceptions of pharmacy doctoral students regarding qualities and behaviors of effective teaching. Jõemma (2013) included graduate and undergraduate students in her study, but reported findings in aggregate without providing specific analysis of graduate students. To date, there appear to be few studies that examine the same perceptions in a broad sample of graduate students. An understanding of the qualities and behaviors of effective teaching will aid researchers and educators in their attempts to build quality educational experiences at the graduate level.

Statement of the Problem

As the global economy becomes more knowledge based, the need for a highly educated populace able to generate innovative ideas will increase (Romer, 2000). The ability to think critically will become essential for students to generate these ideas, and new approaches to classroom instruction may be necessary (Bonwell & Eison, 1991; Buskist & Groccia, 2011; Groccia & Buskist, 2011). As graduate degrees "become the new bachelor's," it is important that graduate faculty are equipped to prepare graduate students to enter their prospective field (Wendler et al., 2010, p. 13).

Previous studies have compared the similarities and differences of perceptions toward teaching qualities and behaviors between undergraduate students and faculty in the U.S.; the differences between domestic and international students; differences among students of varying disciplines; and differences in students and faculty in pharmacy and nursing, respectively. Most

recently, researchers expanded the research on the Teacher Behavior Checklist to include new undergraduate samples in Brazil, Colombia, and Germany. To date, only one study of Estonian university students included responses to TBC items from graduate students; however, the student sample was aggregated and the researcher did not perform analysis examining differences between undergraduate and graduate students' responses. The current study sought to examine the perceptions regarding teaching qualities and behaviors of a diverse sample of graduate students. Further, this study sought to determine what effect, if any, certain academic demographic characteristics had on these perceptions. The study asked graduate students to rate 28 teaching qualities and their accompanying behaviors on a scale of 1 to 5 and respond to a set of demographic questions.

Purpose of the Study

The purpose of this study was to examine graduate students' perceptions of teaching excellence by identifying qualities and behaviors exhibited by master teachers. The study compared graduate students enrolled in the Auburn University Graduate School for the Spring 2018 semester. Students were compared based on age, degree sought, year of study, academic discipline, and what level of teaching experience they had at the time of the survey. This study seeks to expand the current body of knowledge regarding teaching excellence to a broader graduate student sample.

Research Questions

1. What Teacher Behavior Checklist qualities and behaviors do graduate students perceive master teachers exhibit most?
2. Do graduate students rate teaching qualities and behaviors associated with the caring/supportive or professional competency/communication subscales differently based

on academic demographic variables (degree type, age, years pursuing degree, foreign or U.S. undergraduate, teaching experience, academic discipline)?

3. Do graduate students rate teaching qualities and behaviors similarly based on academic demographic variables (degree type, age, years pursuing degree, foreign or U.S. undergraduate, teaching experience, academic discipline)?
4. What similarities or differences exist between graduate student responses and undergraduate student responses from prior research using the Teacher Behavior Checklist?

Significance of the Study

The growing importance of post-graduate education necessitates the need to understand the learning needs of the graduate student population. Learning is facilitated when learners' perceptions of teaching excellence are reflected by teaching practice (Epting, Zinn, Buskist, & Buskist, 2004). By understanding these perceptions, instructors may better connect with students, motivate learning, and adapt teaching techniques to student needs (Dehlavi, 1987; Buskist et al., 2002) In addition, understanding students may lead to better communication and interaction between faculty and students (Ford, 2016). It is important that graduate faculty are made aware of student perceptions of teaching excellence so that they may build quality learning environments at the graduate school level.

To date only one study (Ford, 2016) has examined qualities and behaviors of effective teachers preferred by students pursuing a degree beyond a bachelor's. The current study seeks to specifically expand the body of knowledge of the Teacher Behavior Checklist (TBC) by attempting a general survey of graduate students across various academic demographics (degree type, age, years pursuing degree, foreign or U.S. undergraduate education, reported teaching

experience, and academic discipline). By expanding the TBC research to a large group of graduate students, researchers and higher education practitioners may gain valuable insight into perceptions of graduate students towards excellent teaching. Further, this research may aid in the development of graduate faculty teaching resources just as it has for undergraduate faculty and pharmacy doctoral faculty.

Definition of Terms

The following is a list of terms used in this study. Their definitions are provided.

1. Master Teacher: generally, an educator with extensive subject-matter knowledge and enthusiasm for teaching combined with a genuine desire to foster student success for whom the act of teaching and learning may be considered a way of life rather than simply a profession (Issler, 1983; Buskist et al., 2002).
2. Teacher Behavior Checklist (TBC): 28-item checklist designed by Buskist, et al. (2002) used to assess the qualities and behaviors of master teachers from the perspective of students and faculty.
3. Teaching Excellence: generally, a concept requiring expertise within a subject and an understanding of teaching strategies, but accompanied by an awareness on the part of an instructor of their impact on students' ability and motivation to learn. (Keeley, Ismail, & Buskist, 2016; Kreber, 2002).

Organization of the Study

This study is divided into five chapters. Chapter 1 serves as the introduction of the study, providing a statement of the problem, purpose of the study, research questions, significance of the study, and definitions of frequently used terms. Chapter 2 presents a review of the literature covering a brief history of graduate education with a focus on the emergence of the modern

university and graduate school. Chapter 2 also discusses the research related to teaching effectiveness, teaching excellence, and master teaching. Chapter 3 presents the methods including the design of the study, the instrument used, the sample population, data collection, and analysis of the data. Chapter 4 presents the reporting and analysis of the findings. Chapter 5 presents the conclusions drawn from the analysis, implications for the field of teaching qualities/behaviors research, study limitations, and recommendations based on the findings.

CHAPTER 2: Literature Review

Introduction

Graduate school enrollment and the number of degrees conferred have grown in the last two decades (Okahana et al., 2016). Estimates of projected masters and doctoral degrees conferred suggest that by the academic year 2023-2024 the number of awarded masters and doctoral degrees will exceed one million and two-hundred thousand, respectively (Hussar & Bailey, 2016). As a result of this growth, graduate programs will become the focus of increasing public scrutiny much the same way that undergraduate programs are scrutinized for value. Such scrutiny will likely be focused on the teaching effectiveness of graduate level professors and the extent to which they are creating successful learning environments for graduate students. To continue fostering successful learning and strengthening teaching effectiveness at the graduate level, researchers and professors must possess a deeper understanding of the qualities and behaviors that graduate students consider essential to effective teaching at the graduate level. When an instructor understands how a student learns best, they may adapt teaching to increase learning potential (Cassidy, 2004; Romanelli et al., 2009) and an understanding and communication of effective teaching behaviors may also aid in developing teaching excellence at the graduate level (Ford, 2016).

A History of Graduate Education

Early examples of graduate-level education are found in studies of the history of European universities, particularly in Germany. An understanding of American graduate education would be incomplete without the knowledge of how the idea of the university and

classical graduate education was transplanted within the United States. The institutions we regard today as universities were influenced heavily by the German ideal of an open, liberal university education where educators pursued novel investigation and sought to reveal certain truths in various academic disciplines. However, research missions were not the norm in the early American collegiate system. In fact, higher education had vastly different aims compared to today.

Early American Colleges

Colleges in colonial and republican America were distinguished by their emphasis on teaching. According to Boyer (2016), teaching was considered a vocation, a "sacred calling" (p. 57) and little attention was paid to scholarship. Early American colleges were chiefly concerned with preparation of ministers or statesmen, and instruction was frequently supervised by members of the clergy (Geiger, 2015). According to Geiger, science was not emphasized in early American colleges they way it is today: it was "only touched upon" and the thought of pursuing original research aimed at creating new knowledge "was beyond imagining" (p. 3). Teaching remained the focus and lecture the preferred method. Memorization and repetition were the dominate methods of learning, and early college courses were replete with declamations (recitations in Latin) and disputations (academic debates) that served as assessments of students' knowledge (Geiger, 2015; Cohen & Kisker, 2010).

The curriculum of these institutions was also rather limited. Linguistic skill, logical argument, and general knowledge characterized the classroom (Geiger, 2015). Cohen and Kisker (2010) describe the collegiate curriculum revolving around seven liberal arts including grammar, rhetoric, logic, astronomy, arithmetic, geometry, and music (p. 35). Despite their limitation,

colonial college curricula were considered serious. Institutions did not offer "frivolous courses," and schools were strictly places for study, not for leisure (p. 36).

These methods and approaches continued as the dominate teaching and learning systems for the next several decades, but as the new nation required mechanical and agricultural infrastructure, practicality began to permeate campuses (Boyer, 2016).

The German University

Academic Freedom

A fundamental aspect of the German university ideal was the spirit of academic freedom for faculty as well as students. Academic freedom, generally, was embodied by the German principle of *wissenschaft*, or the "ardent, methodical, independent search after truth" (Hofstadter & Smith, 1961, p. 571; Hart, 1874). In German universities, novel research was the primary faculty responsibility. This research, however, need not have any practical application; it was research for the sake of research. As long as faculty and students adhered to the principle of *wissenschaft*, the institution was given the university designation. No size requirement was placed on German universities.

Another aspect of academic freedom applied directly to university faculty: *Lehrfreiheit*. This was understood as the freedom for the professor to teach material he deemed appropriate in a method of his choosing (Hofstadter & Smith, 1961, p. 571; Hart, 1874). The university professor was expected to build lessons around his findings, sharing his original research with those that attended lectures or seminars. If he was not doing so, it was assumed he was incapable of pursuing research and, therefore, most certainly not a university professor (Hofstadter & Smith, 1961, p. 666; Burgess, 1884). *Lehrfreiheit* was the foundation for understanding how a university professor should be judged. The research produced, and not the method of instruction,

was considered paramount to determining overall instructor quality. Further, professors were regarded as content specialists, not practitioners (Hofstadter & Smith, 1961, p. 578; Hart, 1874).

The third principle of academic freedom was that of *lernfreiheit*, or "the freedom of learning, [which] denotes the emancipation of the student from…compulsory drill by recitation" (Hofstadter & Smith, 1961, p. 572; Hart, 1874). Like German university faculty, students were expected to engage in research. According to Hart (1874), the goal of a student's study was simply to learn; he was tasked with achieving mastery of his subject and producing or contributing to knowledge through research. The university student was also given a certain amount of academic latitude to choose what research he wished to pursue. He was regarded as "the best judge of his own bent and genius," and should he be unsure of his research pursuits he was considered unprepared and unfit for university study (Hofstadter & Smith, 1961, p. 666; Burgess, 1884).

The theoretical foundation of the German university ideal is found in the general principle of *wissenschaft* and the subprinciples *lehrfreiheit* and *lernfreiheit*. The modern concept of higher education is increasingly associated with sprawling campuses, imposing classroom buildings, and a multitude of departments offering as many or more areas of study. However, as Hart (1874) observes, an institution cannot be considered a pure university in the German sense no matter the size of its enrollment, its endowment, or the number of its buildings if it does not first adhere to the conditions of academic freedom.

Instructional Methods

The lecture method was the preferred means through which knowledge should be passed, and, as previously mentioned, university professors were expected to deliver lessons that were grounded in their own research and findings (Burgess, 1884). Professors should not design

lectures solely around the works of others as this defeated the purpose of pursuing original research. The seminar was a second method of instruction. This method was characterized by small-group laboratories where selected students worked closely with professors to develop special knowledge on a given topic. The lecture and seminar methods embodied the university ideal of creation and dissemination of original knowledge and research. Professors were expected to impart knowledge through research, while students were expected to absorb and generate knowledge of their own, with assistance.

Calls to Adopt the German University System in America

Beginning in the early 1800s, American educators frequently criticized the state of higher education in the United States and called for reform of the system (Hofstadter & Smith, 1961). These criticisms covered a range of topics including the lack of adequate libraries, the hurried nature of college education, and the general lack of preparedness observed in American college students. The United States was also in need of technical expertise and college campuses were seen as future training grounds for future practitioners in a variety of professions (Boyer, 2015).

As early as 1793, Charles Nisbet noted that students he encountered were impatient and lacked the proper work ethic needed to succeed at college work (Nisbet, 1793 as cited in Hofstadter & Smith, 1961). From Nisbet's perspective, students did not want to read or think, and they expected to learn material quickly. He further noted that these mindsets were reinforced at other levels of education, where teachers attempted to teach great amounts of information in very little time. The solution, he believed, was to slow college instruction such that it was at least as long as a mechanical apprenticeship was expected to last (approximately four years).

Philip Lindsley, a former president of the College of New Jersey (Princeton University), identified three problems with the American college system (Lindsley, 1848 as cited in Halsey,

1866). First, he noted that some students entering college were not intelligent enough to succeed. Lack of a proper work ethic was cited as his second point; American students were unwilling to apply themselves to produce satisfactory college work. Third, Lindsley argued that students' schooling previous to college was wholly inadequate, and in many cases they were simply too young.

Francis Wayland of Brown University argued for a thorough reexamination of the American college system (Wayland, 1842). He noted three specific areas in which the system might improve. First, whatever was to be taught in college should taught be in depth: "we should learn a *smaller* number of things *well*" (p. 108). Just as a German university student sought to master a particular subject or body of knowledge, so too should an American college student. In conjunction with a disciplined pursuit of subject mastery, Wayland advocated for the extension of the collegiate education to five or six years to allow for the time necessary to achieve such mastery. Lastly, Wayland called plainly for the adoption of the university system of education to include instruction in all the classical branches found in German universities.

Calls to adopt a higher education system similar to Germany's became more frequent in the mid-1800s. Henry Tappan echoed sentiments expressed by Nisbet and Wayland when he advocated for thorough discussion of subjects, similar to the German method (Tappan, 1851). Francis Lieber's arguments for reform embodied the principle of *wissenschaft*. He wrote that utility cannot and should not be considered when founding a university; instead, the founding principle should be the pursuit of pure scientific discovery (Lieber, 1830 as cited in Hofstadter & Smith, 1961). Joseph G. Cogswell (Cogswell, 1817 as cited in Hofstadter & Smith, 1961) and James Morgan Hart (1874) also criticized the American college system when each wrote that

institutions seemed to be more concerned with producing industry practitioners rather than scholars.

Early Graduate Education in the United States

The influence of German university ideal led to incremental change in American higher education. Several leading institutions, such as Harvard, Yale, Michigan, and Columbia, began offering post-graduate studies in conjunction with the established undergraduate curriculum. However, not until the opening of Johns Hopkins University in Baltimore in 1876 did the United States see the first institution founded and dedicated solely to deliver a German-style graduate education.

Harvard, Yale, Michigan, and Columbia

George Ticknor attempted to institute graduate education at Harvard in the 1820s by beginning the "resident graduate" program (Morison, 1930). This first incarnation of graduate school differed from contemporary approaches in that it appeared to be more of a chance to take classes that were missed during undergraduate instruction. It would not be until 1872 that Harvard would establish its first graduate department, offering masters and advanced degrees (Kelly, 1939). Graduate instruction at Yale was first documented in the 1840s and formalized shortly thereafter. The first Doctorate in Philosophy was offered in 1860, and in 1872 formal steps were taken to embrace a university structure (Dexter, 1887). At Michigan, Henry Tappan attempted to draw a distinction between technical and professional education, versus a more holistic education that channeled a man's schooling towards the greater benefit of society (Perry, 1933). To achieve this goal, Tappan instituted the University Course, a program of study incorporating classes in the sciences and the use of the seminar (Shaw, 1937 as cited in Ryan, 1939). The University Course program was also attempted at Columbia in the 1850s, but failed

due to lack of support. The idea of graduate work did not fade, however. In fact, graduate instruction took shape during the Civil War in the Columbia School of Mines where the institution's first Doctorate in Philosophy was awarded (Ryan, 1939, p. 11). Graduate instruction spread to the social sciences at Columbia in the late 1870s with the founding of the School of Political Science coupled with increased funding for graduate students and the introduction of *Political Science Quarterly* (Ryan, 1939).

Johns Hopkins, Clark, and University of Chicago

Johns Hopkins University was founded as an institution distinct from the post-secondary institutions already in existence in Baltimore. President Daniel Coit Gilman made it clear that the institution would draw away from curricula that typified American colleges and move toward those embodying the German ideal (Ryan, 1939). Gilman insisted that the new university would dedicate itself to research, advancement of the sciences, and betterment of the surrounding community. Reflecting German principles and criticisms leveled at existing American institutions, Gilman insisted that utility would not drive scientific pursuits. Instead, students were allowed to choose a subject they wished to explore, and faculty were expected and encouraged to pursue original research.

Johns Hopkins would not be an institution that stressed technical expertise, but rather a university emphasizing a knowledge of wider principles with a foundation in research. The institution sought to achieve the university ideal of developing well-rounded citizens capable of meeting the complex needs of society. Gilman explained,

> It means a wish for less misery among the poor, less ignorance in schools, less bigotry in the temple, less suffering in the hospital, less fraud in business, less folly in politics; it means more study of nature, more love of art, more lessons

> from history, more security in property, more health in cities, more virtue in the country, more wisdom in legislation, more intelligence, more happiness, more religion (Gilman, 1876 as cited in Ryan, 1939).

An understanding of community and societal needs was reflected in the initial curricular choices focusing on medicine, biology, and humanities. Gilman further recognized Johns Hopkins' potential position in furthering the preparation of professors and teachers as well as the advanced study of education.

The principles of academic freedom for professors and students were main tenets of Gilman's plan for Johns Hopkins. Freedom to teach (*lehrfreiheit*) and learn (*lernfreiheit*) were strongly encouraged at the university. Additionally, techniques borrowed from German universities were employed in the classrooms via use of the small-group seminar method. The influence of the German ideal led to the creation of academic journals at Johns Hopkins which included the following: the *American Journal of Mathematics*, the *American Journal of Philology*, *Studies from the Biological Laboratory*, *Studies in Historical and Political Science*, the *Johns Hopkins University Circular*, and *Contributions to Logic* (Ryan, 1939).

Clark University

Psychologist G. Stanley Hall left Johns Hopkins University in 1888 to become the first president of Clark University, a newly created graduate institution located in Worcester, Massachusetts. Hall made it clear that Clark University would be dedicated to the pursuit of original research, would go beyond the graduate departments of Harvard and Yale, and would focus on educating doctoral students (Ryan, 1939).

Established with aims similar to those of Johns Hopkins, Clark University's chief mission was to seek answers to contemporary and urgent questions through the pursuit and dissemination

of scientific research. Hall also drew a distinction between the activities of simply receiving knowledge versus creating knowledge, the former being a major criticism of existing American colleges. As a result, Hall was known for encouraging graduate students to publish original research under their own names instead of those of their advisors. He continued the tradition of sharing scientific discovery established at Johns Hopkins by founding the quarterly publication *Pedagogical Seminary* (Ryan, 1939).

Instruction at Clark University closely approximated that of Johns Hopkins and German institutions. Lecture and laboratory methods were utilized, but it was the seminar model which was preferred. Seminar classes frequently met at President Hall's home and were originally dedicated to reading famous texts from notable authors and philosophers. Soon the seminar classes were focused on attendees sharing their own papers and engaging in discussion with peers. In keeping with Clark University's aim to serve doctoral students in particular, these classes became forums through which candidates for degrees shared their work and received criticism from professors and other candidates (Hall, 1924).

University of Chicago

The third of the German-inspired universities in the United States was established in the 1890s in Chicago. The University of Chicago would be led by William Rainey Harper, a graduate of Yale and formerly a professor at Denison University. Harper was determined to distinguish the new university as different from any American higher education institution that preceded it.

Harper began by detailing what a university was and how Chicago would fit that ideal. A university, he argued, was meant for advanced studies beyond that which was found in ordinary American colleges (Goodspeed, 1925). So that Chicago might realize the German university

ideal, Harper instituted a three-pronged plan for institutional organization. The first division became known as the University Proper and would encompass the Bachelor's colleges and academies as well as the graduate schools. University Extension was considered the division of responsible for teaching and instruction. Lectures, night classes, early incarnations of distance courses, courses dedicated to Biblical study, and the library fell under the umbrella of Extension. The third division of Chicago was known as University Publication Work and would house the printed material generated and accumulated by the university: papers, journals, books, scientific reviews, and collections of other printed materials (Ryan, 1939).

Harper's plan for the University of Chicago was grounded in an understanding of the German ideal for what a university ought to achieve, chiefly that faculty and students should be free to pursue original research (*wissenschaft*). It was Harper's ardent belief that the current model of higher education had ruined a generation of American thinkers by focusing too much on work in classrooms and not production of research (Harper, 1905). The university, he believed, would right these wrongs.

The University of Chicago followed in the footsteps of Johns Hopkins and Clark by attempting to focus university activities towards addressing contemporary issues. For example, the College of Practical Arts, housed in the University Proper, focused on economic and social concerns. Harper was also clear in his vision for the institution in that research was paramount to the success of a true university and society. Chicago would not produce practitioners in specific fields, but rather an intellectual elite equipped to address societal needs. As such, teaching loads were reduced, allowing professors to pursue research and inquiry without interference. Research was considered the first requirement of the professor and promotion was based more on the quality of research and less so on teaching ability (Harper, 1905). Chicago's research initiative

was further bolstered by the establishment of the University Publication Work. Publishing research not only encouraged more research, but also brought the findings to the public, furthering the university's mission of addressing current societal issues. Chicago became home to the *Journal of Political Economy*, the *Journal of Geology*, the *Biblical World*, and the *American Journal of Theology*, to name only a few (Goodspeed, 1925; Ryan, 1939). Harper's vision of a real university in the German sense was realized by his promotion of uninhibited research and dissemination of the results.

The German university ideal demanded that professors pursue research for the sake of research. Teaching, therefore, was focused on disseminating findings and sharing them with students. In keeping with this mandate, early American universities and graduate institutions emphasized research over teaching. Research came to be considered skilled work, and where teaching was once thought of as a "sacred calling" (Boyer, 2016, p. 57), it became an afterthought (O'Meara, 2016). Boyer (2016) explained:

> The emphasis on undergraduate education, which throughout the years had drawn its inspiration from the colonial college tradition, was being overshadowed by the European university tradition, with its emphasis on graduate education and research (p. 65).

Research without transmission and dissemination, however, is shortsighted. As Boyer (2016) points out, knowledge can be constructed or acquired through teaching as well as research (p. 75), and the ability to effectively communicate knowledge, findings, or subject matter through teaching still plays an important role in university and graduate level education.

Evidence-Based Teaching

Whether conscious of it or not, educators pass down teaching traditions to their students and it should come as no surprise that teachers prefer to teach the way they were taught (Schwegler, 2013; Slavin, 2008). Groccia and Buskist (2011) warn, however, that an over-reliance on traditional practices or the opinions of perceived experts may hinder educators' abilities to improve and innovate teaching. Groccia and Buskist propose that educators turn their attention to evidence-based teaching (EBT).

Despite the tendency for instructors to rely on traditional methods of teaching, data from the Higher Education Research Institute (DeAngelo, Hurtado, Pryor, Kelly, & Santos, 2009) indicated that teaching techniques at four-year institutions were trending steadily toward a more student-centered approach. Movement away from "extensive lecturing" has continued in higher education (Eagan et al., 2014, p. 6). As faculty strive to develop critical thinking skills in students, active and student-centered learning practices are growing in the form of self-evaluation for students, collaborative learning, and discussion-driven classes. Use of discussions in college classrooms was around 80% in 2014 (Eagan et al., 2014, p. 5). Eagan et al., (2014) further note that while online learning is a priority for higher education administration, few faculty reported teaching an online course. In fact, faculty designated as full professor were the least likely group to report teaching an online course at the time. Additionally, less than 20% of associate and assistant professors reported teaching an online course. With these trends in mind, authors have suggested a new approach to teaching.

Chaudhury (2011) offers teaching qualities and techniques that may be used to make lectures more effective. (i.e. peer instruction during lessons, interactive technology). Allen, Donham, and Bernhardt (2011) offer problem-based learning (PBL) as a new teaching method.

Relying heavily on small-group discussion, PBL assists in development of critical thinking skills and allows students to receive immediate instructor feedback. Interteaching has been employed to increase teacher effectiveness (Saville & Zinn, 2011). Requiring organization and planning by instructors, the method has been shown to increase student achievement and critical thinking (Scoboria & Pascual-Leone, 2009; Saville, Zinn, & Elliot, 2005). Online learning is used frequently in higher education (Allen & Seaman, 2010). This teaching innovation requires instructors to be technologically competent, organized, prepared, and able to articulate clear academic goals (Perry & Pilati, 2011).

As Buskist and Groccia (2011) note, EBT methods are shown to increase student engagement in and enjoyment of learning, which in turn are strong indicators of teaching effectiveness and excellence. Close reading of EBT research reveals that the methods are rooted in specific teaching qualities and behaviors that contribute to the methods' success. For example, making lectures more effective requires an instructor's ability to adopt a questioning attitude to stimulate student discussion and interest. To implement successful problem-based learning and interteaching methods, an instructor must be ready to spend time organizing and preparing problems and exercises to be used in class. Online learning requires these teaching qualities, as well as technological competency and clear articulation of academic goals. On a more conceptual level, these EBT methods rest on an instructor's desire to promote and develop critical thinking in students, and, perhaps most importantly, an instructor's willingness to experiment with new teaching methods to increase teaching effectiveness.

Defining Effective Teaching

Researchers have struggled to define effective teaching. Definitions of teaching effectiveness vary in part due to the multidimensional nature of the concept (Abrami,

d'Apollania, & Rosenfield, 1997; Marsh and Dunkin, 1997; Marsh & Roche, 1997; d'Apollania & Abrami, 1997; Greenwald & Gillmore, 1997; McKeachie, 1997). Teaching effectiveness is sometimes considered a function of measurable student achievement outcomes (Allen, Clarke, & Jopling, 2009). Campbell, Kyriakides, Muijs, and Robinson (2004) take another perspective. They consider development of problem-solving and critical thinking skills, as well as a student's ability to receive and implement feedback as evidence of teaching effectiveness. Lowman (1996) suggests that teaching effectiveness is determined by the instructor's ability rather than personality or behavioral traits. More recently, Hativa, Barak, and Simhi (2001) and Kember, Ma, and McNaught (2006) argue that the teaching qualities considered essential to effectiveness emphasize both student learning and teaching technique.

Researchers have also disagreed regarding the static versus dynamic nature of teaching effectiveness. Marques, Lane, and Dorfman (1979) concluded that to some extent teaching effectiveness was "transitiuationally invariant," meaning that regardless of context an instructor could be considered effective when displaying certain qualities (p. 843). This view of teaching effectiveness is bolstered by research showing students and faculty consider effectiveness stable across contexts (Isaacson, et al., 1964; Finkerbeiner, Lathrop, & Schuerger, 1973) and different disciplines (Whitley & Doyle, 1978). Conversely, other researchers have warned against a static approach to teaching effectiveness (Harari & Zedeck, 1973; Biggs, 2003). More recent research supports a view of teaching that is more context-specific, influenced by factors such as academic discipline and country of educational origin (Skelton, 2004; Keeley, Christopher, & Buskist, 2010; Ismail, 2014; Liu, Keeley, & Buskist, 2015; Liu, Keeley, & Buskist, 2016).

Methods Used to Define Effective Teaching

Student Feedback

Early studies began by soliciting feedback from students regarding teaching effectiveness and identifying areas considered important (Bendig, 1954; Coffman, 1954; Crawford & Bradshaw, 1968; French-Lazovik, 1974; Hildebrand, Wilson, & Dienst, 1971; Solomon, 1966). Studies using student populations have been performed at the high school level (Smalzried & Remmers, 1943), the community college level (Guskey & Easton, 1983; Schaeffer, Epting, Zinn, & Buskist, 2003), and at the four-year college or university level (Creager, 1950; Feldman, 1976; Marsh, 1987; Young & Shaw, 1999).

Student evaluations of teaching are not without criticism. During the 1970s, researchers scrutinized the validity and reliability of this method. Criticism focused mainly on the impact of grades on student ratings, and studies were designed to test that impact among undergraduate students (Chacko, 1983; Holmes, 1972; Powell, 1977; Vasta & Sarmiento, 1979; Worthington & Wong, 1979). However, views toward student ratings of teaching began to change in the next decade. Many researchers argued that student ratings of teaching were a valid, reliable, and necessary approach to determining teacher effectiveness (Cashin, 1995; Howard, Conway, & Maxwell, 1985; Marsh 1984; McKeachie, 1979). The debate over the validity of student evaluations of teaching effectiveness continues as researchers examine effects of grading, faculty gender, course level, and student achievement, (Clayson, Frost, & Sheffet, 2006; Johnson, 2002; Kogan, Schoenfeld-Tacher, & Hellyer, 2010; Whitworth, Price, & Randall, 2002; Yunker & Yunker, 2003). Although student evaluations of teaching are imperfect (Mckeachie, 1997), researchers agree that they are useful when paired with faculty peer evaluations (Ackerman, Gross, & Vigneron, 2009).

Instructor Feedback

In addition to student feedback, researchers have explored faculty perceptions of teaching effectiveness. In some instances, these studies have compared student responses to those of faculty members (Lovell & Haner, 1955; Hildebrand, Wilson, & Dienst, 1971; Marques, Lane, & Dorfman, 1979; Ford, 2016) and separate faculty samples to one another (Ismail, 2014; McConner, 2017). Others have analyzed faculty responses regarding their own perceptions of teaching effectiveness (Guthrie, 1949; Gusky & Easton, 1983; Keeley, Ismail, & Buskist, 2016).

Faculty feedback on teaching suggests that instructors view effectiveness more as a function of teaching technique than instructor personality or behavior (Yoakam & Simpson, 1948; Treiber, 1984; Hamacheck, 1968; Jackson, 1968; Sarasan, Davidson, & Blatt, 1982). This instructor view of effectiveness has been confirmed in other studies (Feldman, 1976; Marsh, 1987; Young & Shaw, 1999). In general, research using teacher feedback has continued to show faculty attribute effectiveness to an ability to teach material (Keeley, Smith, & Buskist, 2006; Ismail, 2014; McConner, 2017). Interestingly, studies comparing faculty and student responses initially suggested that students agreed with their teachers regarding teaching effectiveness (Lovell & Haner, 1955; Hildebrand et al., 1971; Marques, Lane, & Dorfman, 1979). However, in the last two decades, researchers have found evidence challenging the early data from students; new data suggest that students attribute teaching effectiveness more to an instructor's personality and behavioral characteristics such as approachability, a genuine attitude, use of humor, ability to build rapport, and enthusiasm (Buskist et al., 2002; Schaeffer, Epting, Zin, & Buskist, 2003; Keeley et al., 2006; Ford, 2016)

Awards

Awards criteria are a third method used to define teaching effectiveness. For instance, to determine teaching effectiveness, Skelton (2004) analyzed the National Teaching Fellowships Scheme (NTFS) used in the United Kingdom. According to NTFS criteria, teaching effectiveness is a function of not only teaching qualities and behaviors, but also a teacher's ability to promote best practices and engage in metacognition related to their teaching (Higher Education Academy, 2017).

The Australian Awards for University Teaching criteria include a teacher's ability to conduct sound evaluation and the nominee's history of being at the forefront of educational research (Australian Department of Education and Training, 2017). The Canadian 3M Teaching Fellowships recognize nominees who display excellence in educational leadership in addition to teaching (Society for Teaching and Learning in Higher Education, 2017). A similar set of criteria are used to judge U.S. teachers. In addition to teaching technique, nominees for the U.S. Professor of the Year award are expected to demonstrate excellence in the scholarship of teaching and learning, as well as make contributions to undergraduate education outside of their institution (Council for the Advancement and Support of Education, 2017). Other authors have analyzed letters of recommendation for awards to identify additional descriptors and dimensions of teaching effectiveness (Goldsmid, Gruber, & Wilson, 1977; Donaldson, 1988; Lowman, 1995).

Characteristics of Effective University Teaching

Early studies of teaching identified broad factors that could be used to judge effectiveness in higher education. Creager (1950) and Bendig (1954) (as cited in Isaacson et al., 1964) analyzed university instruction separately and determined teaching factors associated with

effectiveness. Factors included a sympathetic attitude towards students, grading fairness, presentation of subject matter, level of interest in the subject matter, and self-reliance and confidence. Bendig (1953) found three different factors in a study of faculty at Miami University. The first factor balanced the instructor's management of the class with a good sense of humor. The second factor weighed an instructor's organization of the course with fairness and a friendly attitude towards students. The third factor is characterized by the instructor's appearance and appreciation of students' efforts, as well as fairness of exams. Through factor analysis, Gibb (1954) identified the following four factors of effective teaching: friendly democratic behavior, communication behavior, organization behavior, and academic emphasis. Hopkins, Ainscow, West, Harris, and Beresford (1997) offered three broad dimensions of effective teaching. First was teaching effects, considered a synthesis of skill and behaviors including time management, creation of class routine, and promotion of independent learning. Second was the instructor's ability to utilize a clear teaching model. Third was the instructor's ability to foster conditions conducive to student learning by using effective teaching practices.

Researchers have proposed more specific dimensions by which teachers may be judged effective, including student interest engendered by the instructor, clarity and organization, knowledge of the subject matter, ability to motivate students, and ability to present information to students (Abrami, d'Appolonia, & Rosenfeld, 1997; Brightwell, 1993; Hativa, Barak, & Simhi, 2001; Kreber, 2002; Saroyen, Amundsen, McAlpine, Weston, Winer, & Gandell, 2004; Young & Shaw, 1999). Others suggest that effective teaching focuses on both instructor performance and student learning with emphasis on a future-oriented design (i.e. curriculum planning) (Kember, Ma, & McNaught, 2006; Kember & McNaught, 2007).

A comparison of faculty and students' perceptions of effective teaching by Reid and Johnston (1999), revealed six dimensions of effective teaching: (1) approachability; (2) clarity; (3) depth of knowledge; (4) interaction; (5) interest; and (6) organization. Within each of these dimensions, faculty and students identified important constructs. Faculty considered the following constructs most important: (1) participation encouraged; (2) interest; (3) sensitivity; (4) questioning attitude; (5) organized; and (6) lucid or clear. Students included each construct mentioned by faculty except questioning attitude. Students added two new qualities: (1) approachable; and (2) knowledgeable. Further analysis by researchers revealed that faculty placed greatest priority on "interest," while students placed greatest priority on "clarity."

Allen, Clarke, and Jopling (2009) surveyed first-year students in higher education and found the following qualities were rated important to effective teaching: (1) subject matter knowledge; (2) inclusion of group activities; (3) encouraging discussion; (4) approachability of the instructor; and (5) starting class on time. Based on this top-five, the researchers concluded that students valued instructors who developed their teaching skill. Researchers noted that in addition to subject matter knowledge, first-year students showed no disagreement (items were not rated either strongly disagree or disagree) on the importance of four other qualities: (1) instructor's use of relevant information in class; (2) instructor patience; (3) respecting student opinions; and (4) instructor enthusiasm. An instructor's respect for students and enthusiasm have been linked to student motivation by Biggs (2003) and Bauer (2002).

Student perceptions of effective teaching do not exist in a vacuum, but are influenced by other factors. One such factor is academic discipline. McLean (2001) interviewed and surveyed students enrolled in a South African medical school to evaluate the qualities they believed were the mark of effective teaching. Thirty-one students participated by selecting and ranking

attributes they would ascribe to effective teaching, and points were awarded to each attribute based on its rank (1 = 5 points, 2 = 4 points, etc.). Students identified the quality good communicator as most important to effective teaching. The following attributes were also rated highly by students: (1) approachable; (2) understand/relate to students; (3) willing to help/helpful; (4) friendly; (5) expert/knowledgeable about the subject; (6) sensitive to student needs/problems; (7) enthusiastic/interest in subject; and (8) patient/tolerant. McLean (2001) wrote that the trend in responses emphasized personal qualities of professors over more technical aspects of teaching, a trend echoed by other researchers in the medical teaching field (Riley, 1993; Das, El-Sabban, & Bener, 1996; Snadden & Yaphe, 1996; Thompson-Bowles, 2000).

Definitions of effective teaching may also encompass out-of-class activities (Chism, 2004). Examples include adapting teaching to context, providing feedback to students, or setting clear classroom goals (Ramsden, Margetson, Martin, & Clarke, 1995). Pursuing personal and professional development has also been cited as a quality of effective teaching (McAlpine & Harris, 2002), as well as departmental leadership (Cohen & McKeachie, 1980). Definitions of effective teaching have also included instructor interest in the scholarship of teaching and learning (Elton, 1998). Additionally, authors have argued that program and curriculum development, administrative service, and advising are indicative of effective teaching (Bess, 2000; Hounsell, 1996; Cashin, 1989; Paulson, 2002).

With this in mind, a more holistic approach to effective teaching (i.e., moving beyond solely what the instructor does in class) has been advocated by Trigwell (2001). Although effective classroom teaching strategies are included in Trigwell's definition, they are considered insufficient on their own when judging teaching. Out-of-class activities such as lesson planning, reflecting critically on teaching, and understanding the wider context in which information is

presented are all considered qualities of teaching effectiveness (Trigwell, 2001). Reid and Johnston (1999) noted, however, that students placed little emphasis on these types of out-of-class responsibilities (such as instructor research) when judging teaching effectiveness.

Defining Excellent University Teaching

An extension of teaching effectiveness is the concept of teaching excellence. It can be difficult to separate the two, however, given the amount of overlap of teaching qualities used to define each concept (Kreber, 2002). Issler (1983) suggests that teaching excellence incorporates actions taken beyond the confines of the classroom. These actions have been described as an "extended professionalism" by Hoyle (1980) and include the instructor's ability to positively influence students, colleagues, and the wider community of teaching. Thelen (1982) considers an instructor's ability to build and support cooperative learning among students (group work, for instance) and their efforts to be accessible throughout the learning process and beyond the classroom as indicators of teaching excellence. Further, the instructor's ability to be flexible with student needs, set and maintain clear expectations, and desire to be better a better teacher, are all factors pointing to teaching excellence (Issler, 1983). While teaching style is considered important, an instructor's ability to present challenging and stimulating material, as well as develop students' critical thinking skills and self-direction are considered essential aspects of teaching excellence (Green, 1971; Ausubel, 1963).

Characteristics of Excellent Teaching

Sherman, Armistead, Barksdale, Folwer, and Reif (1987) offer a review of qualities considered essential to excellent teaching. According to the authors, the qualities enthusiasm for teaching, clarity in instruction, level of organization and preparation, degree of stimulation in class, and a love of knowledge are repeatedly considered tenets of excellent teaching. The first of

these qualities, enthusiasm, is consistently identified as a reason certain instructors are preferred over others, as well as being essential to excellent teaching (Drayer, 1961; Goldsmid, Gruber, & Wilson, 1977; McKeachie, 1979; Lowman, 1996; Roche & March, 2002). Through a meta-analysis of student evaluations of teaching, Feldman (1997) determined that instructor enthusiasm ranked in the top-ten of a list of preferred qualities. Enthusiasm is linked to behaviors such as varied vocal delivery during lessons, use of highly descriptive language, a generally high level of energy during lessons, use of humor, facial expressions, and gesturing (Collins, 1977; Murray, 1985). It is also manifest through an instructor's passion for the subject matter, or teaching in general (Gadzella, 1974; Hoffman, 1963; Fox & Hackerman, 2003) and has been identified as the most important factor for student learning (Musella & Rusch, 1968).

Instructor clarity is another quality of teaching excellence consistently identified by undergraduate students across studies, and is directly related to the instructor's skill as a presenter (Hildebrand, Wilson, & Dienst, 1971; Feldman, 1976; Kennedy & Bush, 1976; Bush, Kennedy, & Cruikshank, 1977; Sherman & Giles, 1983). Researchers consider instructor clarity to be the extent to which an instructor is understood by students (Rosenshine & Furst, 1971; Wallen, 1966; Lowman, 1995; Feldman, 1997; Roche & March, 2002), as well as his or her ability to clearly articulate course objectives and material to students (Hildebrand, Wilson, & Dienst, 1971; Ebro, 1977; Murray, 1985; Feldman, 1997). Bloxham and West (2007) found that undergraduate students who received clear and explicit instructions related to assignments reported improved writing performance.

Undergraduates identify preparation and organization as marks of excellent teaching (Lowman, 1996) and directly impact an instructor's ability to present material (Sherman, et al., 1987). Instructor preparation and organization are shown to positively impact student learning

(Guskey & Easton, 1983; Blai, 1975; Wotruba & Wright, 1975; Gadzella, 1974; Musella & Rusch, 1968). In a meta-analysis of teacher quality studies, preparation and organization were identified in the top-ten qualities of teaching excellence (Feldman, 1997). Ebro (1977) identified organization as an essential quality of award-winning faculty. Organization and preparation need not pertain to only one aspect of teaching, however. While Roche and March (2002) considered organization to be related more towards an instructor's presentation ability, Lowman (1995) determined that it may also be considered a necessary quality for the design and planning of their courses.

Excellent teachers also generate a great deal of interest in their subjects. Several instructor qualities are linked to increased student interest in subjects, including being entertaining, being perceived as interesting, and being able to motivate or actively encourage student learning (Gottlieb, 1962; Hoffman, 1963; Maslowski, 1976; Musella & Rusch, 1968; Wotruba & Wright, 1975). Feldman (1997) found that an instructor's ability to stimulate interest in the course was a common quality of excellent teachers across studies. Similarly, Lowman (1996) determined that award-winning teachers arouse intellectual excitement in their students. Stimulating classrooms led by interesting instructors have also been tied to the development of critical thinking skills, another quality possessed by excellent teachers (Sherman, et al., 1986; Buskist, Sikorski, Buckley, & Saville, 2002).

Excellent teachers display a deep knowledge of the subjects they teach. An instructor's knowledge of the subject matter cannot be limited simply to the text, but should extend to a love, or passion for the subject (Feldman, 1976; Issler, 1983). An instructor's passion for knowledge may manifest in different ways: his or her ability to display the interconnectedness of various topics (Kegal, 1963); placing knowledge in a context relatable for students (Gaff & Morestain,

1978); and the ability to develop student interest in the subject (Loeffelbein, 1963). Further, Hoffman (1963) and Musella and Rusch (1968) determined that students considered an instructor's knowledge of the subject matter highly important. A teacher's knowledge of material continues to be identified as essential to excellent teaching (Lowman, 1995; Feldman, 1997; Fox & Hackerman, 2003).

Similar to McLean's (2001) article examining disciplinary influences on perceptions of effective teaching, Faranda and Clark (2004) identified five themes related to excellent teaching in the marketing discipline. In-depth interviews with students revealed the following five themes related to teaching excellence: (1) rapport (including approachability, accessibility); (2) delivery (communication, pedagogy); (3) fairness (performance evaluation); (4) knowledge and credibility (expertise, experience); and (5) organization and preparation (clarity, thoroughness). Over 66% of subjects highlighted the themes rapport and delivery in their responses, indicating the importance that marketing students placed on instructors' abilities to relate to students (i.e. faculty approachability, accessibility, and empathy) and communicate during lessons (i.e. use of examples, soliciting questions, and monitoring student understanding). Faranda and Clark's (2004) results echoed those of previous studies in the marketing discipline suggesting that knowledge, communication, timely and constructive feedback, enthusiasm, instructor flexibility, and a friendly nature were all considered essential qualities of excellent teaching (Grunenwald & Ackerman, 1986; Conant, Smart, & Kelley, 1988; Kelley, Conant, & Smart, 1991; Desai, Damewood, & Jones, 2001; Smart, Kelley, & Conant, 2003).

Defining Master Teaching

Buskist, Sikorsky, Buckley, and Saville (2002) provide an overview of master teaching, dividing the concept into three general areas of emphasis. Firstly, a master teacher must have a

deep understanding of the subject matter they wish to teach. Preparation and organization of lessons are considered integral to subject matter mastery (Eble, 1983; Gill, 1998). Master teachers also go beyond simply sharing their knowledge with students by assisting them in connecting one form of knowledge to another (Brewer, 1982). Analysis of award winning teachers suggests that risk-taking, a positive attitude, approaching teaching as parenting, being available, and the ability to maintain students' focus are marks of master teachers (Gurung et al, 2018).

Researchers have downplayed the importance of instructor personality in discussions of teaching (Drayer, 1961; Isaacson, et al., 1964; Goldsmid, Gruber, & Wilson, 1977; Lowman, 1996; Allen, Clarke, & Jopling, 2009). However, others regard personality as an integral part of developing as a master teacher. Instructors use their personality to engage and motivate students, as well as to adapt their style to different classroom settings (Eble, 1983, 1984). Master teachers are also approachable individuals, shown to use humor in their teaching practice (Vargo, 1997). They display a level of respect for students as well (Beidler, 1997). Their personality contributes to rapport with students, which encourages a productive learning process and builds student motivation (Benson, Cohen, & Buskist, 2005; Wilson, Ryan, & Pugh, 2010; Ryan, Wilson, & Pugh, 2011). These facets of an instructor's personality contribute to development of trust between the student and the instructor, further facilitating learning (Brookfield, 1990).

A master teacher's ability to manage various classroom dynamics further distinguishes him or her from others. Authors have written specifically on master teachers' ability to navigate difficult classroom situations (Boice, 1996; Eble, 1983; Svinicki & McKeachie, 2014). They set and maintain high expectations while simultaneously attempting to ensure student success

(Hatfield, 1995). In terms of technique, master teachers also promote active learning and encourage participation by students (Eble, 1983; Gill, 1998; Svinicki & McKeachie, 2014).

After interviewing and observing 30 individuals identified by their institutions as master teachers, Buskist (2004) reported 10 principles that these men and women consistently used in their teaching practice. To start, master teachers prioritize critical thinking and problem-solving over simply relaying facts. They also provide their students with the most up-to-date content possible, incorporating recent research from themselves and others. Master teachers are also clearly enthusiastic about their subject, the act of teaching, and their students. Their passion is obvious to students and serves to motivate and build rapport. In addition, Buskist noted that instructors he observed made learning fun for students by using personal stories and appropriate humor.

According to Buskist's (2004) observations, master teachers also utilize meta-cognition to constantly monitor their teaching and the impact it has on the classroom in real time; if a technique is ineffective, they correct it based on student feedback. Master teachers also show genuine concern for students and their learning. They identify students who may be struggling and offer to assist when appropriate. Buskist's subjects also displayed their willingness to take risks in their teaching; they were constantly evaluating their effectiveness and attempting new methods of instruction. In addition, for the master teacher, tests are not only evaluative tools, but also instructional; they assess students' critical thinking through application of concepts. Establishing high academic standards is another quality of master teachers. These standards are marked by use of demanding but fair grading practices, paired with the support to succeed. Finally, Buskist found that master teachers show genuine care towards students; they take pride in student success and consider themselves partners in helping students achieve it.

Creation of the Teacher Behavior Checklist

The Teacher Behavior Checklist (Appendix A) was created to determine the qualities and behaviors associated with master teaching. Buskist, et al. (2002) sought to answer three questions through their research. First, what qualities do master teachers display in their teaching practice? Second, what behaviors may faculty use to develop or strengthen these qualities in their teaching practice? Third, what are the qualities and behaviors that students and faculty believe are essential to master teaching? The researchers answered these questions in two phases.

In Phase 1 of the study, researchers surveyed a sample of undergraduate students in psychology (n = 114) from Auburn University. These students were charged with recording three qualities they believed were essential for college or university instructors to be considered master teachers. A list of 47 unique qualities was generated from these students' responses. This list was then presented to a separate sample of Auburn University undergraduates (n = 184) who provided three behaviors that they believed corresponded to each quality. Buskist et al. (2002) condensed the original 47-item list to the final 28-item list due to overlap, with each item paired with at least three behaviors.

Phase 2 of the study involved presenting the newly created Teacher Behavior Checklist to a larger sample of Auburn University undergraduates (n = 916) as well as faculty (n = 118). Each group was asked to select ten qualities from the 28 listed that they considered most important to master teaching in the context of a college or university, effectively generating a top-ten list of teacher qualities and behaviors. The lists were analyzed for differences within each group. Results suggested that men and women students, regardless of their years in school, rated TBC items similarly. Additionally, faculty rated TBC items similarly regardless of gender. Analysis of the two Top-10 lists generated revealed that students and faculty agreed on six of ten items: (1)

realistic expectations/fairness; (2) knowledgeableness; (3) approachable/personable; (4) respectful; (5) creative/interesting; and (6) enthusiasm. Students completed their top-ten list with the following qualities: (1) understanding; (2) happy/positive/humorous; (3) encourages/cares for students; and (4) flexible/open minded. Faculty completed their top-ten list with the following qualities: (1) effective communicator; (2) prepared; (3) presents current information; and (4) promotes critical thinking. A comparison of the final four qualities for each sample provides important insight into the values of each group. Students appear to emphasize qualities that relate more to the student-teacher relationship, while the faculty choices reveal an emphasis on specific teaching techniques.

Factor Analysis of the TBC

While the TBC is helpful in determining the qualities and behaviors essential to master teaching, researchers sought to convert it into an instrument that would serve as an assessment of teaching (Keeley, Smith, & Buskist, 2006). Researchers administered a modified version of the TBC to a sample of undergraduate psychology students (n = 313) at Auburn University and asked students to rate their instructors on each TBC item using a Likert scale (1 = instructor never exhibits this quality to 5 = instructor frequently exhibits this quality). Students also completed a standard end-of-semester teaching evaluation for the same instructor. The evaluation form asked students to rate their instructor on a Likert scale (1 = strongly disagree to 5 = strongly agree) on teaching items such as helpfulness, organization and preparation, ability to motivate students, clarity, and communication.

Keeley et al. (2006) performed an initial factor analysis of the student responses, identifying two factors within the TBC. The first factor, called the caring and supportive subscale, consisted of 13 TBC qualities (items 26, 20, 25, 22, 7, 10, 18, 28, 23, 1, 19, 13, and 8).

The second factor, called the professional competency and communication subscale, consisted of 11 TBC qualities (items 4, 6, 14, 3, 12, 27, 15, 2, 24, 21, and 11). There were four items that did not load on to either factor (items 16, 17, 9, and 5). Researchers determined that the modified TBC possessed acceptable construct validity. Analyzing each subscale using analysis of variance (ANOVA), researchers found that the subscales discriminated meaningfully between the four professors that were rated by students: the caring and supportive subscale produced significant results, $F(3, 307) = 36.59$, $p < .001$; the professional competency and communication subscale produced significant results as well, $F(3, 308) = 19.11$, $p < .001$. Researchers concluded that these results, along with subsequent post-hoc tests, provided support for the validity of each subscale. Additionally, researchers determined the internal consistency of the TBC was excellent: items loading on the caring and supportive subscale had an alpha of .93; items loading on the professional competency and communication subscale had an alpha of .90; and the overall scale had an alpha of .95.

Phase 2 of Keeley et al.'s (2006) study involved confirmatory factor analysis and an assessment of the instrument's test-retest reliability. The confirmatory factor analysis supported the findings of the initial factor analysis in that two subscales were indeed present and that no items should be removed. The test-retest analysis resulted in the following findings: Pearson's correlation values showed that all TBC items possessed r values between .24 and .64 ($p < .001$ for 19 items). The total scale (full 28 items) coefficient was .71 ($p < .001$). The reliability rating of the caring and supportive subscale was found to be .68 ($p < .001$), and the reliability rating of the professional competency and communication subscale was determined to be .72 ($p < .001$). Ultimately, Keeley et al. (2006) determined that the modified TBC was a psychometrically sound instrument suitable for use as an evaluative instrument.

Examining External Influences on the TBC

Mowrer, Love, and Orem (2004) conducted two studies analyzing student characteristics and their influences on TBC responses. These characteristics included GPA, year in college, size of student's high school graduating class, student's level of motivation, their perceived difficulty of college, and sex of student. In the first study, a sample of students (n = 332) rank the 28 TBC qualities into four separate groups of seven qualities. These four groups were labeled very important (1 to 7), important (8 to 14), somewhat important (15 to 21), and not important (22 to 28). Researchers noted that of all the TBC items, qualities knowledgeable and approachable appeared on every top-ten. Ultimately, Mowrer et al. (2004) concluded that student characteristics did not significantly influence rankings of TBC items. Further, the authors note that their findings in the first study were congruent with those of Buskist et al. (2002).

In the second study, Mowrer et al. (2004) instructed a sample of students (n = 134) to complete the same handout from the first study. Students were also asked to rate each TBC item using a Likert scale (1 = least important to 5 = most important) using a second handout. Students from each study agreed on eight of ten items. However, qualities accessible and flexible/open-minded from study one were replaced by qualities confident and understanding in study two. Once more, researchers noted that student ranking of TBC qualities were not significantly influenced by student characteristics. Mowrer et al. (2004) note that there appears to be consistency in students' perceptions of master teaching and that this consistency transcended the method of rating.

Keeley, Furr, and Buskist (2010) sought to analyze the TBC's ability to differentiate quality between instructors, and to examine if any other factors influenced ratings of TBC qualities similar to Mowrer et al. (2004). Using generalizability theory (GT), researchers

attempted to test the degree to which these ratings were affected by certain factors (e.g. teacher quality, student perceptions, item differences). A sample of Auburn University undergraduate students (n = 142) and a sample of Appalachian State University undergraduate students (n = 184) rated their best, worst, and most recent instructors on the TBC using a Likert scale (1 = my professor never exhibits this quality to 5 = my professor always exhibits this quality). Students completed three evaluations each.

When assessing the impact of external factors, Keeley et al. (2010) determined that Auburn University students' responses indicated that teacher type (best, worst, most recent) accounted for 45% of the variance. Student effects and item differences accounted for only a small proportion of variance in TBC ratings, as did the interaction effects (only the teacher-student interaction produced an appreciable variance of 17%). The Appalachian State student sample produced similar results: teacher type remained the greatest source of variance, accounting for 32%. Student effects and item differences accounted for very little of the variance (4% and 1%, respectively). Keeley et al. (2010) noted that the student effect was much higher for the Appalachian State sample than for the Auburn sample. The authors attributed this difference to either a "satisfaction effect" (p. 18) wherein Appalachian State students were more satisfied with their teachers, or simply differences in students' use of the instrument. For the Appalachian State students, interaction variance showed similar results as those of the Auburn student sample: the teacher-student effect accounted for only 14% (i.e. students differed little in their evaluations of teachers), and neither teacher-item nor student-item effect reached above 5% of the total variance.

Data from each student sample group suggested that the TBC can detect differences of quality between teachers, but researchers admitted GT was not able to determine if the findings

were meaningful or valid. Keeley et al. (2010), therefore, examined the convergent validity of the student ratings of instructors by examining the mean differences between the three types of teachers (best, worst, most recent) across each of the three TBC subscales (caring and supportive, professional competency and communication, and total scale). Researchers found that students from each sample rated teachers in the expected order: best teacher first, most recent teacher second, and worst teacher third. Given these results, researchers concluded that the TBC may be used by students to accurately rate and differentiate between instructors.

Application and Expansion of the TBC

The TBC in a Community College Context

Schaeffer, Epting, Zinn, and Buskist (2003) expanded TBC research to include data from students and faculty at the community college level. Prior research examined only students and faculty in the context of a large research university. Students (n = 231) and Faculty (n = 99) participated in the study. The participants were asked to select the ten most important TBC items by clicking in a box next to each item. Participants were instructed to select exactly ten of the items listed.

Results showed remarkable overlap in student and faculty responses. The samples showed agreement on eight of ten items: (1) approachable; (2) creative and interesting; (3) encouraging and caring; (4) enthusiastic; (5) flexible and open-minded; (6) knowledgeable; (7) realistic expectations and fair; and (8) respectful. Faculty completed their aggregate top-ten with the following items: (1) presents current information; (2) promotes critical thinking; and (3) strives to be a better teacher. Students rounded out their top-ten list with the following items: (1) happy/positive/humorous; and (2) understanding. Schaeffer et al. (2003) note that faculty concluded their list with TBC qualities that emphasized the importance of teaching technique,

while students selected items that emphasized the importance of the student-teacher relationship. Comparison of these findings to those of Buskist et al. (2002) reveal important points. Firstly, the student samples in each study showed exact agreement on the top-ten qualities. Second, community college faculty and university faculty agreed on eight of ten TBC items. Third, within faculty and student samples from each type of institution, the rankings of items were generally close, which suggests similar views of master teaching.

The TBC in a Military Educational Context

Squadron Officer College

In fulfillment of his doctoral dissertation, O'Meara (2007) used the TBC to determine the perceptions of master teaching for students and faculty at a military institution. Students (n = 261) attending Squadron Officers School and their instructors (n = 20) were invited to rate each of the 28 TBC items on a Likert scale (1 = instructor never exhibits, represented by E, to 5 = instructor always exhibits, represented by A). Students were asked to consider an ideal professor, while faculty were asked to rate themselves using the scale. Results indicated that students and instructors agreed on five of ten items: (1) confident; (2) approachable/personable; (3) respectful; (4) accessible; and (5) enthusiastic. Examination of gender differences between students indicated that there were no significant differences in item rankings between men and women students (2007).

While O'Meara (2007) provides initial insight into the perceptions of master teaching in a military context, the study is limited in its ability to give interested parties a clearer picture of what qualities and behaviors are most important to students and faculty in a military school. Students were asked to rate the extent to which an ideal teacher exhibits the TBC qualities, while faculty were asked to rate the extent to which they themselves exhibit the qualities. Had faculty

been prompted to consider the concept of an ideal or master teacher when rating each item, results and comparisons might have yielded different answers. Nevertheless, O'Meara's (2007) study represents perhaps the first attempt at bringing TBC research into a military context, providing a starting point for other researchers to survey military students and instructors regarding perceptions of master teaching.

Baltic Defense College

Soomere et al. (2018) sought to expand the existing body of TBC research by examining faculty responses from a sample of instructors employed at the Baltic Defense College (BDC) located in Tartu, Estonia. Investigators examined the top ten TBC qualities selected by BDC faculty (n = 32). Participants were also asked to explain the reasoning behind their choice of top ten items. Hard copy surveys were distributed, and participants were asked to choose the top ten qualities from the list of twenty-eight. Items were ranked based on number of endorsements.

The resulting list was generated from BDC faculty responses: (1) promotes critical thinking; (2) knowledgeable; (3) creative/interesting; (4) enthusiastic; (5) provides constructive feedback; (6) respectful; (7) promotes discussion; (8) approachable/personable; (9) confident; (10.5) effective communicator; (10.5) prepared; and (10.5) strives to be a better teacher (Soomere, et al., 2018). Researchers noted that this faculty sample shared similar items in their top-ten list with other faculty samples. The items promotes critical thinking, knowledgeable, creative/interesting, enthusiastic, approachable/personable, and confident also appeared on the top-ten lists of HBCU faculty (McConner, 2017) and SREB faculty (Ismail, 2014). Further, BDC faculty and Squadron Officer College faculty (O'Meara, 2007) had six items in common: (1) enthusiastic; (2) provides constructive feedback; (3) respectful; (4) promotes class discussion; (5)

approachable/personable; and (6) confident. The items provides constructive feedback, respectful, and promotes discussion were unique to the BDC faculty top-ten list.

Soomere, et al. (2018) also asked six participants to explain their choices on the survey. Researchers categorized responses into three themes: (1) importance of subject matter expertise; (2) presentation of subject; and (3) partnerships with students. The first theme incorporated the items knowledgeable and strives to be a better teacher. Participants explained the content knowledge was important and should be paired with continuing education on the part of faculty. This builds instructor confidence which, in turn, may positively impact student motivation and trust in the instructor.

The second theme comprised the TBC items confident, effective communicator, and enthusiasm and was identified as "everything related to communication" (p. 6740). Participants considered communication of material equally important as subject matter expertise. Researchers further noted in participant responses that an instructor's ability to be flexible and adaptable in the classroom affected his or her ability to effectively present material.

The third theme identified by Soomere, et al. (2018) centered on faculty partnerships with students. This theme was comprised of TBC items promotes critical thinking, promotes class discussion, and provides constructive feedback. Participants considered faculty and students "partners in the teaching and learning process" (p. 6741). Mutual respect was highlighted as an essential element to student-faculty partnerships, as was instructor respect for students' time (i.e. starting and ending lessons on time) and being prepared for the lesson. A healthy partnership aids in collaboration, support, and development of both parties.

Results from Soomere, et al.'s (2018) study suggest faculty samples from diverse educational contexts generally agree with regard to the top ten teaching qualities using the TBC.

Further, the study provides preliminary support for agreement between faculty at military institutions from vastly different geographic areas.

The TBC in a Medical Context

To ascertain the perspectives of faculty and undergraduates in the field of nursing, Noll (2017) asked participants to rank the top-ten qualities of master teachers using the TBC. Sixteen full-time faculty members and 86 undergraduate nursing students participated in the study. Faculty and student responses showed that the two sample groups agreed on five of ten items: (1) knowledgeable; (2) approachable/personable; (3) enthusiastic; (4) effective communicator; and (5) realistic expectations/fair. Faculty concluded their top-ten with the qualities creative/interesting, promotes critical thinking, presents current information, confident, and respectful. Students rounded out their top-ten with understanding, happy/positive/humorous, encourages/cares for students, flexible/open-minded, and strives to be a better teacher.

Noll (2017) also conducted within-group analysis for faculty and student. For the faculty sample, Noll determined that significant differences occurred only for the quality approachable/personable. Instructors with less than 20 years of experience valued the quality more so than their colleagues with more than 20 years of experience ($p = .02$). Comparisons within the nursing student sample revealed a greater variety of differences across demographic variables than faculty. Women ranked the quality effective communicator statistically significantly higher than men ($p = .01$). Students aged 19 to 23, the more traditional age for college undergraduates, ranked the quality knowledgeable statistically significantly higher than students aged 24 and above ($p = .007$). Caucasian/White students ranked the qualities effective communication ($p = .03$) and knowledgeable ($p = .03$) statistically significantly higher than students identifying as ethnic minorities.

Noll (2017) compared faculty and student responses through Chi-squared tests and found significant differences on the relative rankings of four TBC items ranked in each top-ten list. Faculty emphasized the quality creative/interesting significantly more than students ($p = .004$). Additionally, half of the nursing faculty sample reported the quality presents current information in the top-ten, whereas less than 20% of students selected it ($p = .005$). An instructor's ability to promote critical thinking was valued more by faculty than students ($p = .02$), a reoccurring theme throughout the existing TBC research. Finally, students placed significantly more emphasis on the quality understanding ($p = .004$); nearly half of students ranked the quality in their top-ten, while just over 10% of faculty ranked it in their top-ten. Noll (2017) further concluded that findings from nursing faculty and student data closely resembled those from Buskist et al. (2002). Faculty from each study agreed on nine of ten qualities (nursing faculty included the quality confident, but the quality was omitted by general faculty from the original study).

International Use of the TBC

Canada

Vulcano (2007) replicated Buskist et al.'s (2002) study by assessing international students' perceptions of master teaching. Two samples of Canadian undergraduates at a four-year institution participated in the research (n = 373 and n = 260). The students were drawn from various levels of the university and were all recruited from psychology courses. Participants were asked to describe the perfect instructor using as many descriptors as they liked. The responses yielded 529 descriptors.

After categorization, Vulcano (2007) found a total of 26 unique items describing master teaching. Twenty-four of the items were closely related to original TBC items. Canadian students identified two new categories they considered important to master teaching: (1) relaxed and

down-to-earth (marked by a relaxed or sincere attitude); and (2) appearance and demeanor (someone who is good-looking, young, or perceived as young at heart). Canadian students made no mention of four TBC qualities: (1) confident; (2) humble; (3) strives to be a better teacher; and (4) technologically competent. Vulcano's sample compared favorably with previous samples, showing agreement on eight of ten items with Buskist et al.'s (2002) sample and Schaeffer et al.'s (2003) sample. Canadian students included the qualities effective communicator and encourages student participation in their top-ten list. Vulcano noted that the 26 qualities were split evenly between those that were associated with the teacher-student relationship and teaching technique. Further, the combined top-ten of both Canadian samples were divided evenly between items related to each of these subscales. Finally, the author writes that these results provided the initial indication that while perceptions of master teaching are vastly similar, they may differ across international boundaries.

Japan

To examine the international generalizability of the TBC more directly, Keeley, Christopher, and Buskist (2012) compared responses from Japanese and American liberal arts students. Using the modified instrument developed by Keeley et al. (2006), Japanese students (n = 111) and American students (n = 231) were invited to rate the extent to which a master teacher might display each TBC item on a Likert scale (1 = never exhibits this quality to 5 = frequently exhibits this quality).

Keeley et al. (2012) arranged the items in order based on their mean ranking and found that Japanese and American students agreed on seven of their top ten items: (1) knowledgeable; (2) confident; (3) approachable/personable; (4) enthusiastic; (5) effective communicator; (6) prepared; and (7) good listener. Japanese students finished their top-ten with the following

qualities: (1) creative/interesting; (2) strives to be a better teacher; and (3) humble. American students completed their top-ten list with: (1) accessible; (2) respectful; and (3) intellectually stimulating.

Researchers compared these results to those from the large research university sample produced by Buskist et al. (2002) and the community college sample produced by Schaeffer et al. (2003). American students from the three samples showed agreement on four of their top ten TBC items: (1) knowledgeable; (2) approachable/personable; (3) respectful; and (4) enthusiastic. American and Japanese liberal arts students emphasized the following qualities: (1) confident; (2) effective communicator; (3) prepared; and (4) good listener. In contrast, the research university and community college samples de-emphasized these qualities in their lists. In fact, students from Buskist et al. (2002) and Schaeffer et al. (2003) placed more emphasis on the qualities fair testing/grading, creative and interesting, happy/positive/humorous, encouraging, flexible, and understanding than did the students attending the liberal arts institutions.

The authors caution that while these results offer initial insight into the different perceptions of master teaching by American and Japanese liberal arts students and comparisons to other student samples, results could potentially be confounded for two reasons. Firstly, the different methods used to collect responses may not allow for ideal comparison: whereas Keeley et al. (2012) used interval ratings to measure perceptions, Buskist et al. (2002) and Schaeffer et al. (2003) used rank ordering of items to measure perceptions. It is therefore possible that respondents could have rated every item equally. Second, Keeley et al. (2012) point out that the sample population was limited to only two liberal arts colleges, and that this narrow focus cannot be considered representative of all liberal arts students.

Estonia

Jõemma (2013) examined Estonian university students' perceptions of master teaching. The sample (n = 679) was drawn from students at different levels of university education (undergraduate, masters, and doctoral) and covered five general disciplines (educational sciences, applied social sciences, humanities and pure social sciences, natural sciences, and technologies). While this sample includes a sizeable portion of graduate students, Jõemma did not separate and compare undergraduate and graduate students' responses in her final analysis. Participants ranged in age from 19 to 54 years old. Students were asked to rate the importance of each TBC item using a Likert rating format (1 = totally unimportant to 5 = very important). Students were then presented with the 28 TBC qualities without their accompanying behaviors and asked to select the ten most important qualities.

The initial results from the rank-ordered TBC items indicated that knowledgeable was the most important quality, receiving a total of 534 (78.6% of respondents) endorsements, followed by enthusiastic about teaching, with 373 (54.9% of respondents) endorsements. Estonian students rounded out their top-ten with the following eight qualities: (1) provides constructive feedback; (2) approachable/personable; (3) creative/interesting; (4) professional; (5) realistic expectations/fair; (6) presents current information; (7) prepared; and (8) flexible/open-minded. Jõemma (2013) used Pearson's correlation to ensure that the responses from each TBC rating method correlated. Analysis revealed no negative correlations between items from each rating method, meaning that TBC items rated highly using the Likert method also appeared in the top-ten list when using the ranking method. Further, all characteristics were determined to correlate at statistically significant levels ($p < 0.05$).

To test for differences between the age groups (23 or younger and 24 and older), Jõemma (2013) performed a t-test. Analysis revealed significant differences ($p < 0.05$) for six items: (1) happy/positive/humorous; (2) rapport; (3) realistic expectations/fair; (4) establishes goals; (5) promotes class discussion; and (6) promotes critical thinking. Students 23 or younger emphasized the first three items in their responses while students 24 or older emphasized the last three items in their responses. According to Jõemma, the differences in age group could be due to the experiences each group has had leading up to their education. Older students, with a "fuller personal experience" in and out of the classroom (p. 24) may not need the level of support that younger students need. Further, qualities such as promoting critical thinking and discussion may be new to younger students, leading them to value these qualities less in their instructors (Jõemma, 2013).

Jõemma (2013) also tested for differences between students' academic disciplines using one-way analysis of variance (ANOVA). This test revealed statistically significant differences ($p < 0.05$) for 13 TBC items: (1) accessible; (2) approachable/personable; (3) creative/interesting; (4) encourages/cares for students; (5) enthusiastic about teaching; (6) establishes goals; (7) good listener; (8) prepared; (9) presents current information; (10) promotes class discussion; (11) promotes critical thinking; (12) provides constructive feedback; and (13) respectful.

Ultimately, Jõemma (2013) determined that perceptions of master teaching could vary due to age and academic discipline. She suggested that this may be due to the different personal experiences of students. For instance, younger students emphasized the qualities tied to support, likely due to their lack of academic and personal experiences. Conversely, older students have more experience on which to draw, likely contributing to their de-emphasis of TBC items associated with support. Demographic breakdowns of this Estonian student sample suggest that

respondents pursuing a graduate degree were overwhelmingly in the older age category (127 in the 24 or older group versus 43 in the 23 or younger group for masters; 14 in the 24 or older group versus none in the 23 or younger group for doctoral). As a result, it is unclear to what extent, if any, a student's level of study (undergraduate, masters, doctoral) is related to, or affects these results. With respect to disciplinary differences, Jõemma (2013) posited that the differences in TBC responses were in part due to the "hard-soft duality" (p. 25) and the differences in how teachers are expected to behave in the class.

China

Liu, Keeley, and Buskist (2015) investigated Chinese college students' perceptions of master teaching and compared their results to those of Keeley et al. (2012). Chinese students (n = 115) were asked to fill out in-person surveys using the Likert adaptation of the TBC. Students were asked to rank each item on the extent to which it is displayed by master teachers (1 = never exhibits this quality to 5 = frequently exhibits this quality).

Results indicated that Chinese students tended to rate TBC qualities rather high: the lowest mean rating was for the quality professional (M = 4.06) and the highest was for the quality respectful (M = 4.45). Knowledgeable was rated as the second highest quality (M = 4.44). Comparisons between the Chinese, Japanese, and American samples showed that, based on overlapping confidence intervals, only three qualities were rated the same: (1) prepared; (2) sensitive and persistent; and (3) understanding. For the other 25 TBC items, at least one country differed in its rating. Chinese students placed less emphasis than Japanese and American students on the following qualities: (1) approachable; (2) confident; (3) enthusiastic; (4) knowledgeable; (5) effective communicator; and (6) good listener. They placed more emphasis, however, on the

TBC quality technologically competent. Researchers note that this was not a quality listed in either the Japanese or American top-ten lists (Keeley et al., 2015).

These results suggest that Chinese students are less likely to emphasize TBC qualities related to the caring and supportive subscale, and more likely to emphasize TBC qualities related to the professional competency and communication subscale (from Keeley et al., 2006). Additionally, Keeley et al. (2015) point out that generally, the majority of TBC qualities are considered important across countries; however, it is the relative importance of each quality and where it is ranked by a particular nationality that differs.

In a separate study, Liu, Keeley, and Buskist (2016) surveyed Chinese students (n = 348) to examine perceptions of master teaching. In this study, researchers sampled student across disciplines (psychology, education, and chemical engineering). As in previous studies, researchers invited students to rate the extent to which master teachers exhibited each of the qualities listed on the TBC using the Likert format (1 = never exhibits this quality to 5 = frequently exhibits this quality). Results indicated that students across disciplines agreed on five of the top ten qualities: (1) respectful; (2) knowledgeable; (3) confident; (4) strives to be a better teacher; (5) realistic expectations/fair.

Using multivariate analysis of variance (MANOVA), Liu et al. (2016) tested for differences between disciplines on each of the 28 TBC items, and determined that there were significant differences in item ratings existed across disciplines. Further univariate analysis of variance revealed that there were statistically significant effects for 17 of the TBC items (all *p*s < .05). Comparisons between psychology and chemical engineering revealed significant differences across 15 items: (1) authoritative; (2) confident; (3) enthusiasm; (4) establishes goals; (5) flexible/open-minded; (6) happy/positive/humorous; (7) humble; (8) prepared; (9) presents

current information; (10) professional; (11) punctuality; (12) realistic expectations/fair; (13) respectful; (14) sensitive/persistent; (15) strives to be a better teacher (all *p*s < .05). Between education and chemical engineering students, significant differences were found for seven TBC items: (1) authoritative; (2) establishes goals; (3) humble; (4) prepared; (5) professional; (6) punctuality; (7) sensitive/persistent. Finally, between psychology and education students, researchers' analyses showed significant differences on only one TBC item: approachable/personable.

Liu et al.'s (2016) findings suggest a number of conclusions about master teaching qualities. First, they may be bound by cultural values of the region. Researchers noted that even though differences existed across disciplines, there were five items rated highly by all three groups, suggesting that these items were influenced by cultural context in China. Second, the data indicated that more differences exist between the psychology/education students versus the chemical engineering students. Researchers attributed this to the close relationship that psychology and education have as disciplines, as they are housed in the same college at this university. Liu et al. (2016) also noted that educational contexts bear upon perceptions of master teaching, and that departmental values and cultures surrounding teaching and learning are likely to influence perceptions of teaching. Ultimately, Liu et al. (2016) reported that their findings were congruent with findings from previous studies examining the effects of discipline, and that university administrators would do well to consider the effects of discipline when developing and interpreting student evaluations of faculty.

In a third study, Liu and Xie (2018) examined the effect of gender on perceptions of master teaching. Surveying 298 students aged 18 to 24, researchers asked students to rate each TBC item using a Likert scale (1 = *never exhibits this quality* to 5 = *frequently exhibits this*

quality). The full student sample generated the following top-ten list: (1) respectful; (2) confident; (3) realistic expectations/fair; (4) approachable; (5) knowledgeable; (6) enthusiastic; (7) strives to be a better teacher; (8) understanding; (9) effective communicator; and (10) prepared. Men and women students each included the first seven items on their lists, and the qualities respectful and confident were listed at numbers one and two for both groups.

Researchers noted that women assigned higher average ratings than men to TBC items. Independent *t*-tests showed significant differences between women and men students on the following items: respectful, confident, understanding, technologically competent, humble, promotes critical thinking, professional, knowledgeable, creative/interesting, punctuality/manages class time, and provides constructive feedback (Liu & Xie, 2018). Women rated each of these items statistically significantly higher than men (ps < .05). The researchers offer culture as an explanation for these findings. Firstly, they suggest that women students value the quality understanding because faculty "are expected to pay more attention to girls" (p. 45). Additionally, with a more understanding attitude towards students, faculty may create environments suitable for learning. Further, Liu and Xie (2018) suggest that women students "embrace humility as a cultural value" (p. 46) more given that they value the TBC quality humble more so than men.

A brief comparison of top-ten lists from Liu and Xie (2018) and Liu et al. (2016) shows remarkable overlap among Chinese undergraduate students. Across two studies, the four samples shared five TBC qualities: (1) respectful; (2) confident; (3) realistic expectations/fair; (4) knowledgeable; and (5) strives to be a better teacher. Students from the current ample and psychology and education students shared the qualities understanding and effective communicator. Students from the current sample and chemical engineering students shared the

quality prepared. Only qualities approachable and enthusiastic were not shared by more than two samples of students.

Brazil

Researchers performed two studies among samples of Brazilian undergraduate students in an effort to expand TBC literature to include university students in South America and to expand the existing research on teacher training in Brazilian higher education. Henklain, Carmo, Haydu, and Muniz (2018) surveyed undergraduate students (n = 186) and faculty (n = 76) in psychology from 46 different schools, asking each group to assess the 28 items on the degree to which each item "was relevant to compose the profile of an excellent teacher" (p. 33). Participants rated each item using a Likert scale (1 = *Totally Irrelevant* to 7 = *Totally Relevant*). Students and faculty showed close agreement on the relevance of TBC items. Students indicated an overall mean score of 6.0 for items, and faculty indicated an overall mean of 6.2 for items. The two groups also agreed on seven of the top-ten items: (1) respectful; (2) knowledgeable; (3) confident; (4) effective communicator; (5) good listener; (6) prepared; and (7) provides constructive feedback. Students and faculty each rated the first three qualities as first, second, and third on their overall lists. Students concluded their lists with the qualities presents current information, strives to be a better teacher, and realistic expectations/fair. Faculty concluded with the qualities establishes goals, enthusiastic, and promotes critical thinking.

To complete the second study, a separate sample of Brazilian undergraduates (n = 467) from three Brazilian institutions selected the ten TBC items considered most essential to excellent teaching. The students produced the following overall top-ten list: (1) knowledgeable; (2) accessible; (3) promotes critical thinking; (4) enthusiasm; (5) strives to be a better teacher; (6) flexible/open-minded; (7) effective communicator; (8) encourages/cares; (9)

creative/interesting; and (10) prepared (Henklain et al., 2018). Researchers noted a 50% overlap in TBC qualities listed by Brazilian students and those listed by Buskist et al. (2002). Both groups listed knowledgeable, enthusiasm, flexible/open-minded, encourages/cares, and creative/interesting in their top-ten lists. Researchers concluded that this overlap suggests that while student populations will differ across cultures, there are certain excellent teaching qualities that transcend cultural contexts. Interestingly, it should be noted that to date only two aggregated samples of students have ever listed the quality promotes critical thinking in a top-ten of TBC items, this sample of Brazilian students and the sample of American liberal arts students from Keeley, et al. (2012). This quality is usually only found on teachers' top-ten lists.

Colombia

Researchers in South America sought to further generalize the findings of the TBC, and as a result, performed two studies among Colombian student samples. Donado, Zerpa, and Ruiz (2018) attempted to determine the relationship between teacher quality, academic engagement, and academic achievement. They further examined the effect of gender, academic engagement, and academic achievement on teacher quality.

A sample of university students (n = 287) from three Colombian universities participated in the survey. Average age of participants was 23.11 years old. Participants were asked to respond to questions from the Utrecht Work Engagement Scale – Students (UWES-S), a version of the Utrecht Work Engagement Scale adapted for student populations, to determine student academic engagement. Participants were also asked to rate TBC items on a Likert scale (1 = *Always shows behaviors* to 5 = *Never shows behaviors*) after considering the prompt, "An excellent teacher is…" (Donado et al., 2018, p. 51).

Mean ratings of teacher qualities indicated that men and women students agreed on seven of the top ten TBC qualities: (1) effective communicator; (2) confident; (3) strives to be a better teacher; (4) promotes critical thinking; (5) authoritative; (6) respectful; and (7) enthusiastic. Men concluded their top-ten list with the qualities technologically competent, approachable/personable, and establishes goals. Women rounded out their top-ten with presents current information, prepared, and humble. Researchers determined that women students tended to give higher mean ratings to TBC items than did men, similar to findings among Chinese students (Liu & Xie, 2018).

Further, researchers noted that there were statistically significant differences between men and women on each variable (teacher quality, academic engagement, and academic achievement). Researchers noted that when examining teacher quality, gender of the student was the strongest predictor of teacher quality. For men (n = 109), Donado et al. (2018) found no statistically significant correlation among academic engagement, academic achievement, and teacher quality. For women, however, researchers found statistically significant correlation between the three variables (p = .004). Results from this study reinforce findings from Noll (2017) that gender may affect perceptions of excellent teaching.

There is an important caveat to note when considering Donado et al.'s (2018) examination of Colombian university students. The version of the Teacher Behavior Checklist used in the study, the TBC-B, was adapted for Colombian students and omits six items: (1) encourages/cares; (2) flexible/open-minded; (3) happy/positive/humorous; (4) professional; (5) sensitive/persistent; and (6) knowledgeable. Further, researchers in this study do not provide an aggregated top-ten list for the entire student sample, instead only reporting separated men and women top-ten lists for TBC-B responses. Notice, too, that “promotes critical thinking” is shared

by men and women in their top-ten lists. However, given that the TBC-B omits six master teacher qualities (of which, knowledgeable is considered the most important quality across every study using the TBC), and that no full-sample top-ten is presented, readers may not be able to fully determine that "promotes critical thinking" is considered a top-ten teaching quality for the entire sample of Colombian university students.

Using a mixed methods approach, pairing TBC responses with interviews, Ripoll-Nunez, Mojica-Ospina, Torres-Riveros, and Castellanos-Tous (2018) compared faculty (n = 120) and undergraduate student (n = 1,199) perceptions of teaching excellence. Researchers also analyzed the effect of the students' years in school and the effect of academic discipline on perceptions. Participants were asked to respond to TBC items in a similar fashion as those from Donado et al.'s (2018) study using a Likert rating (1 = *Always shows this characteristic* to 5 = *Never shows this characteristic*) and the prompt, "An excellent teacher is…" (Ripoll-Nunez et al., 2018, p. 58). Researchers found that faculty and students agreed on seven of ten items: (1) respectful; (2) effective communicator; (3) knowledgeable; (4) confident; (5) enthusiastic; (6) provides constructive feedback; and (7) good listener. The first three qualities were ranked first, second, and third by both groups. Faculty concluded their top-ten list with the qualities establishes goals, promotes critical thinking, and humble. Students concluded their top-ten with the qualities authoritative, accessible, and presents current information.

Examining number of years in school, Ripoll-Nunez et al. (2018) compared students in their first two years of college (1 – 4 semesters) with those in their fifth semester and above. Students in the two groups showed agreement on nine of ten items: (1) accessible; (2) respectful; (3) effective communicator; (4) confident; (5) knowledgeable; (6) enthusiastic; (7) provides constructive feedback; (8) presents current information; and (9) strives to be a better teacher.

Researchers next compared students based on the number that had given an "always" rating against the number that did not give an "always" rating. Chi-square results showed that students in their first four semesters of university believed that the following TBC qualities should always be present in an excellent teacher: establishes goals ($p < .05$); approachable ($p < .05$); good listener ($p < .001$); and punctuality/manages class time ($p < .05$). Further, researchers found that senior students (fifth semester or above) rated the following items higher than those who had been at university longer: knowledgeable ($p < .05$) and presents current information ($p < .05$). Researchers suggest that as students draw nearer to graduation and entry into the job market, having relevant knowledge of the field they wish to enter becomes increasingly important.

Academic discipline was examined in faculty and student responses using analysis of variance. Findings from ANOVAs revealed several disciplinary differences. Within the student sample those in the Schools of Law and Business rated the quality promotes class discussion significantly higher than students in the School of Engineering ($p < .001$). Students enrolled in the School of Social Sciences rated the quality promotes critical thinking significantly higher than those enrolled in the School of Engineering ($p < .05$). Students in the School of Architecture and Design rated the quality provides constructive feedback significantly higher than Engineering students ($p < .05$).

The faculty sample showed similar differences between disciplines. Faculty in Arts and Humanities rated the qualities sensitive/persistent ($p < .05$) and understanding ($p < .05$) higher than Engineering faculty. Business faculty rated the quality provides constructive feedback ($p < .05$) higher than Engineering faculty. Finally, Business faculty rated the quality accessible ($p < .05$) higher than faculty in the School of Law (Ripoll-Nunez et al., 2018). Findings among the student and faculty samples echo results from Jõemma (2013), Ismail (2014), McConner (2017),

Liu et al. (2016), all of whom found that discipline affects faculty and student perceptions of teaching excellence. Ripoll-Nunez et al. (2018) note, however that their results depart from previous studies in one important aspect: faculty-student agreement occurred mainly on TBC items that were associated with the professional competency/communication subscale. It is also important to note that this sample did not use the TBC-D used by Donado et al.'s (2018) sample. Comparisons between the two samples of Colombian university student may, therefore, be limited.

Germany

In response to increased numbers of students entering the German university system and in an effort to expand the research on teacher quality, Zayac and Lenhard (2018) collected student responses (n = 286) to TBC items. Average respondent age was 22 years old. Students were asked to rate the extent to which master teachers displayed each TBC quality on a Likert scale (1 = *never exhibits this quality* to 5 = *frequently exhibits this quality*). German students rated the following items highest: (1) realistic expectations/fair; (2) approachable/personable; (3) effective communicator; (3) respectful; (4) knowledgeable; (5) confident; (6) accessible; (7) provides constructive feedback; (8) creative/interesting; (9) prepared; and (10) enthusiastic. Comparisons between German students and those from the U.S. and China (Keeley et al., 2012; Liu et al., 2015) reveal overlap on four items: (1) approachable/personable; (2) confident; (3) knowledgeable; and (4) respectful. German students and the seminal American student sample (Buskist et al., 2002) shared the quality realistic expectations/fair as the number one TBC quality. Zayac and Lenhard (2018) suggest that emphasis of this quality by German university students is a reflection of the emphasis placed on academic achievement in German society more broadly.

Researchers also performed *t*-test analysis on subscale ratings for the entire student sample and found a significant difference between ratings for the caring/supportive and professional competency/communication subscales ($p < .001$). Interestingly, students emphasized the professional competency/communication subscale over the caring/supportive subscale, a departure from previous research suggesting the opposite is true (Buskist et al., 2016; Ford, 2016). In fact, an emphasis on the professional competency/communication subscale places German student perceptions more in line with Chinese student perceptions (Liu et al., 2015).

Faculty Comparisons Using the TBC

Foreign and U.S.-Educated Faculty

To expand the existing research related to faculty responses to the TBC, Ismail (2014) compared foreign-educated faculty's and U.S.-educated faculty's perceptions of master teaching. Participants (n = 448) were recruited from 14 member-schools of the Southern Regional Education Board (SREB). Responses to demographic questions indicated that 309 (69%) respondents were U.S.-educated (received their undergraduate degree in the U.S.), and 139 (31%) received were foreign-educated (received their undergraduate degree abroad). Participants were prompted to rank only the top ten TBC qualities, where number one was considered the most important quality and number ten the least important quality.

Results indicated that U.S.- and foreign-educated faculty agreed on nine of the top ten TBC items: (1) knowledgeable; (2) enthusiasm; (3) creative/interesting; (4) promotes critical thinking; (5) effective communicator; (6) approachable/personable; (7) encourages/cares for students; (8) manages class time; and (9) accessible (Ismail, 2014). On each list the qualities knowledgeable and enthusiasm were ranked number one and two. U.S.-educated faculty

concluded their list with the quality promotes discussion, while foreign-educated faculty concluded with the quality confident. Chi-squared analysis determined statistically significant differences between faculty groups on several qualities. The qualities confident ($p = .009$), effective communicator ($p = .043$), encourages/cares for students ($p = .008$), and happy/positive/humorous ($p = .025$) were rated higher by foreign-educated faculty. The qualities enthusiastic ($p = .008$) and respectful ($p = .023$) were rated higher by U.S.-educated faculty.

Ismail (2014) also compared faculty across disciplines, dividing them between STEM and Social Sciences. The two groups agreed on eight of the top ten qualities. Once more, the qualities knowledgeable and enthusiasm were ranked first and second on both lists. The remaining six qualities were as follows: (1) creative/interesting; (2) promotes critical thinking; (3) effective communicator; (4) approachable/personable; (5) encourages/cares for students; and (6) punctuality/manages class time. Chi-squared analysis revealed significant differences between the two discipline groups on several items. STEM faculty ranked the following items higher: (1) accessible ($p = .010$); (2) confident ($p = .012$); (3) effective communicator ($p < .001$); (4) happy/positive/humorous ($p = .030$); (5) humble ($p = .001$); and (6) presents current information ($p = .045$). Social Science faculty rated the quality promotes discussion statistically significantly higher than STEM faculty ($p < .001$). Differences were also detected within the U.S.- and foreign-educated groups. Foreign-educated STEM faculty rated the following items higher than their U.S.-educated counterparts: (1) confident ($p = .026$); (2) encourages/cares for students ($p = .006$); and (3) knowledgeable ($p = .025$). Within the Social Sciences, U.S.-educated faculty placed more emphasis on enthusiasm ($p = .002$) and managing class time ($p = .053$).

Faculty at Historically Black Colleges and Universities

McConner (2017) expanded on Ismail's (2014) analysis of faculty perceptions of master teaching by surveying U.S.- and foreign-educated faculty employed in Historically Black Colleges and Universities (HBCUs). Faculty at ten institutions participated for an overall sample size of 543. U.S.-educated faculty constituted 470 of the responses, while foreign-educated faculty constituted the remaining 73 responses. Participants were invited to drag and drop only the ten most important TBC qualities in order from most important to least important, similar to the method used by Ismail (2014).

Results indicated that faculty from both groups agreed on ten of the top ten items, with variation in relative order. The qualities were: (1) knowledgeable (ranked first overall by each group); (2) enthusiastic; (3) approachable/personable; (4) creative/interesting; (5) effective communicator; (6) encourages/cares; (7) promotes critical thinking; (8) accessible; (9) confident; and (10) prepared. McConner (2017) performed Mann-Whitney U tests and determined that only the quality good listener showed a statistically significant difference in ranking between U.S.- and foreign-educated HBCU faculty ($p = 0.041$).

Faculty were also divided into the STEM and Social Sciences categories to examine the effect of discipline on TBC responses. McConner (2017) reported that the two faculty groups agreed on ten of the top ten items: (1) knowledgeable; (2) enthusiastic; (3) effective communicator; (4) creative/interesting; (5) encourages/cares for students; (6) approachable/personable; (7) promotes critical thinking; (8) accessible; (9) confident; and (10) prepared. McConner found that two TBC qualities had statistically significant differences in ranking between the discipline groups. STEM faculty placed more emphasis on the quality encourages/cares for students ($p = 0.016$), while Social Sciences faculty placed more emphasis

on the quality presents current information ($p < 0.001$). Further analysis of discipline effect on U.S.- and foreign-educated faculty rankings showed additional differences. For STEM faculty, statistical significance was found for the quality presents current information; U.S.-educated faculty emphasized the quality more than foreign-educated faculty ($p = 0.044$). Within Social Sciences faculty, three qualities showed significant differences in rank: (1) good listener ($p = 0.034$); (2) promotes discussion ($p = 0.018$); and (4) provides constructive feedback ($p = 0.024$). U.S.-educated faculty emphasized these three qualities more than foreign-educated faculty.

McConner (2017) further analyzed results from HBCU faculty by comparing them to faculty responses found in Ismail (2014). Comparisons of each of the top-ten lists indicated that HBCU faculty and SREB faculty agreed on eight of ten TBC qualities: (1) knowledgeable; (2) enthusiastic; (3) approachable/personable; (4) creative/interesting; (5) effective communicator; (6) encourages/cares; (7) promotes critical thinking; and (8) accessible. The Mann-Whitney U test was again used to analyze differences in item rankings for the common qualities. Analysis revealed that the qualities accessible, approachable/personable, and promotes critical thinking showed statistically significant differences in ranking (ps < 0.05). According to McConner, HBCU faculty emphasized accessible and approachable/personable, while SREB faculty emphasized promotes critical thinking. McConner concluded that across six studies examining faculty perceptions of master teaching using the TBC, the sample groups agreed on five qualities: (1) knowledgeable; (2) enthusiastic; (3) promotes critical thinking; (4) creative/interesting; and (5) approachable/personable.

Master Teachers' Perceptions of Master Teaching

Past studies using the TBC have surveyed samples of faculty drawn from the general population of the profession. Keeley, Ismail, and Buskist (2016) attempted to expand existing

literature by surveying award-winning teachers regarding their perceptions of master teaching using the TBC. Participants (n = 50) were recruited from the field of psychology and had all won at least one national teaching award. Similar to previous studies, these master teachers were prompted to rate each of the 28 TBC qualities to the extent which they were considered important to excellent teaching using a Likert format (1 = not at all important to 10 = highly important). Results from mean ratings indicated the following teaching qualities were rated as the ten most important master teaching qualities: (1) enthusiastic; (2) strives to be a better teacher; (3) creative/interesting; (4) knowledgeable; (5) approachable; (6) effective communicator; (7) respectful; (8) encourages/cares for students; (9) prepared; (10.5) rapport; and (10.5) promotes critical thinking. Qualities rapport and promotes critical thinking were tied at number ten with an average rating of 8.84 (Keeley et al., 2016). The researchers also noted that while most TBC qualities were considered relatively important to master teaching, the quality enthusiasm was rated statistically significantly higher than all other qualities (95% CI = [9.62, 9.90]).

Keeley et al. (2016) compared the mean rankings of TBC qualities across faculty rank by dividing their sample into two groups, full professors and other (to include assistant, associate, or lecturers). The authors found that full professors placed significantly higher emphasis on the following items: (1) effective communicator; (2) good listener; (3) knowledgeable; (4) prepared; (5) provides constructive feedback; (6) punctuality/manages class time; and (7) respectful (all *p*s < 0.05). Compared to other faculty samples, the sample of master teachers showed differences in perceptions of their profession. Teachers in Keeley et al.'s (2016) study included the qualities encourages/cares for students, prepared, and rapport in their top ten, whereas faculty samples from Buskist et al. (2002) and Schaeffer et al. (2003) did not.

Despite the possibility for all TBC items to be rated the same, Keeley et al. (2016) determined that national award-winning teachers could differentiate teaching qualities in terms of importance. Further, the authors found that faculty rank, or experience, affected perceptions of the teaching qualities considered most important to master teaching. Additionally, Keeley et al. (2016) concluded that the top-ten list generated by master teachers overlapped with students from previous studies (Buskist et al., 2002; Keeley et al., 2012; Liu et al., 2015).

Saudi Arabia

In an effort to expand the research on faculty responses to the TBC, Hassan and Ismail (2018) used data gathered from faculty at King Saud University (KSU), Saudi Arabia's largest public university. Drawing from participants from two of KSU's Deanship Skills Development (DSD) program workshops, researchers surveyed faculty regarding their perceptions of excellent teaching. Seventy-four men participated in the research and were asked to place a check-mark next to each item that they felt were "most important for achieving excellent teaching" (p. 76). Faculty indicated the following TBC items as the top-ten most important: (1) knowledgeable; (2) promotes critical thinking; (3) presents current information; (4) enthusiastic; (5) creative/interesting; (6.5) accessible; (6.5) punctuality/manages class time; (8) promotes class discussion; (9) realistic expectations/fair; (10.5) encourages/cares; (10.5) establishes goals; and (10.5) technologically competent.

Hassan and Ismail (2018) offer some insight into each item as it relates to a Middle Eastern faculty sample. Being knowledgeable, they note, was selected by 66.2% of faculty, making it the number-one quality for this sample. Researchers explain that this is no surprise, given that faculty (and students) rate being knowledgeable at or near the top on TBC responses. It should be no shock that it is the highest ranked quality as it is the bedrock of teaching: faculty

must be knowledgeable about their field if they hope to convey accurate information to students, answer questions correctly, explain main ideas, and relate subject-matter to everyday life (Hassan & Ismail, 2018).

The quality promotes critical thinking appears as the second-highest-ranked TBC quality by KSU faculty (54.1%). According to these researchers, the DSD has prioritized active learning in classrooms to increase development of critical thinking skills in students rather than memorization. Faculty may have come to emphasize critical thinking in their classrooms as a result of DSD workshop participation. With 48.6% of faculty selecting it, the quality enthusiasm ranks fourth on the overall top-ten list. Along with knowledgeable, enthusiasm is the second most common TBC quality among faculty samples. An instructor's enthusiasm for teaching is "synergistic and contagious" and can motivate students to engage with class materials (Hassan & Ismail, 2018, p. 78).

Hassan and Ismail (2018) conclude their discussion of this faculty sample's top-ten master teaching qualities with the quality technologically competent (41.9%). Similar to promoting critical thinking, KSU has stressed the importance of understanding educational technology and how it is used to facilitate student learning. Further, the quality does not appear on faculty top-ten lists from faculty from the original TBC study (Buskist et al., 2002), community college faculty (Schaeffer et al., 2003), SREB faculty (Ismail, 2014), pharmacy faculty (Ford, 2016), or military faculty (Soomere et al., 2018; O'Meara, 2007). At KSU, being technologically savvy is an integral part of excellent teaching: the university's Teaching Excellence Award Committee considers it a criterium for their teaching award (Hassan & Ismail, 2018). Clearly, when a certain behavior is stressed, developed, and prized by an institution, faculty will reflect this culture by valuing it in their teaching practice.

Professional Students' Perceptions of Master Teaching

Until recently, the majority of TBC research studies have focused on the perceptions of undergraduate students and faculty teaching at the undergraduate level. Ford's (2016) dissertation focused on the perceptions of Pharm.D. students and pharmacy faculty. Students (n = 213) and faculty (n = 211) were recruited from four pharmacy schools throughout the southeast United States. Participants were asked to complete separate versions of the TBC by choosing the ten teaching qualities essential to master teaching in the context of the pharmacy discipline. The resulting data showed that students and faculty agreed on six of the top ten TBC qualities: (1) knowledgeable; (2) enthusiastic; (3) effective communicator; (4) approachable/personable; (5) respectful; and (6) confident (Ford, 2016). Subsequent ANOVA testing indicated that statistically significant differences existed between student and faculty rankings of the following 15 TBC items: (1) accessible; (2) approachable; (3) creative/interesting; (4) enthusiastic; (5) flexible/open-minded; (6) happy/positive/humorous; (7) prepared; (8) presents current information; (9) professional; (10) promotes class discussion; (11) promotes critical thinking; (12) realistic expectations/fair; (13) sensitive/persistent; (14) strives to be a better teacher; and (15) understanding (all ps < .05).

Examination of faculty rank (full, assistant, associate, other) revealed that faculty agreed on seven of the top ten items: (1) approachable/personable; (2) effective communicator; (3) enthusiastic; (4) knowledgeable; (5) prepared; (6) promotes critical thinking; and (7) strives to be a better teacher. Use of ANOVA tests showed that there were significant differences in ranks of the TBC qualities flexible/open-minded, good listener, and respectful (ps < 0.05). Further, pairwise comparisons detected differences between assistant and associate professors on the

quality good listener and between assistant professors and full professors on the quality provides constructive feedback (Ford, 2016).

Examination of the student sample revealed agreement on eight of the top ten items across student levels (year in school): (1) approachable/personable; (2) confident; (3) effective communicator; (4) enthusiastic; (5) knowledgeable; (6) realistic expectations/fair; (7) respectful; and (8) understanding. ANOVA tests indicated that significant differences existed based on a student's year in their pharmacy program on two TBC items: (1) presents current information (p = .027); and (2) provides constructive feedback (p = .008). Post-hoc testing revealed first and second-year students and second and third-year students differed on the quality provides constructive feedback. Ford (2016) ultimately determined that when ranking qualities and behaviors important to master teaching, students tended to emphasize TBC qualities associated with the caring and supportive subscale, while faculty tended to emphasize TBC qualities associated with the professional competency and communication subscale.

Teacher Behavior Checklist Rating Mechanism

Across 23 TBC studies, four different methods are used. In some instances, participants simply pick the ten most important TBC qualities (Buskist et al., 2002; Ford, 2016; Hassan & Ismail, 2018; Schaeffer et al., 2003; Soomere et al., 2018). Other researchers asked participants to choose the ten most important teaching qualities and rank order them from most to least important (Ismail, 2014; McConner, 2017; Noll, 2017). Vulacano (2007) replicated the original study by asking Canadian undergraduate students to create a list of master teaching qualities similar to the method used by Buskist et al. (2002). Three studies used a hybrid method, pairing a simple choice method with a Likert scale rating (Henklain et al., 2018; Jõemma, 2013) or a group rating method (Mowrer et al., 2004). By far, the most popular method in TBC analysis is

use of a Likert rating method (Donado et al., 2018; J. Keeley et al., 2010; J. Keeley et al., 2006; Keeley et al., 2012; Keeley et al., 2016; Liu et al., 2015, 2016; Liu & Xie, 2018; O'Meara, 2007; Ripoll-Nunez et al., 2018; Zayac & Lenhard, 2018).

Given the wide-ranging methods used to assess student and faculty perceptions of master teaching, one might expect wide variability based on data collection method. In their examination of Japanese and American liberal arts students, Keeley et al. (2012) cautioned that differing methods could confound comparisons between studies. However, Mowrer et al. (2004) conducted similar cross-method comparisons and determined that "consistency continued across different types of rating mechanism" (p. 107). Jõemma (2013) and Henklain et al. (2018) conducted similar cross-method comparisons and came to similar conclusions as Mowrer and colleagues.

Until researchers conduct specific examination of the effects of data rating mechanism on perceptions of master teaching, existing top-ten data must suffice to address this issue. To that point, Buskist and Keeley (2018) provide a comprehensive review of existing TBC studies that may provide foundation for an answer. First, faculty agree across twelve studies that being knowledgeable, enthusiastic, and promoting critical thinking are essential to master teaching. The qualities approachable/personable, creative/interesting, and effective communicator were included in top-ten lists across ten of the twelve studies. Qualities confident, encourages/cares, and respectful appeared in seven of twelve top-ten lists. While no statistical judgement can be made at this time, these data are compelling; Buskist and Keeley describe some these reoccurring TBC qualities as "universal principles" of master teaching (p. 100). For faculty, the first trio are certainly universal principles, while the second trio are very nearly so.

The story is similar for students. TBC quality knowledgeable is in the top ten most important master teacher qualities on all fourteen studies, the only quality to see 100% agreement. Twelve of fourteen studies included the quality enthusiastic in their top-ten lists. Qualities approachable/personable, effective communicator, and realistic expectations/fair were included in eleven studies. Finally, qualities confident and respectful were on nine top-ten lists, while prepared and understanding were on eight. Like faculty, students consider knowledge a universal principle of master teaching and enthusiasm nearly so. According to Buskist and Keeley, knowledgeable and enthusiastic are the two most agreed-upon items between faculty and students and are considered universal principles across groups. Over two-thirds of students and nearly 90% of faculty included approachable/personable and effective communicator on top-ten lists, making them "near-universal" (p. 103).

With these data in mind and given the consistency between faculty and student perceptions of master teaching, it seems reasonable to conclude that survey methods have not affected TBC responses. Whether choosing a top-ten, ranking a top-ten, rating each TBC quality, or a combination of the three, faculty and students show remarkable consistency within and between groups, making the TBC a robust instrument across its many forms.

CHAPTER 3: Methods

Introduction

Graduate school enrollment and the number of degrees conferred have grown in the last two decades (Okahana et al., 2016). Estimates of projected masters and doctoral degrees conferred suggest that by the academic year 2023-2024 the number of awarded masters and doctoral degrees will exceed one million and two-hundred thousand, respectively (Hussar & Bailey, 2016). As a result of this growth, graduate programs will become the focus of increasing public scrutiny much the same way that undergraduate programs are scrutinized for value. Such scrutiny will likely be focused on the teaching effectiveness of graduate level professors and the extent to which they are creating successful learning environments for graduate students. To continue fostering successful learning and strengthening teaching effectiveness at the graduate level, researchers and professors must possess a deeper understanding of the qualities and behaviors that graduate students consider essential to effective teaching at the graduate level. When an instructor understands how a student learns best, they may adapt teaching to increase learning potential (Cassidy, 2004; Romanelli et al., 2009) and an understanding and communication of effective teaching behaviors may also aid in developing teaching excellence at the graduate level (Ford, 2016).

Purpose of the Study

The purpose of this study was to examine graduate students' perceptions of teaching excellence by identifying qualities and behaviors exhibited by master teachers. The study compared graduate students enrolled in the Auburn University Graduate School for the Spring

2018 semester. Students were compared based on age, degree sought, year of study, academic discipline, and what level of teaching experience they had at the time of the survey. This study seeks to expand the current body of knowledge regarding teaching excellence to a broader graduate student sample.

Research Questions

1. What Teacher Behavior Checklist qualities and behaviors do graduate students perceive master teachers exhibit most?
2. Do graduate students rate teaching qualities and behaviors associated with the caring/supportive or professional competency/communication subscales differently based on academic demographic variables (degree type, age, years pursuing degree, foreign or U.S. undergraduate, teaching experience, academic discipline)?
3. Do graduate students rate teaching qualities and behaviors similarly based on academic demographic variables (degree type, age, years pursuing degree, foreign or U.S. undergraduate, teaching experience, academic discipline)?
4. What similarities or differences exist between graduate student responses and undergraduate student responses from prior research using the Teacher Behavior Checklist?

Research Design

This study attempted to identify graduate students' perceptions of the qualities and behaviors essential to master teaching. A survey research design was determined to be the most effective method for gathering responses from students. Participants were asked to rate each TBC item using a Likert format on the extent to which a master teacher displayed each quality (1 = never exhibits this quality to 5 = frequently exhibits this quality). Participants were also asked

to respond to academic demographic questions (degree type, age, years in school, foreign or U.S. undergraduate education, reported level of teaching experience, and academic discipline). Effects of gender and race/ethnicity were not examined in this study given that each have been examined in depth by previous researchers. These previous studies are divided on the effects of gender on perceptions of master teaching, with some finding no statistically significant effects (Buskist et al., 2002; Jõemaa, 2013; Mowrer, Love, & Orem, 2004; O'Meara, 2007; Schaeffer et al., 2003), and those determining statistically significant effects (Donado et al., 2018; Ford, 2016; Liu & Xie, 2018; Noll, 2017; Zayac & Lenhard, 2018). Further studies have examined the effects of race/ethnicity on perceptions of master teaching (Ford, 2016; McConner, 2017; Noll, 2017). The TBC survey was administered to participants via email using Qualtrics software.

Instrument

The Teacher Behavior Checklist (Appendix A) is a 28-item survey first used to determine the qualities and behaviors of master teaching (Buskist et al., 2002). The instrument was assessed in two studies and found to be a psychometrically sound instrument with high internal reliability and test-retest reliability from prior research using the TBC (Keeley et al., 2006). These researchers reported Pearson correlation coefficients (r) between .24 and .64 for the 28 TBC items ($p < .001$ for 19 items). Slope scores were also positive for all items (between .22 and .57, ps $< .001$).

Further analysis determined the TBC consists of two subscales: caring/supportive subscale and professional competency/communication subscale. Pearson coefficients were .68 ($p < .001$) for the caring/supportive subscale and .72 ($p < .001$) for the professional competency/communication subscale. The subscales had slopes of .57 and .71 (ps $< .001$), respectively. Researchers have successfully adapted the TBC into a Likert format (Donado et al.,

2018; Henklain et al., 2018; Jõemma, 2013; Keeley et al., 2012; Keeley et al., 2016; Liu et al., 2015; Liu et al., 2016; Liu & Xie, 2018; Ripoll-Nunez et al., 2018; Zayac & Lenhard, 2018). The Likert adaptation of the TBC was used in this study to allow for a more detailed analysis (J. Keeley, personal communication, October 15, 2017).

The electronic survey used in this study (Appendix B) consisted of two sections. The first section consisted of the Teacher Behavior Checklist, where participants were asked to rate each item using a Likert scale on the extent to which master teachers displayed each quality (1 = never exhibits this quality to 5 = frequently exhibits this quality). Item anchors were kept the same from previous studies (Keeley et al., 2012; Liu et al., 2015; Liu et al., 2016). Students were also asked if there were any qualities or behaviors they would add to the list. The second section contained demographic questions, where participants were asked to identify the following: age, years spent pursuing their current degree, whether they obtained their undergraduate degree from a U.S. or foreign institution, type of degree sought, academic discipline, and level of teaching experience. As many researchers have analyzed the effects of gender (Donado et al., 2018; Ford, 2016; Ismail, 2014; Jõemaa, 2013; Liu & Xie, 2018; Mowrer et al., 2004; Noll, 2017; O'Meara, 2007; Schaeffer et al., 2003; Zayac & Lenhard, 2018) and race/ethnicity (Ford, 2016; McConner, 2017; Noll, 2017) these two variables were not examined in this study.

Participants

The sample for this study consisted of graduate students enrolled in graduate degree programs at Auburn University. Due to FERPA concerns and privacy issues, the researcher collaborated with university administration to ensure participant anonymity. Administrative officials distributed the survey to students.

Data Collection and Procedures

The research was approved by Auburn University IRB (IRB # 17-453 EX 1711). Approval forms are displayed in Appendix C. Surveys were distributed to graduate students by the Auburn University Graduate school. Surveys were distributed via email. Participation was anonymous. Participants had the option to exit the survey at any time. Data were collected from participants during the Spring 2018 semester. Data were downloaded from Qualtrics and analyzed using IBM SPSS Statistics 25.

In the Spring 2018 semester, Auburn University's Office of Institutional Research reported a graduate enrollment of 2,574 masters students, and 1,642 Doctoral students. This survey yielded a total of 382 responses (estimated response rate of 9.1%). Data were cleaned, resulting removal of 20 responses. Four cases were removed because respondents provided no academic demographics and 16 removed based on a combination of non-differentiation and speeding (Huang, Curran, Keeney, Poposki, & DeShon, 2012; Malhotra, 2008).

Of the 362 usable responses, 190 reported their age between 20 and 29 years (52.5%), 92 reported their age between 30 and 39 years (25.4%), 48 reported their age between 40 and 49 years (13.3%), and 28 reported their age as 50+ years (7.7%). Four respondents did not indicate their age (1.1%). The age distribution of this sample is congruent with the larger sample of graduate students. The majority of students are distributed in the 20-29 age range with numbers in the sample gradually decreasing as age increases. Three-hundred and twenty-seven respondents reported pursuing their degree between 1 and 4 years (90.3%), and 35 respondents reported pursuing their degree 5+ years (9.7%).

Three-hundred and twenty-six respondents reported receiving their undergraduate degree from a U.S.-based institution (90.1%), and 36 respondents reported receiving their undergraduate

degree from an international-based institution (9.9%). The breakdown of this sample is by and large congruent with larger graduate student population as students from the U.S. make up the overwhelming majority of graduate students. One-hundred and sixty-six respondents reported that they were pursuing a masters degree (45.9%), and 193 students reported pursuing a Ph.D. (53.3%). Three respondents did not report a degree type (0.8%). Respondents pursuing a Ph.D. represented a higher percentage of respondents in this sample than in the larger graduate student population at Auburn University (38%), while respondents pursuing a masters degree represented a lower percentage of respondents in this sample than in the larger graduate students sample (61%).

Respondents were asked to indicate their academic discipline. Responses were divided into two groups similar to the method used by McConner (2017) and Ismail (2014). Students indicated their enrollment in STEM disciplines (those that were related to the sciences, technologies, engineering, or mathematics fields), or Non-STEM disciplines (social sciences and humanities fields such as education, history, psychology, business, and others). A total of 135 graduate students reported being enrolled in a STEM discipline (37.3%), while 219 graduate students reported being enrolled in a Non-STEM discipline (60.5%). Eight respondents did not indicate their academic discipline (2.2%). The discipline distribution in this sample mirrors the discipline distribution in the larger graduate student population with students in Non-STEM fields representing a larger percent than students in STEM fields. When selecting a category that best described the respondent's teaching experience, 80 students reported having no teaching experience, or None (22.1%). Eighty students reported their experience at the Elementary/Secondary level (22.1%). Two-hundred students reported teaching experience at the

College/University level (55.2%). Two respondents did not indicate their level of teaching experience (0.6%).

Table 3.1 Respondents' Demographic Statistics

				N/A	%
		n	**%**	**n**	**%**
Degree Type	Masters	166	45.9	3	0.8
	Ph.D.	193	53.3		
Age	20 - 29	190	52.5	4	1.1
	30 – 39	92	25.4		
	40 – 49	48	13.3		
	50+	28	7.7		
Years Pursuing Degree	1 – 4	327	90.3		
	5+	35	9.7		
Foreign or U.S. Undergraduate Education	U.S.-based Institution	326	90.1		
	International-based Institution	36	9.9		
Reported Teaching Experience	None	80	22.1	2	0.6
	Elementary/Secondary	80	22.1		
	College/University	200	55.2		
Academic Discipline	STEM	135	37.3	8	2.2
	Non-STEM	219	60.5		

Data Analysis

Research Question 1

To determine the master teaching qualities and behaviors that graduate students considered essential, the weighted mean rating was calculated for each TBC item. Items were rank ordered according to mean rating, and a top-ten list was generated for the graduate student sample. Descriptive statistics were used to determine the teaching qualities that graduate students considered essential to master teaching. Within-subjects analysis of variance (ANOVA) was used to analyze differences in mean rating of items (Fraenkel, Wallen, & Hyun, 2012; Judd, McClellend, & Ryan, 2011).

Research Question 2

Teacher Behavior Checklist items were collapsed into the caring/supportive and professional competency/communication subscales (Keeley et al., 2006) and mean ratings for the subscales were calculated for each respondent. MANOVA was used to compare means for the demographic groups (age, years pursuing degree, U.S.- or foreign-based undergraduate institution, academic discipline, type of degree sought, and teaching experience). Bonferroni post-hoc tests were used to determine differences between groups within variables, when applicable.

Research Question 3

For the demographic groups (degree type, age, years pursuing degree, foreign or U.S. undergraduate education, reported teaching experience, and academic discipline) means for each TBC item were compared using multivariate analysis of variance (MANOVA). MANOVA analysis is used when more than one dependent variable is present and when those dependent variables are correlated (Emerson, 2018; Smith, Gnanadesikan, & Hughs, 1962; Warne, 2014). Bonferroni post-hoc tests were used to determine differences between groups within variables, when applicable.

Research Question 4

To answer research question four, descriptive comparisons were made between the graduate student top-ten list and top-ten lists from previous studies (Keeley et al., 2012; Liu et al., 2016; Ripoll-Nunez et al., 2018). These studies were chosen due to their similarity in survey method to the current study. Data were also compared to data from the original undergraduate study performed by Buskist et al. (2002) and the first replication performed by Schaeffer et al. (2003).

Limitations

Online distribution of surveys allows for efficient collection of data (Dillman, 2006). However, online surveys typically yield low response rates compared to in-person distribution (Nulty, 2008). Response rates for the current study would likely have improved had survey distribution been executed using hard-copy surveys similar to other instances of TBC data collection (Buskist et al., 2002; Liu et al., 2015; Liu et al., 2016; Schaeffer et al., 2003). Additionally, access to graduate student participants was limited due to FERPA guidelines. Students were contacted though an official invitation from the Auburn University Graduate School to protect the privacy of potential respondents. A final limitation that must be considered relates to the data collection mechanism, the Likert scale. According to Keeley et al. (2016), who surveyed master teachers, the Likert rating mechanism could result in all items being rated the same. However, master teachers in that study were able to differentiate items in terms of importance, as were graduate students in the current study.

Summary

This chapter outlined the current study's research design, data collection, and analysis. Sample participants consisted of graduate students enrolled in classes at Auburn University during the Spring 2018 semester. The Likert adaptation of the TBC was used to collect responses and participants also provided answers to academic demographic questions. Participant demographics were reported, and analysis of the results are presented in Chapter 4.

CHAPTER 4: Results

Introduction

Graduate school enrollment and the number of degrees conferred have grown in the last two decades (Okahana et al., 2016). Estimates of projected masters and doctoral degrees conferred suggest that by the academic year 2023-2024 the number of awarded masters and doctoral degrees will exceed one million and two-hundred thousand, respectively (Hussar & Bailey, 2016). As a result of this growth, graduate programs will become the focus of increasing public scrutiny much the same way that undergraduate programs are scrutinized for value. Such scrutiny will likely be focused on the teaching effectiveness of graduate level professors and the extent to which they are creating successful learning environments for graduate students. To continue fostering successful learning and strengthening teaching effectiveness at the graduate level, researchers and professors must possess a deeper understanding of the qualities and behaviors that graduate students consider essential to effective teaching at the graduate level. When an instructor understands how a student learns best, they may adapt teaching to increase learning potential (Cassidy, 2004; Romanelli et al., 2009) and an understanding and communication of effective teaching behaviors may also aid in developing teaching excellence at the graduate level (Ford, 2016).

Purpose of the Study

The purpose of this study was to examine graduate students' perceptions of teaching excellence by identifying qualities and behaviors exhibited by master teachers. The study compared graduate students enrolled in the Auburn University Graduate School for the Spring

2018 semester. Students were compared based on age, degree sought, year of study, academic discipline, and what level of teaching experience they had at the time of the survey. This study seeks to expand the current body of knowledge regarding teaching excellence to a broader graduate student sample.

Research Questions

1. What Teacher Behavior Checklist qualities and behaviors do graduate students perceive master teachers exhibit most?
2. Do graduate students rate teaching qualities and behaviors associated with the caring/supportive or professional competency/communication subscales differently based on academic demographic variables (degree type, age, years pursuing degree, foreign or U.S. undergraduate, teaching experience, academic discipline)?
3. Do graduate students rate teaching qualities and behaviors similarly based on academic demographic variables (degree type, age, years pursuing degree, foreign or U.S. undergraduate, teaching experience, academic discipline)?
4. What similarities or differences exist between graduate student responses and undergraduate student responses from prior research using the Teacher Behavior Checklist?

Sample Demographic Results

Table 4.1 includes full demographic results for the graduate student sample (n = 362). Doctoral students made up the majority of the sample (n = 193). Most graduate students reported their age within the 20 – 29 age group (n = 190). Students were asked to indicate how many years they had been pursuing their degree; students in the 1 – 4 years group (n = 327) outnumbered those in the 5+ years group (n = 35). The vast majority of respondents received

their undergraduate education from an institution within the U.S. (n = 326) compared to students with an international undergraduate education (n = 36). With respect to teaching experience, graduate student respondents mainly reported teaching experience at the College/University level (n = 200), while those indicating None (n = 80) or Elementary/Secondary (n = 80) were split evenly. Finally, graduate students in Non-STEM disciplines (n = 219) outnumbered those in STEM disciplines (n = 135).

Table 4.1 Sample Demographic Results

				N/A	%
		n	**%**	**n**	**%**
Degree Type	Masters	166	45.9	3	0.8
	Ph.D.	193	53.3		
Age	20 - 29	190	52.5	4	1.1
	30 – 39	92	25.4		
	40 – 49	48	13.3		
	50+	28	7.7		
Years Pursuing Degree	1 – 4	327	90.3		
	5+	35	9.7		
Foreign or U.S. Undergraduate Education	U.S.-based Institution	326	90.1		
	International-based Institution	36	9.9		
Reported Teaching Experience	None	80	22.1	2	0.6
	Elementary/Secondary	80	22.1		
	College/University	200	55.2		
Academic Discipline	STEM	135	37.3	8	2.2
	Non-STEM	219	60.5		

Analysis

Research Question One

Research question one was stated as, what are the TBC qualities and behaviors that graduate students considered essential? Mean ratings were used to order the 28 qualities and behaviors from highest to lowest. The top-ten qualities for the entire sample of graduate students are as follows: (1) knowledgeable; (2) enthusiastic; (3) respectful; (4) confident; (5) effective

communicator; (6) promotes critical thinking; (7) provides constructive feedback; (8) good listener; (9) prepared; and (10) realistic expectations/fair. Table 4.2 displays the overall mean and rank of each TBC quality.

Table 4.2 Overall Mean Ratings for TBC Qualities and Behaviors

	Total	
	Mean	**Rank**
Knowledgeable	4.67	1
Enthusiastic	4.57	2
Respectful	4.55	3
Confident	4.50	4
Effective Communicator	4.48	5
Promotes Critical Thinking	4.42	6
Provides Constructive Feedback	4.42	7
Realistic Expectations/Fair	4.36	8
Good Listener	4.36	9
Prepared	4.36	10
Understanding	4.34	11
Approachable/Personable	4.33	12
Strives to Be a Better Teacher	4.32	13
Punctuality/Manages Class Time	4.31	14
Presents Current Information	4.27	15
Flexible/Open-Minded	4.24	16
Accessible	4.23	17
Humble	4.23	18
Promotes Discussion	4.22	19
Encourages/Cares	4.19	20
Creative/Interesting	4.12	21
Establishes Goals	4.10	22
Rapport	4.07	23
Sensitive/Persistent	4.01	24
Happy/Positive/Humorous	3.96	25
Technologically Competent	3.94	26
Authoritative	3.78	27
Professional	3.73	28

Within-subjects analysis of variance (ANOVA) was used to analyze differences in mean ratings between TBC items allowing the researcher to determine relative distance between items and whether that distance is statistically significant. Mauchly's test was significant, χ^2 (377) = 1,727.334, $p < 0.001$. Using Greenhouse-Geisser correction, significant differences were detected in TBC item ratings, $F(17.9, 6{,}432.3) = 39.59$, $p < 0.001$. Pairwise comparisons are reported in Table 4.3 below.

Table 4.3 Pairwise Differences in Item Ranking for Graduate Student Sample

TBC Quality	**Mean**	**Std. Deviation**	**Pairwise**
1. Accessible	4.23	0.841	> 3; 12; 17; 25; 27
			< 4; 6; 8; 14; 24
2. Approachable/Personable	4.33	0.760	> 3; 5; 9; 12; 17; 22; 25; 27
			< 4; 8; 14; 24
3. Authoritative	3.78	0.964	< 4; 5; 6; 7; 8; 9; 10; 11; 13; 14; 15; 16; 18; 19; 20; 21; 22; 23; 24; 25; 26; 28
4. Confident	4.50	0.676	> 5; 7; 9; 10; 12; 13; 16; 17; 18; 21; 22; 25; 27
			< 14
5. Creative and Interesting	4.11	0.917	> 17
			< 6; 8; 11; 14; 15; 19; 20; 23; 24; 26; 28
6. Effective Communicator	4.48	0.712	> 7; 9; 10; 12; 13; 16; 17; 18; 22; 25; 27
			< 14
7. Encourages/Cares	4.19	0.967	> 12; 17; 25; 27
			< 8; 14; 19; 20; 24
8. Enthusiastic	4.57	0.672	> 9; 10; 11; 12; 12; 13; 15; 16; 17; 18; 21; 22; 23; 25; 26; 27; 28
9. Establishes Goals	4.09	0.927	> 17
			< 11; 14; 15; 19; 20; 21; 23; 24; 26; 28
10. Flexible/Open-Minded	4.24	0.836	> 12; 17; 25; 27
			< 14; 24
11. Good Listener	4.36	0.773	> 12; 17; 22; 25; 27
			< 14; 24
12. Happy/Positive/Humorous	3.96	0.835	< 13; 14; 15; 16; 18; 19; 20; 21; 23; 24; 26; 27
13. Humble	4.24	0.892	> 17; 25; 27
			< 14; 24
14. Knowledgeable	4.67	0.618	> 15; 16; 17; 18; 19; 20; 21; 22; 23; 25; 26; 27; 28
15. Prepared	4.35	0.769	> 17; 22; 25; 27

			< 24
16. Presents Current Information	4.26	0.864	> 17; 25; 27
			< 24
17. Professional	3.74	1.047	< 18; 19; 20; 21; 22; 23; 24; 25; 26; 28
18. Promotes Class Discussion	4.22	0.859	> 25; 27
			< 19; 20; 24
19. Promotes Critical Thinking	4.42	0.834	> 22, 25, 27
20. Provides Constructive Feedback	4.42	0.817	> 22; 25; 27
21. Punctuality/Manages Class Time	4.31	0.849	> 22; 25; 27
			< 24
22. Rapport	4.07	0.899	< 23; 24; 26; 28
23. Realistic Expectations/Fair	4.36	0.826	> 25; 27
24. Respectful	4.55	0.781	> 25; 26; 27; 28
25. Sensitive/Persistent	4.01	0.906	< 26; 28
26. Strives to Be a Better Teacher	4.32	0.968	> 27
27. Technologically Competent	3.94	0.958	< 28
28. Understanding	4.34	0.790	> 3; 5; 9; 12; 17; 22; 25; 27
			< 8; 14; 24

all *ps* < .05

Results from the ANOVA confirm that there are significant differences in item ratings among the TBC qualities. For instance, TBC quality knowledgeable (listed in alphabetical order as number fourteen) was the highest rated of the twenty-eight qualities (M = 4.67) from Table 4.2. Further, knowledgeable was also rated statistically significantly higher than all other qualities except enthusiastic (M = 4.57) and respectful (M = 4.55). At the bottom end of Table 4.2 the trend is a similar one: TBC qualities happy/positive/humorous (M = 3.96) and technologically competent (M = 3.94) were rated statistically significantly lower than all items with a mean rating of 4.19 or higher. The two lowest ranked TBC qualities, authoritative (M = 3.78) and professional (M = 3.73) were rated statistically significantly lower than all items with a mean rating of 4.07 or higher.

Research Question Two

Research question two asked, do graduate students rate teaching qualities and behaviors associated with the caring/supportive or professional competency/communication subscale differently? Items were collapsed into the subscales established by Keeley, et al. (2006), caring/supportive (items 26, 20, 25, 22, 7, 10, 18, 28, 23, 1, 19, 13, and 8) and professional competency/communication (items 4, 6, 14, 3, 12, 27, 15, 2, 24, 21, and 11). Reliability ratings were .68 ($p < .001$) for the caring/supportive subscale and .72 ($p < .001$) for the professional competency/communication subscale. A mean rating was calculated in SPSS for respondents on each subscale. As a sample, graduate students emphasized the professional competency/communication subscale (M = 4.29) over the caring/supportive subscale (M = 4.28). Differences in subscale ratings were examined across the academic demographic variables.

Degree Type

Mean ratings for each subscale were calculated for Masters students and Ph.D. students. Masters students emphasized the professional competency/communication subscale (M = 4.36) over the caring/supportive subscale (M = 4.30). Doctoral students emphasized the caring/supportive subscale (M = 4.25) over the professional competency/communication subscale (M = 4.23). Masters students reported higher means for both subscales.

Multivariate analysis of variance was used to assess differences between degree types on the two dependent variables. Box-M test were not significant ($p = .662$), indicating homogeneity of covariance. Multivariate tests were significant, indicating the presence of significant differences, $F(2, 356) = 4.477$, $p = .012$, $\eta^2 = .025$. Tests between Masters and Ph.D. students revealed a significant difference on the professional competency/communication subscale, $F(1, 357) = 5.473$, $p = 0.020$, partial $\eta^2 = .015$. There was no significant difference found between

Masters and Ph.D. students' ratings of the caring/supportive subscale, $F(1, 357) = .588$, $p = 0.444$. Table 4.4 displays subscale mean ratings for Masters and Ph.D. students.

Table 4.4 Differences in Subscale Rating by Degree Type

	Masters (n = 166)		**Ph.D. (n = 193)**		
	Mean	Std. Deviation	Mean	Std. Deviation	*F*
Caring/Supportive	4.30	0.58163	4.25	0.51555	0.588
Professional Competency/Communication	4.36	0.55154	4.23	0.50307	5.473*

*$p < .05$

Age

Mean ratings for each subscale were calculated for the four age groups. Ratings for the caring/supportive subscale were higher for students in the two older age groups. Students in the 40 – 49 and 50+ age groups had average ratings of 4.42 and 4.38, respectively. Students in the 20 – 29 and 30 – 39 age groups had average ratings of 4.25 and 4.26, respectively. For the professional competency/communication subscale, the same trend emerged. Students in the 40 – 49 and 50+ age groups assigned average ratings of 4.48 and 4.49, respectively. Students in the 20 – 29 and 30 – 39 age groups each assigned an average rating of 4.24.

Multivariate analysis of variance was used to assess differences between subscale ratings for each of the age groups. Box-M test results were significant ($p = .004$). Multivariate tests indicated that significant differences were present, $F(6, 708) = 2.524$, $p = .020$, $\eta^2 = .021$. Univariate testing (Table 4.5) revealed a significant difference was present for the professional competency/communication subscale, $F(3, 354) = 4.369$, $p = .005$, $\eta^2 = .036$. No significant difference was found for the caring/supportive subscale, $F(3, 354) = 1.45$, $p = 0.228$.

Table 4.5 Differences in Subscale Rating by Age

	20 – 29 (n = 190)		30 – 39 (n = 92)		40 – 49 (n = 48)		50+ (n = 28)		
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation	*F*
Caring/Supportive	4.25	0.59112	4.26	0.55567	4.42	0.45928	4.38	0.53660	1.450
Professional Competency/Communication	4.24	0.54987	4.24	0.47807	4.48	0.41985	4.49	0.37866	4.369*

*$p < .01$

Bonferroni post-hoc tests (Table. 4.6) were used to examine differences between age groups for the professional competency/communication subscale.

Table 4.6 Subscale Post-hoc Tests for Students by Age

Pairings		Mean Difference	Significance
20 - 29	40 - 49	-0.2309	0.029

Only age groups 20 – 29 and 40 – 49 showed significantly different ratings for the professional competency/communication subscale. Students in the 20 – 29 age group placed less emphasis on the professional competency/communication subscale than students in the 40 – 49 age group. This suggests that a student's age affects their perceptions of the qualities and behaviors a graduate level instructor should be exhibiting in the context of classroom instruction. Interestingly, the fact that no significant differences existed between age groups for the caring and supportive subscale suggests that, generally, graduate students in this sample agree on the qualities and behaviors that faculty ought to be exhibiting in the context of student-faculty interaction.

Years Pursuing Degree

Subscale means were compared for the variable years pursuing degree. Students pursuing their degree for five or more years (5+ group) emphasized the caring/supportive subscale (M =

4.35) more so than students in the 1 – 4 years category (M = 4.27). Students in the 5+ group also emphasized the professional competency/communication subscale (M = 4.31) more so than students in the 1 – 4 years group (M = 4.39).

Multivariate analysis of variance was used to compare means between the two groups. Box-M test results were not significant (p = .272). Multivariate tests were not significant, F(2, 359) = 0.592, p = 0.554, partial η^2 = 0.003. Results (Table 4.6) indicated that no significant differences were present on subscale ratings between students based on how long they had been pursuing their graduate degree.

Table 4.7 Differences in Subscale Rating by Years Pursing Degree

	1 – 4 (n = 327)		**5+ (n = 35)**		
	Mean	Std. Deviation	Mean	Std. Deviation	*F*
Caring/Supportive	4.27	0.57155	4.35	0.49968	0.602
Professional Competency/Communication	4.29	0.51256	4.31	0.49797	0.028

Foreign or U.S. Undergraduate Education

Means for each subscale were calculated for foreign- and U.S.-educated graduate students. Foreign-educated graduate students emphasized the professional competency/communication subscale (M = 4.19) over the caring/supportive subscale (M = 4.14). U.S.-educated graduate students rated the subscales similarly. This group also emphasized the professional competency/communication subscale (M = 4.30) over the caring/supportive subscale (M = 4.29).

Multivariate analysis of variance was used to analyze differences between groups for the dependent variables. Box-M test results were significant (p = .026) and multivariate tests were not significant, ultimately indicating that there was no significance between the groups of

graduate students on subscale ratings, $F(2, 359) = 1.169$, $p = .312$, partial $\eta^2 = .006$. Table 4.7 displays subscale means for the two groups of students.

Table 4.8 Differences in Subscale Rating by Undergraduate Degree Location

	U.S.-Based Institution (n = 326)		**International-based Institution (n = 36)**		
	Mean	Std. Deviation	Mean	Std. Deviation	*F*
Caring/Supportive	4.29	0.54134	4.14	0.74060	2.321
Professional Competency/Communication	4.30	0.48850	4.19	0.67785	1.725

Reported Teaching Experience

Mean ratings for subscales were calculated for the three experience groups. Graduate students reporting no teaching experience emphasized the professional competency/communication subscale (M = 4.34) over the caring/supportive subscale (M = 4.27). Graduate students reporting teaching experience at the Elementary/Secondary level emphasized the caring/supportive subscale (M = 4.41) over the professional competency/communication subscale (M = 4.37). Graduate students reporting College/University teaching experience emphasized the professional competency/communication subscale (M = 4.24) over the caring/supportive subscale (M = 4.23).

Multivariate analysis of variance was used to examine mean differences. Box-M test results were not significant ($p = .084$) and multivariate tests were also not significant, $F(4, 712) = 2.238$, $p = .063$, partial $\eta^2 = .012$. These results indicate that there are no significant differences between teaching experience groups on mean ratings of the caring/supportive subscale, $F(2, 357) = 2.878$, $p = .058$, partial $\eta^2 = .016$, or the professional competency/communication subscale,

$F(2, 357) = 2.331$, $p = .099$, partial $\eta^2 = .013$. Table 4.8 displays subscale means for the three groups of students.

Table 4.9 Differences in Subscale Rating by Teaching Experience

	None (n = 80)		Elementary/Secondary (n = 80)		College/University (n = 200)		
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation	*F*
Caring/Supportive	4.28	0.59757	4.41	0.47727	4.23	0.57641	2.878
Professional Competency/Communication	4.34	0.49349	4.37	0.43413	4.24	0.54059	2.331

Academic Discipline

Mean ratings for subscales were calculated for students reporting enrollment in STEM degree fields and Non-STEM degree fields. Graduate students in STEM disciplines emphasized the professional competency/communication subscale (M = 4.22) over the caring/supportive subscale (M = 4.18). Graduate students in Non-STEM disciplines emphasized the caring and supportive subscale (M = 4.36) over the professional competency/communication subscale (M = 4.35).

Multivariate analysis of variance was used to examine mean differences. Box-M test results were not significant ($p = .171$). Multivariate test results indicated significant differences in subscale ratings were present, $F(2, 351) = 4.351$, $p = .014$, partial $\eta^2 = .024$. A significant difference was found between STEM and Non-STEM discipline groups on the caring/supportive subscale, $F(1, 352) = 8.681$, $p = .003$, partial $\eta^2 = .0124$. Non-STEM discipline students emphasized the subscale more so than STEM students did. Significant differences were also found between groups on the professional competency/communication subscale, $F(1, 352) =$

4.882, $p = 0.028$, partial $\eta^2 = .014$. Once more, students in Non-STEM degree programs emphasized the subscale more so than students in STEM degree programs did. Table 4.9 displays subscale means for the two groups of students.

Table 4.10 Differences in Subscale Rating by Discipline

	STEM (n = 135)		**Non-STEM (n = 219)**		
	Mean	Std. Deviation	Mean	Std. Deviation	*F*
Caring/Supportive	4.18	0.58488	4.36	0.52616	8.681**
Professional Competency/Communication	4.22	0.54938	4.35	0.47470	4.882*

*$p < .05$, **$p < .01$

Research Question 3

Research question three was stated as, do graduate students rate teaching qualities and behaviors similarly based on different academic variables? These variables were degree type (Masters or Ph.D.), age, years pursuing degree, foreign or U.S. undergraduate education, reported teaching experience, and academic discipline.

Degree Type

Mean ratings were calculated for Masters and Ph.D. students. The two groups of graduate students agreed on seven of the top ten qualities: (1) knowledgeable; (2) enthusiastic; (3) respectful; (4) confident; (5) effective communicator; (6) promotes critical thinking; and (7) provides constructive feedback. Masters students concluded their top-ten with the following qualities: (1) good listener; (2) approachable/personable; and (3) understanding. Doctoral students concluded their top-ten with the following qualities: (1) prepared; (2) strives to be a better teacher; and (3) realistic expectations/fair. Results from Box-M test were significant ($p < .001$) indicating heterogeneity of covariance. Multivariate tests were not significant, Pillai's

Trace, $F(28, 328) = 1.451$, $p = .069$, partial $\eta^2 = 0.110$. No statistically significant differences were determined in item rating between Masters and Ph.D. students. Table 4.10 displays mean ratings for each TBC quality.

Table 4.11 Differences in Item Rating by Degree Type

	Masters (n = 166)		**PHD (n = 193)**		
	Mean	Std. Deviation	Mean	Std. Deviation	*F*
Accessible	4.35	0.801	4.13	0.865	6.166
Approachable/Personable	4.39	0.771	4.27	0.75	2.532
Authoritative	3.99	0.876	3.61	1.007	14.118
Confident	4.56	0.675	4.44	0.676	2.565
Creative/Interesting	4.12	0.965	4.10	0.878	0.028
Effective Communicator	4.52	0.695	4.43	0.728	1.199
Encourages/Cares	4.19	0.997	4.19	0.947	0.000
Enthusiastic	4.62	0.61	4.52	0.723	1.856
Establishes Goals	4.09	0.929	4.09	0.931	0.001
Flexible/Open-Minded	4.30	0.828	4.18	0.844	1.823
Good Listener	4.42	0.79	4.30	0.759	2.406
Happy/Positive/Humorous	4.04	0.858	3.89	0.817	3.129
Humble	4.23	0.96	4.24	0.836	0.023
Knowledgeable	4.72	0.613	4.63	0.626	1.667
Prepared	4.35	0.794	4.35	0.751	0.002
Presents Current Information	4.33	0.849	4.20	0.878	1.829
Professional	3.99	0.947	3.52	1.083	19.429
Promotes Class Discussion	4.24	0.856	4.19	0.866	0.361
Promotes Critical Thinking	4.44	0.791	4.39	0.873	0.340
Provides Constructive Feedback	4.38	0.894	4.44	0.75	0.490
Punctuality/Manages Class Time	4.34	0.845	4.28	0.857	0.491
Rapport	4.12	0.936	4.01	0.865	1.479
Realistic/Fair	4.36	0.827	4.35	0.83	0.028
Respectful	4.58	0.82	4.52	0.752	0.435
Sensitive/Persistent	4.02	0.862	4.00	0.949	0.063
Strives to Be a Better Teacher	4.28	0.991	4.35	0.953	0.463
Technologically Competent	4.06	0.922	3.84	0.985	4.562
Understanding	4.39	0.785	4.29	0.797	1.457

Age

Four TBC items were ranked in the top-ten across four age groups: (1) knowledgeable; (2) enthusiastic; (3) confident; and (4) effective communicator. Mean ratings for TBC items were compared between the four age categories. Results from Box-M test were significant ($p < .001$) indicating heterogeneity of covariance. Multivariate tests indicated a significant difference between age groups on TBC item ratings, Wilkes' Lambda, $F(84, 981) = 1.400$, $p = .013$, partial $\eta^2 = 0.108$. Univariate tests indicated significant differences between age groups on the following seven TBC items: (1) authoritative ($F(3, 352) = 5.851$, $p = 0.001$); (2) effective communicator ($F(3, 352) = 2.752$, $p = 0.043$); (3) establishes daily and academic term goals ($F(3, 352) = 6.774$, $p < 0.001$); (4) happy/positive/humorous ($F(3, 352) = 4.704$, $p = 0.003$); (5) prepared ($F(3, 352) = 3.960$, $p = 0.008$); (6) professional ($F(3, 352) = 4.842$, $p = 0.003$); and (7) technologically competent ($F(3, 352) = 4.677$, $p = 0.003$). Result for all items are listed in Table 4.11 below.

Table 4.12 Differences in Item Rating by Age

	20 – 29 (n = 190)		30 – 39 (n = 92)		40 – 49 (n = 48)		50+ (n = 28)		
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation	*F*
Accessible	4.22	0.848	4.12	0.912	4.42	0.647	4.29	0.854	1.357
Approachable/Personable	4.32	0.818	4.28	0.685	4.38	0.640	4.46	0.793	0.468
Authoritative	3.73	0.945	3.57	0.987	4.23	0.881	4.00	0.943	5.851***
Confident	4.48	0.735	4.48	0.637	4.54	0.582	4.61	0.567	0.383
Creative/Interesting	4.01	0.978	4.18	0.876	4.29	0.743	4.29	0.810	2.014
Effective Communicator	4.41	0.780	4.46	0.653	4.67	0.519	4.71	0.535	2.752*
Encourages/Cares	4.18	0.984	4.21	0.908	4.25	0.863	4.29	1.084	0.160
Enthusiastic	4.56	0.671	4.52	0.718	4.71	0.582	4.64	0.559	0.952
Establishes Goals	3.89	1.013	4.26	0.754	4.33	0.808	4.46	0.744	6.774***
Flexible/Open-Minded	4.21	0.862	4.23	0.866	4.23	0.751	4.57	0.573	1.590
Good Listener	4.31	0.854	4.29	0.704	4.48	0.684	4.64	0.488	2.082
Happy/Positive/Humorous	3.95	0.836	3.76	0.869	4.25	0.729	4.21	0.686	4.704**
Humble	4.21	0.950	4.22	0.862	4.38	0.733	4.32	0.819	0.547
Knowledgeable	4.63	0.670	4.71	0.603	4.75	0.484	4.79	0.418	0.994
Prepared	4.24	0.828	4.42	0.715	4.56	0.580	4.61	0.629	3.960**
Presents Current Information	4.22	0.885	4.17	0.933	4.52	0.714	4.46	0.508	2.438
Professional	3.63	1.075	3.62	1.067	4.10	0.881	4.18	0.819	4.842**
Promotes Class Discussion	4.24	0.822	4.12	0.924	4.31	0.829	4.29	0.897	0.695
Promotes Critical Thinking	4.39	0.880	4.47	0.791	4.42	0.767	4.54	0.744	0.334
Provides Constructive Feedback	4.37	0.859	4.46	0.804	4.54	0.582	4.39	0.912	0.638
Punctuality/Manages Class Time	4.21	0.922	4.36	0.806	4.56	0.616	4.39	0.737	2.551
Rapport	4.03	0.913	3.97	0.977	4.33	0.753	4.14	0.756	1.940
Realistic/Fair	4.28	0.888	4.40	0.785	4.52	0.714	4.57	0.573	1.962
Respectful	4.55	0.816	4.53	0.748	4.50	0.825	4.68	0.612	0.329
Sensitive/Persistent	3.98	0.895	3.98	0.949	4.23	0.692	4.14	1.079	1.229
Strives to Be a Better Teacher	4.24	1.050	4.29	0.989	4.56	0.681	4.61	0.629	2.293
Technologically Competent	3.85	1.029	3.80	0.975	4.31	0.589	4.25	0.701	4.677**
Understanding	4.31	0.822	4.36	0.720	4.50	0.744	4.14	0.848	1.326

*$p < .05$, **$p < .01$, ***$p < .001$

Bonferroni post-hoc tests (Table 4.12) revealed significant differences between age groups for six TBC items. Differences occurred primarily between the two younger age groups versus the two older age groups. For example, students in the 20 – 29 age group differed significantly with the 40 – 49 age group on the items authoritative, establishes goals, professional, and technologically competent. Students in the older age group placed greater emphasis on these items. Students in the 20 – 29 age group also differed significantly with students in the 50+ age groups on the item establishes goals. Again, older students emphasized the quality more so than the younger students. Students in the older age groups rated these items higher. Students in the 30 – 39 age group differed significantly with students in the 40 – 49 age group on the items authoritative, happy/positive/humorous, and technologically competent. Students in the 40 – 49 age group emphasized these items more so than student in the 30 – 39 age group. Students in the 30 – 39 age group and the 20 – 29 age group had significantly different ratings for only one item: establishes goals. Students in the 30 – 39 age group emphasized the quality more than younger students. Bonferroni post-hoc comparisons were unable to determine the pairwise differences for the qualities effective communicator and prepared. Differences in item ranking are likely a result of different age grouping other than the current groupings.

Further, of the seven items where significant differences were present, five are considered part of the professional competency/communication subscale established by Keeley, et al. (2006): authoritative, effective communicator, happy/positive/humorous, prepared, and technologically competent. Students in the 40 – 49 and 50+ age groups emphasized these items more than younger students in their twenties and thirties. While the TBC items establishes goals and professional do not load on to either of the subscales, significant differences occurred in the

same pattern as previous items: older students rated them higher than students in the youngest age group.

Table 4.13 Bonferroni Post-hoc Tests for Age

TBC Quality	Pairings		Mean Difference	Significance
Authoritative	40 - 49	20 - 29	0.50	0.007
		30 - 39	0.66	0.001
Establishes Goals	20 - 29	30 - 39	-0.37	0.009
		40 - 49	-0.44	0.017
		50+	-0.57	0.012
Happy/Positive/Humorous	30 - 39	40 - 49	-0.49	0.005
Professional	20 - 29	40 - 49	-0.48	0.027
Technologically Competent	40 - 49	20 - 29	0.46	0.016
		30 - 39	0.51	0.016

Years Pursuing Degree

Participants were divided into two groups based on years spent pursuing their graduate degree (Table 4.13). Students pursuing their degree between one and four years and students pursuing their degree five or more years shared six items in their top-ten lists: (1) knowledgeable; (2) enthusiastic; (3) respectful; (4) effective communicator; (5) promotes critical thinking; and (6) provides constructive feedback. Students in the first group concluded their top-ten list with the following qualities: (1) confident; (2) realistic expectations/fair; (3) prepared; and (4) good listener. Students in the second group concluded their top-ten list with the following qualities: (1) strives to be a better teacher; (2) humble; (3) encourages/cares; and (4) approachable/personable. MANOVA was used to test for significant differences between groups. Box-M test was significant ($p < .001$) indicating heterogeneity of covariance. Multivariate tests were also significant indicating significant differences between items were present, $F(28, 331) = 1.630$, $p = .025$, partial $\eta^2 = 0.121$. Significant differences were detected on two TBC items: (1) humble, $F(1, 358) = 4.019$, $p = 0.046$; and (2) presents current info, $F(1, 358) = 4.368$, $p = 0.037$.

The first item, humble, was emphasized by students in the 5+ years group while the second item, presents current information, was emphasized by students in the 1 – 4 years group.

Table 4.14 Differences in Item Rating by Years Pursuing Degree

	1 – 4 (n = 327)		**5+ (n = 35)**		
	Mean	Std. Deviation	Mean	Std. Deviation	*F*
Accessible	4.23	0.852	4.24	0.741	0.001
Approachable/Personable	4.32	0.779	4.38	0.551	0.193
Authoritative	3.76	0.959	3.94	1.013	1.042
Confident	4.51	0.678	4.35	0.646	1.714
Creative/Interesting	4.10	0.925	4.26	0.828	1.055
Effective Communicator	4.46	0.721	4.59	0.609	0.951
Encourages/Cares	4.17	0.978	4.44	0.824	2.510
Enthusiastic	4.57	0.674	4.53	0.662	0.133
Establishes Goals	4.09	0.943	4.12	0.769	0.023
Flexible/Open-Minded	4.24	0.848	4.18	0.716	0.191
Good Listener	4.36	0.786	4.35	0.646	0.002
Happy/Positive/Humorous	3.97	0.833	3.85	0.857	0.597
Humble	4.21	0.911	4.53	0.615	4.019*
Knowledgeable	4.67	0.617	4.65	0.646	0.062
Prepared	4.36	0.779	4.29	0.676	0.218
Presents Current Information	4.29	0.837	3.97	1.058	4.368*
Professional	3.74	1.051	3.74	1.024	0.000
Promotes Class Discussion	4.22	0.860	4.18	0.869	0.082
Promotes Critical Thinking	4.41	0.847	4.50	0.707	0.350
Provides Constructive Feedback	4.40	0.831	4.56	0.660	1.093
Punctuality/Manages Class Time	4.30	0.857	4.35	0.774	0.103
Rapport	4.05	0.905	4.26	0.828	1.825
Realistic/Fair	4.38	0.813	4.15	0.925	2.531
Respectful	4.54	0.790	4.68	0.684	0.984
Sensitive/Persistent	4.00	0.905	4.15	0.925	0.810
Strives to Be a Better Teacher	4.29	0.981	4.62	0.779	3.590
Technologically Competent	3.94	0.952	3.97	1.029	0.034
Understanding	4.33	0.789	4.35	0.812	0.017

*$p < .05$

Foreign or U.S. Undergraduate Education

U.S.- and Foreign-educated graduate students agreed on five of the top-ten TBC qualities: (1) knowledgeable; (2) enthusiastic; (3) respectful; (4) confident; and (5) provides constructive feedback. U.S.-educated graduate students concluded their list with the following qualities: (1) effective communicator; (2) promotes critical thinking; (3) good listener; (4) realistic expectations/fair; and (5) strives to be a better teacher. Foreign-educated graduate students concluded their list with the following qualities: (1) punctuality/manages class time; (2) understanding; (3) prepared; (4) accessible; and (5) humble.

Multivariate analysis of variance was used to detect significant differences in item rating between U.S.- and Foreign-educated graduate students. Box-M test results were significant ($p <$ .001) indicating heterogeneity of covariance. Multivariate tests indicated a significant difference between U.S.- and foreign-educated students on TBC item ratings, $F(28, 331) = 1.613$, $p = .028$, partial $\eta^2 = 0.120$. Univariate test results indicated significant differences between U.S.- and foreign-educated graduate students on the following seven TBC items: (1) effective communicator ($F(1, 358) = 5.105$, $p = 0.024$); (2) enthusiastic ($F(1, 358) = 4.988$, $p = 0.026$); (3) good listener ($F(1, 358) = 4.122$, $p = 0.043$); (4) knowledgeable ($F(1, 358) = 10.386$, $p = 0.001$); (5) professional ($F(1, 358) = 5.920$, $p = 0.015$); (6) promotes critical thinking ($F(1, 358) = 9.020$, $p = 0.003$); and (7) strives to be a better teacher ($F(1, 358) = 4.399$, $p = 0.037$). Table 4.14 displays mean differences for TBC qualities between the two groups of students.

Table 4.15 Differences in Item Rating for Degree Location

	US-Based (n = 326)		**International (n = 36)**		
	Mean	Std. Deviation	Mean	Std. Deviation	*F*
Accessible	4.22	0.851	4.31	0.746	0.318
Approachable/Personable	4.34	0.756	4.22	0.797	0.771
Authoritative	3.80	0.932	3.64	1.222	0.863
Confident	4.51	0.646	4.39	0.903	1.028
Creative/Interesting	4.12	0.898	4.03	1.082	0.330
Effective Communicator	4.50	0.684	4.22	0.898	5.105*
Encourages/Cares	4.19	0.973	4.22	0.929	0.040
Enthusiastic	4.60	0.639	4.33	0.894	4.988*
Establishes Goals	4.09	0.920	4.11	1.008	0.013
Flexible/Open-Minded	4.26	0.799	4.03	1.108	2.494
Good Listener	4.39	0.748	4.11	0.950	4.122*
Happy/Positive/Humorous	3.98	0.834	3.78	0.832	1.874
Humble	4.23	0.887	4.28	0.944	0.076
Knowledgeable	4.71	0.581	4.36	0.833	10.386***
Prepared	4.35	0.767	4.33	0.793	0.026
Presents Current Information	4.29	0.833	4.06	1.094	2.335
Professional	3.69	1.042	4.14	1.018	5.920*
Promotes Class Discussion	4.24	0.829	3.97	1.082	3.257
Promotes Critical Thinking	4.46	0.760	4.03	1.276	9.020**
Provides Constructive Feedback	4.43	0.813	4.31	0.856	0.777
Punctuality/Manages Class Time	4.29	0.846	4.44	0.877	1.028
Rapport	4.10	0.887	3.81	0.980	3.394
Realistic/Fair	4.37	0.821	4.25	0.874	0.723
Respectful	4.56	0.775	4.50	0.845	0.163
Sensitive/Persistent	4.02	0.886	3.92	1.079	0.460
Strives to Be a Better Teacher	4.35	0.921	4.00	1.287	4.399*
Technologically Competent	3.93	0.950	4.06	1.040	0.564
Understanding	4.33	0.786	4.42	0.841	0.415

*$p < .05$, **$p < .01$, ***$p < .001$

Graduate students who reported receiving an undergraduate degree from an international-based institution emphasized the TBC quality professional more so than U.S.-educated counterparts. Graduate students who reported receiving an undergraduate degree from a U.S.-based institution emphasized the remaining items. Only the qualities knowledgeable and enthusiastic appeared in each group's top-ten list and showed significant differences in mean rating. For each, U.S.-educated students rated them higher with knowledgeable and enthusiastic rated as the first and second most important qualities. Foreign-educated students rated knowledgeable and enthusiastic as fifth and seventh most important, respectively.

Reported Teaching Experience

Six TBC items were shared across top-ten lists according to graduate students' teaching experience: (1) knowledgeable; (2) confident; (3) enthusiastic; (4) effective communicator; (5) respectful; and (6) promotes critical thinking. Students reporting no teaching experience concluded their top-ten list with the following qualities: (1) realistic expectations/fair; (2) prepared; (3) good listener; and (4) punctuality/manages class time. Students reporting experience at the elementary/secondary level concluded their top-ten list with the following qualities: (1) provides constructive feedback; (2) realistic expectations/fair; (3) approachable/personable; and (4) strives to be a better teacher. Graduate students reporting teaching experience at the college/university level concluded their top-ten list with the following qualities: (1) provides constructive feedback; (2) prepared; (3) good listener; and (4) understanding.

Multivariate analysis of variance was used to detect significant differences between teaching experience levels. Box-M test results were significant ($p < .001$) indicating heterogeneity of covariance. Multivariate tests indicated a significant difference between

students' reported teaching experience on TBC item ratings, $F(56, 658) = 1.541$, $p = .008$, partial $\eta^2 = 0.116$. Univariate tests results (Table 4.9) indicated significant differences between experience levels on the following seven TBC items: (1) creative/interesting ($F(2, 355) = 4.981$, $p = 0.007$); (2) presents current information ($F(2, 355) = 4.095$, $p = 0.024$); (3) professional ($F(2, 355) = 3.764$, $p = 0.024$); (4) provides constructive feedback ($F(2, 355) = 4.611$, $p = 0.011$); (5) rapport ($F(2, 355) = 5.803$, $p = 0.003$); (6) realistic expectations/fair ($F(2, 355) = 3.802$, $p = 0.023$); and (7) sensitive/persistent ($F(2, 355) = 3.167$, $p = 0.043$). Table 4.15 displays mean differences for TBC qualities between the three groups of students.

Table 4.16 Differences in Item Rating for Students by Experience Level

	None (n = 80)		**Elementary/Secondary (n = 80)**		**College/University (n = 200)**		
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation	*F*
Accessible	4.31	0.89	4.36	0.77	4.14	0.84	2.490
Approachable/Personable	4.33	0.90	4.49	0.60	4.26	0.76	2.509
Authoritative	3.88	0.95	3.83	1.04	3.72	0.94	0.826
Confident	4.61	0.63	4.50	0.68	4.45	0.69	1.660
Creative/Interesting	4.16	0.92	4.36	0.73	3.99	0.96	4.981**
Effective Communicator	4.53	0.73	4.49	0.68	4.45	0.72	0.290
Encourages/Cares	4.16	1.02	4.33	0.84	4.15	0.99	1.009
Enthusiastic	4.54	0.71	4.66	0.64	4.55	0.67	0.941
Establishes Goals	4.06	0.93	4.14	0.95	4.09	0.92	0.140
Flexible/Open-Minded	4.33	0.79	4.28	0.80	4.19	0.87	0.884
Good Listener	4.41	0.76	4.44	0.63	4.30	0.83	1.118
Happy/Positive/Humorous	3.89	0.93	4.11	0.78	3.92	0.82	1.814
Humble	4.13	0.96	4.34	0.81	4.25	0.89	1.154
Knowledgeable	4.75	0.56	4.79	0.54	4.60	0.66	3.573
Prepared	4.43	0.69	4.36	0.73	4.32	0.81	0.506
Presents Current Information	4.39	0.77	4.43	0.76	4.15	0.93	4.095*
Professional	3.94	1.01	3.86	1.08	3.60	1.04	3.764*
Promotes Class Discussion	4.29	0.92	4.30	0.77	4.16	0.87	1.127
Promotes Critical Thinking	4.41	0.82	4.48	0.81	4.40	0.85	0.213
Provides Constructive Feedback	4.23	1.01	4.61	0.61	4.42	0.79	4.611*
Punctuality/Manages Class Time	4.40	0.70	4.36	0.77	4.25	0.93	1.060
Rapport	3.98	0.94	4.36	0.82	3.98	0.90	5.803**
Realistic/Fair	4.46	0.73	4.53	0.71	4.26	0.89	3.802*
Respectful	4.51	0.83	4.66	0.69	4.52	0.80	1.063
Sensitive/Persistent	3.99	0.91	4.24	0.78	3.94	0.94	3.167*
Strives to Be a Better Teacher	4.38	0.92	4.48	0.87	4.24	1.02	1.796
Technologically Competent	4.05	0.87	4.05	0.86	3.85	1.03	1.962
Understanding	4.39	0.74	4.36	0.80	4.30	0.81	0.384

*p < .05, **p < .01

Bonferroni post-hoc tests (Table 4.16) reveal the pairwise comparisons between experience groups. The groups College/University and Elementary/Secondary showed significant differences on five items: (1) creative/interesting; (2) presents current information; (3) rapport; (4) realistic expectations/fair; and (5) sensitive/persistent. Students in the Elementary/Secondary teaching experience group emphasized all five items more than those in the College/University teaching experience group. The groups None and Elementary/Secondary showed significant differences on two items: (1) provides constructive feedback; and (2) rapport. Both qualities were emphasized by the Elementary/Secondary group compared to the None group. Finally, the groups None and College/University showed significant differences on one item: professional. Students in the None group emphasized the quality more so than their counterparts in the College/University group.

Table 4.17 Bonferroni Post-hoc Tests for Experience Level

Quality	Pairings		Mean Difference	Significance
Creative/Interesting	Elementary/Secondary	College/University	0.37	0.006
Presents Current Information	Elementary/Secondary	College/University	0.28	0.044
Professional	None	College/University	0.34	0.045
Provides Constructive Feedback	None	Elementary/Secondary	-0.39	0.008
Rapport	Elementary/Secondary	None	0.39	0.018
		College/University	0.38	0.004
Realistic Expectations/Fair	Elementary/Secondary	College/University	0.27	0.042
Sensitive/Persistent	Elementary/Secondary	College/University	0.30	0.039

Academic Discipline

Students were asked to indicate their academic discipline. Participants were divided into two groups, STEM (science, technology, engineering, and math) and Non-STEM (education, history, psychology, business, and others). Students in the two groups agreed on the following

eight TBC qualities: (1) knowledgeable; (2) respectful; (3) enthusiastic; (4) confident; (5) effective communicator; (6) provides constructive feedback; (7) promotes critical thinking; and (8) good listener. Students in STEM disciplines concluded their top-ten list with the following qualities: (1) understanding; and (2) realistic expectations/fair. Non-STEM students concluded their top-ten with the following qualities: (1) strives to be a better teacher; and (2) approachable/personable.

Multivariate analysis of variance was used to detect significant differences between academic discipline groups. Box-M test results were significant ($p < .001$) indicating heterogeneity of covariance. Multivariate tests indicated a significant difference between students in STEM disciplines and students in non-STEM disciplines on TBC item ratings, $F(28, 323) = 2.610$, $p < .001$, partial $\eta^2 = 0.185$. Results indicated significant differences between graduate students in STEM and Non-STEM disciplines on the following 13 TBC items: (1) accessible ($F(1, 350) = 6.841$, $p = 0.009$); (2) approachable/personable ($F(1, 350) = 7.063$, $p = 0.008$); (3) creative/interesting ($F(1, 350) = 9.224$, $p = 0.003$); (4) encourages/cares ($F(1, 350) = 4.890$, $p = 0.016$); (5) flexible/open-minded ($F(1, 350) = 3.896$, $p = 0.049$); (6) happy/positive/humorous ($F(1, 350) = 12.459$, $p < 0.001$); (7) knowledgeable ($F(1, 350) = 4.734$, $p = 0.030$); (8) presents current information ($F(1, 350) = 5.298$, $p = 0.022$); (9) promotes class discussion ($F(1, 350) = 23.337$, $p < 0.001$); (10) promotes critical thinking ($F(1, 350) = 7.303$, $p = 0.007$); (11) punctuality/manages class time ($F(1, 350) = 5.344$, $p = 0.021$); (12) rapport ($F(1, 350) = 12.174$, $p = 0.001$); and (13) strives to be a better teacher ($F(1, 350) = 5.399$, $p = 0.021$). Table 4.17 displays mean differences for TBC qualities between the two groups of students.

Table 4.18 Differences in Item Rating for Students by Discipline

	STEM (n = 135)		**NON-STEM (n = 219)**		
	Mean	Std. Deviation	Mean	Std. Deviation	*F*
Accessible	4.08	0.881	4.32	0.815	6.841**
Approachable/Personable	4.20	0.771	4.42	0.742	7.063**
Authoritative	3.77	0.922	3.79	0.987	0.028
Confident	4.47	0.771	4.53	0.609	0.479
Creative/Interesting	3.93	1.031	4.24	0.819	9.224**
Effective Communicator	4.39	0.793	4.54	0.652	3.554
Encourages/Cares	4.06	0.976	4.31	0.914	5.890*
Enthusiastic	4.56	0.643	4.60	0.673	0.440
Establishes Goals	3.99	0.958	4.15	0.913	2.445
Flexible/Open-Minded	4.13	0.921	4.31	0.772	3.896*
Good Listener	4.28	0.852	4.42	0.710	2.686
Happy/Positive/Humorous	3.77	0.819	4.09	0.820	12.4589***
Humble	4.26	0.914	4.26	0.855	0.001
Knowledgeable	4.60	0.671	4.74	0.542	4.734*
Prepared	4.27	0.832	4.41	0.722	2.805
Presents Current Information	4.14	0.971	4.35	0.763	5.298*
Professional	3.61	1.058	3.80	1.043	2.517
Promotes Class Discussion	3.96	0.929	4.39	0.751	23.337***
Promotes Critical Thinking	4.29	0.969	4.53	0.701	7.303**
Provides Constructive Feedback	4.34	0.899	4.49	0.734	2.831
Punctuality/Manages Class Time	4.18	0.953	4.39	0.769	5.344*
Rapport	3.86	0.916	4.20	0.867	12.174***
Realistic/Fair	4.33	0.880	4.39	0.798	0.522
Respectful	4.59	0.715	4.56	0.768	0.137
Sensitive/Persistent	3.92	0.970	4.10	0.836	3.341
Strives to Be a Better Teacher	4.19	1.033	4.43	0.885	5.399*
Technologically Competent	3.93	1.001	3.93	0.940	0.004
Understanding	4.39	0.753	4.31	0.813	0.687

*p < .05, **p < .01, ***p < .001

The qualities knowledgeable and promotes critical thinking were the only qualities that were shared across top-ten lists and showed significant differences. Non-STEM students emphasized each item over their STEM counterparts. Of the items where significant differences occurred between disciplines, four loaded on to the professional competency/communication subscale (approachable/personable, happy/positive/humorous, knowledgeable, and punctuality/manages class time). Students in Non-STEM fields emphasized each of these qualities more so than students in STEM fields. Seven items are considered part of the caring/supportive subscale (accessible, encourages/cares, flexible/open-minded, promotes class discussion, promotes critical thinking, rapport, and strives to be a better teacher). Students reporting Non-STEM disciplines rated these items significantly higher than their STEM discipline counterparts did.

Research Question 4

Research question four asked, what similarities or differences exist between graduate student responses and undergraduate student responses to TBC items. The graduate student top-ten list was compared to undergraduate top-ten lists from studies using a similar Likert rating method (Table 4.18). Graduate students rated the following qualities highest when indicating perceptions of master teaching: (1) knowledgeable; (2) enthusiastic; (3) respectful; (4) confident; (5) effective communicator; (6) promotes critical thinking; (7) provides constructive feedback; (8) realistic expectations/fair; (9) good listener; (10) prepared.

Table 4.19 Comparison of Graduate Student and Selected Undergraduate Top-tens

Edge (2018)	Keeley et al. (2012)		Liu et al. (2016)			Ripoll-Nunez et al. (2018)
Graduate Students	**American**	**Japanese**	**Chinese (Psych)**	**Chinese (Edu)**	**Chinese (Chem.E.)**	**Colombian**
Knowledgeable	Accessible	Approachable/ Personable	Respectful	Respectful	Respectful	Respectful
Enthusiastic	Knowledgeable	Humble	Knowledgeable	Approachable/ Personable	Prepared	Effective Communicator
Respectful	Confident	Confident	Confident	Knowledgeable	Confident	Knowledgeable
Confident	Approachable/ Personable	Effective Communicator	Prepared	Understanding	Strives to be better teacher	Confident
Effective Communicator	Respectful	Good Listener	Understanding	Confident	Enthusiastic	Enthusiastic
Promotes Critical Thinking	Enthusiastic	Creative/ Interesting	Strives to be better teacher	Realistic Expectations/Fair	Knowledgeable	Authoritative
Provides Constructive Feedback	Effective Communicator	Knowledgeable	Technologically Competent	Strives to be better teacher	Realistic Expectations/Fair	Accessible
Realistic Expectations/Fair	Prepared	Strives to be better teacher	Realistic Expectations/Fair	Effective Communicator	Establishes Goals	Provides Constructive Feedback
Good Listener	Good Listener	Enthusiastic	Creative/Interesting	Flexible/Open-minded	Punctuality/Manages Class time	Presents Current Information
Prepared	Promotes Critical Thinking	Prepared	Effective Communicator	Accessible	Flexible/Open-minded	Good Listener

Across seven samples only the qualities knowledgeable and confident were on each top-ten list, enjoying 100% agreement. The next highest-rated TBC qualities were effective communicator and respectful (85%). Teacher preparedness and enthusiasm each appeared on five of seven (71%) top-ten lists. Realistic expectations/fair appeared on four of seven (57%) top-ten lists. Finally, qualities good listener (42%), provides constructive feedback (28%), and promotes critical thinking (28%) comprised the bottom three qualities. The quality promotes critical thinking was only included in the top-ten by graduate students and American students attending a liberal arts institution.

Results from the current study were also compared to results from the seminal undergraduate student sample collected by Buskist et al. (2002) and the first replication performed by Schaeffer et al. (2003) (Table 4.20). Graduate and undergraduate students showed agreement on four of ten items: (1) knowledgeable; (2) enthusiastic; (3) respectful; and (4) realistic expectations/fair. The remaining items emphasized by graduate students are not present on either undergraduate student top-ten, indicating, in part, that these teaching qualities may be unique to a graduate student sample.

Table 4.20 Comparison of Graduate Student and Initial Undergraduate Top-tens

Edge (2018)	Buskist, et al. (2002)	Schaeffer et al. (2003)
Graduate Students	**Undergraduate**	**Community College**
Knowledgeable	Realistic Expectations/Fair	Knowledgeable
Enthusiastic	Knowledgeable	Approachable/Personable
Respectful	Understanding	Realistic Expectations/Fair
Confident	Approachable/Personable	Respectful
Effective Communicator	Respectful	Creative/Interesting
Promotes Critical Thinking	Creative/Interesting	Happy/Positive/Humorous
Provides Constructive Feedback	Happy/Positive/Humorous	Enthusiastic
Realistic Expectations/Fair	Encourages/Cares	Encourages/Cares
Good Listener	Flexible/Open-minded	Flexible/Open-minded
Prepared	Enthusiastic	Understanding

Summary

As a sample, graduate students identified the following TBC qualities as most frequently exhibited by graduate-level master teachers: (1) knowledgeable; (2) enthusiastic; (3) respectful; (4) confident; (5) effective communicator; (6) promotes critical thinking; (7) provides constructive feedback; (8) good listener; (9) prepared; and (10) realistic expectations/fair. MANOVA tests found significant differences in item ratings for five of six academic

demographic variables (age, years pursuing degree, undergraduate location, reported teaching experience, and academic discipline).

Analysis also determined significant differences on subscale ratings for three of six academic demographic variables (degree type, age, and academic discipline). The professional competency/communication subscale ratings were significantly different between groups on each of the three variables. For degree type, Masters students emphasized professional competency/communication subscale items over their doctoral counterparts. For age, older students emphasized items associated with this subscale more so than younger students. For academic discipline, Non-STEM students emphasized items associated with this subscale more so than their STEM classmates. The caring/supportive subscale only showed significant differences between academic disciplines (rated higher by Non-STEM students). Graduate students are in general agreement on the qualities and behaviors that graduate-level faculty should exhibit related to the caring/supportive subscale items, or those that relate to student-faculty interaction. Interestingly, graduate students departed from the undergraduate student trend of emphasizing caring/supportive subscale items over professional competency/communication subscale items. Graduate students emphasized the professional competency/communication subscale items (M = 4.29) over caring/supportive subscale items (M = 4.28).

Finally, comparison between studies revealed the similarities and differences between graduate student and undergraduate student responses to TBC items. Only qualities knowledgeable and confident appeared across top-ten lists from the current study and six other samples of students (Keeley et al., 2012; Liu et al., 2016; Ripoll-Nunez et al., 2018). The next highest rated qualities were enthusiastic, respectful, and prepared (75% agreement across

samples). Additionally, graduate students in this sample showed remarkable overlap with undergraduate students from the first two Teacher Behavior Checklist Studies conducted by Buskist et al. (2002) and Schaeffer et al. (2003). Across the three studies, students included the following four items in their top-ten lists: (1) knowledgeable; (2) enthusiastic; (3) respectful; and (4) realistic expectations/fair.

CHAPTER 5: Discussion and Conclusions

Introduction

This study examined graduate students' perceptions of master teaching. Chapter 1 provided an introduction, the research problem, purpose of the study, research questions, significance of the study, definition of key terms, and the organization of the study. Chapter 2 consisted of the literature review. The literature review provided a summary of the Colonial and Early American college systems, a discussion of the components of the German university, and the movement to adopt this system in the United States. The literature review also discussed the various levels of teaching (effectiveness, excellence, and master teaching), and concluded with a review of the creation and use of the Teacher Behavior Checklist (TBC). The TBC was used to examine teaching among many samples of undergraduate students and undergraduate faculty.

Chapter 3 outlined the design of the study, the instrument used (TBC in Likert format), the participants, data collection procedures, and analysis of data. The study sought to answer the following research questions: (1) What TBC qualities and behaviors do graduate students perceive master teachers exhibit most?; (2) Do graduate students rate teaching qualities and behaviors similarly based on different academic demographic variables?; (3) Do graduate students rate teaching qualities and behaviors associated with the caring/supportive or professional competency/communication subscales differently?; and (4) What similarities or differences exist between graduate student responses and undergraduate student responses?.

Chapter 4 reported findings of the research, including a description of data analysis. The chapter reported demographics of the participants and included the data analysis. Similarities and

differences were examined between graduate students on six academic demographics (degree type, age, years pursuing degree, foreign or U.S. undergraduate, reported teaching experience, and academic discipline). Additionally, an overall ratings list was provided for the sample of graduate students as a whole.

Chapter 5 summarizes the study and outlines implications and areas for future research.

Summary of Results

An estimated 2,574 Masters students and 1,642 Doctoral students enrolled in the Spring 2018 semester were contacted to participate in the study. Of these students, 382 (estimated 9.08%) participated in the study, and 362 of these responses were useable in the final analysis. Students were split between Masters (45.9%) and Ph.D. students (53.3%). Respondents were separated into age categories: 20 – 29 (55.5%), 30 – 39 (25.4%), 40 – 49 (13.3%), and 50+ (7.7%). Students pursuing their degree between one and four years made up the majority of respondents (90.3%) over those pursuing their degree five or more years (9.7%). The sample was further divided between foreign-educated (9.9%) and U.S.-educated (90.1%) graduate students. In terms of reported teaching experience, nearly half of students reported None (22.1%) or Elementary/Secondary (22.1%) experience, while those reporting College/University experience consisted of the other half (55.2%). Finally, respondents were separated between STEM disciplines (37.3%) and Non-STEM disciplines (60.5%).

Research Question One

Answering Research Question 1 provided an overall list of the perceptions of graduate students toward master teaching. The following are the top ten highest rated TBC items: (1) knowledgeable; (2) enthusiastic; (3) respectful; (4) confident; (5) effective communicator; (6) promotes critical thinking; (7) provides constructive feedback; (8) good listener; (9) prepared;

and (10) realistic expectations/fair. The overall graduate top-ten list consisted of six qualities from the professional competency/communication subscale (knowledgeable, respectful, confident, effective communicator, good listener, and prepared) and four qualities from the caring/supportive subscale (enthusiastic, promotes critical thinking, provides constructive feedback, and realistic expectations/fair). Mean ratings for TBC items were analyzed for pairwise differences using analysis of variance.

Research Question Two

To answer Research Question Three, TBC items were categorized according to the subscales established by Keeley, et al. (2006) and means were calculated. Each academic demographic variable was subject to MANOVA tests. For the variable degree type, Masters and Ph.D. students showed significant differences on the professional competency/communication subscale. Significant differences were found between age groups on the professional competency/communication subscale. Bonferroni post-hoc testing indicated that significant differences occurred between the 20 – 29 age group and the 40 – 49 age group. When analyzing how long students had been pursuing a graduate degree, no significant differences were detected for either the professional competency/communication or caring/supportive subscales.

Comparison between the foreign- and U.S.-educated student groups showed that no group rated either subscale significantly different from the other. Similarly, graduate student ratings of each subscale did not differ significantly between teaching experience groups. However, for discipline groupings, STEM and Non-STEM students did differ significantly in their ratings of both the caring/supportive subscale and the professional competency/communication subscale. Non-STEM students placed a higher emphasis on both subscales in relation to their STEM counterparts.

Research Question Three

Research Question 3 was answered by dividing students into academic demographic groups. Differences between Masters and Ph.D. students indicated the two groups of students overlapped on seven of the top ten qualities (knowledgeable, enthusiastic, respectful, confident, effective communicator, promotes critical thinking, and provides constructive feedback), and that no significant differences were present in item ratings.

Significant differences were present in item ratings when participant age was analyzed. Four items were included in the top ten across groups (knowledgeable, enthusiastic, confident, and effective communicator). MANOVA testing determined significant differences were present for the TBC items authoritative, effective communicator, establishes daily and academic term goals, happy/positive/humorous, prepared, professional, and technologically competent. Bonferroni post-hoc testing revealed that differences in item rating occurred between the youngest (20 – 29) and oldest (40 – 49 and 50+) age groups. The only significant difference between the 20 – 29 and 30 – 39 age groups occurred on the quality establishes daily and academic term goals. Bonferroni post-hoc comparisons were unable to determine the pairwise differences for the qualities effective communicator and prepared. Differences in item ranking are likely a result of different age grouping other than the current groupings.

Differences were also detected between groups based on the number of years participants reported pursuing their graduate degree. MANOVA testing revealed the groups differed on the items humble and presents current information. Foreign- and U.S.-educated students showed significant differences on seven TBC items including effective communicator, enthusiastic, good listener, knowledgeable, professional, promotes critical thinking, and strives to be a better teacher. U.S.-educated students placed more emphasis on all qualities except professional.

An analysis of participants' reported teaching experience revealed significant differences on seven TBC items: creative/interesting, presents current information, professional, provides constructive feedback, rapport, realistic expectations/fair, and sensitive/persistent. Bonferroni post-hoc results suggested that participants with Elementary/Secondary experience and those with College/University experience differed on five of the items (creative/interesting, presents current information, rapport, realistic expectations/fair, and sensitive/persistent). Students who reported None as their teaching experience differed with the College/University group on one item (professional) and with the Elementary/Secondary group on one item (provides constructive feedback).

Finally, discipline was used as an academic demographic variable. STEM and Non-STEM students' ratings for 13 TBC items showed significant differences: accessible, approachable/personable, creative/interesting, encourages/cares, flexible/open-minded, happy/positive/humorous, knowledgeable, presents current information, promotes class discussion, promotes critical thinking, punctuality/manages class time, rapport, and strives to be a better teacher. Students in Non-STEM disciplines emphasized all 13 items more than students in STEM disciplines.

Research Question Four

To answer Research Question Four, results from the current study were compared to results from other studies that used a similar Likert response method. Graduate students were compared to undergraduate students from three other TBC studies (Keeley et al., 2012; Liu et al., 2016; Ripoll-Nunez et al., 2018). Across seven samples of students, only knowledgeable and confident appeared on each top-ten list. TBC qualities effective communicator and respectful appeared on six of seven lists (85%). Teacher preparedness and enthusiasm each appeared on

five of seven lists (71%). Graduate student results were also compared to the original TBC study performed by Buskist et al. (2002) and to the first replication performed by Schaeffer et al. (2003). Four TBC items were present across the three studies (knowledgeable, enthusiastic, respectful, and realistic expectations/fair).

Discussion

Previous studies using the TBC provided valuable information regarding undergraduate and professional students' perceptions of master teaching qualities and behaviors. This study expanded that body of research and introduced the TBC to a sample of graduate students, providing valuable information on a new group of learners. Results indicate that there is some overlap between undergraduates and graduate students, but that graduate students also value some teaching qualities not highly valued in past studies. Further, within graduate student subgroups new trends emerge suggesting group-specific universal principles.

Comparison of Degree Type Effects on Perceptions of Master Teaching

Most TBC studies have examined differences among samples of undergraduate students, and as a result, there are no comparisons related to degree type (undergraduate, masters, doctorate). Jõemaa (2013) asked Estonian participants to indicate degree level, gathering responses from undergraduate, masters, and doctoral students, but aggregated results in the final analysis. Ford (2016) gathered TBC data from Pharm.D. students, considered a professional degree.

Masters and Ph.D. students showed agreement on seven of the top ten TBC items: (1) knowledgeable; (2) enthusiasm; (3) respectful; (4) confident; (5) effective communicator; (6) promotes critical thinking; and (7) provides constructive feedback. Analysis resulted in no significant differences on item ratings between Masters and Ph.D. students. These findings

suggest that the type of graduate degree one pursues does not significantly affect individual item ratings. Therefore, items differences must be related to other, more meaningful, variables. Interestingly, Masters students also placed generally higher ratings on 25 of 28 TBC items. Doctoral students only placed higher emphasis on the qualities humble, provides constructive feedback, and strives to be a better teacher.

Minute items differences were not detected, but larger aggregate differences were. Masters and Ph.D. students differed significantly on their ratings of items associated with the professional competency/communication subscale (Keeley et al., 2006). Masters students rated this subscale higher than Ph.D. students. There may be other, more meaningful, variables affecting perceptions of master teaching. One explanation for the significant difference on this subscale is that Masters students tend to be younger and more in need of guidance or structure compared to older Ph.D. students. Further, doctoral students typically pursue these degrees after obtaining an initial graduate degree and are more likely to possess the knowledge and skill to be independent, requiring less direction from faculty.

Comparison of Graduate and Selected Undergraduate Samples

A descriptive comparison (Table 5.1) of selected top-ten lists from various studies reveals that TBC qualities knowledgeable, enthusiastic, and realistic expectations/fair are the three teaching qualities shared across samples based on degree type. This comparison lends support to Buskist and Keeley's (2018) assertion that there are "universal principles" of master teaching that transcend certain academic contexts. In this case, teaching qualities like knowledgeable and enthusiastic are highly valued across samples of students at different degree levels. Students across degree levels also agree that their faculty display realistic expectation towards students as

well as institute fair grading practices on assignments and tests. This quality has appeared frequently across other TBC studies.

Table 5.1 Degree Type Comparisons of Top-ten TBC Qualities

Edge (2018)	Ford (2016)	Noll (2017)	Vulcano (2007)	Schaeffer, et al. (2003)	Buskist, et al. (2002)
Graduate	**Professional**	**Undergraduate**	**Undergraduate**	**Undergraduate**	**Undergraduate**
Knowledgeable	Knowledgeable	Knowledgeable	Knowledgeable	Knowledgeable	Realistic Expectations/Fair
Enthusiastic	Effective Communicator	Approachable/Personable	Interesting/Creative Lectures	Approachable/Personable	Knowledgeable
Respectful	Realistic Expectations/Fair	Realistic Expectations/Fair	Approachable	Realistic Expectations/Fair	Understanding
Confident	Approachable/ Personable	Effective Communicator	Enthusiastic	Respectful	Approachable/Personable
Effective Communicator	Enthusiastic	Enthusiastic	Fair/realistic expectations	Creative/Interesting	Respectful
Promotes Critical Thinking	Respectful	Understanding	Humorous/Happy/Positive	Happy/Positive/ Humorous	Creative/Interesting
Provides Constructive Feedback	Confident	Happy/Positive/ Humorous	Effective Communicator	Enthusiastic	Happy/Positive/ Humorous
Realistic Expectations/ Fair	Encourages/Cares	Encourages/Cares	Flexible/Open-minded	Encourages/Cares	Encourages/Cares
Good Listener	Understanding	Flexible/Open-minded	Encourages Participation	Flexible/Open-minded	Flexible/Open-minded
Prepared	Accessible	Strives to be a Better Teacher	Encourages/Cares	Understanding	Enthusiastic

Interestingly, where these samples differ also reveals important information. For example, the quality promotes critical thinking is only present in the graduate student top-ten list. This suggests that graduate students in this sample have a different perception of teaching than undergraduates and likely value challenge in the classroom. Additionally, the quality encourages/cares is present on all students' lists except graduate students from the current study. As newer students, undergraduate learners appear to value an encouraging and caring professor. Graduate students, on the other hand, rated this quality twentieth on their overall list. This may

be a result of self-confidence that indicates faculty need not play an encouraging/caring role as often for graduate students.

These samples also differ with respect to TBC subscale preferences. Graduate students included six items from the professional competency/communication subscale in their top ten (knowledgeable, respectful, confident, effective communicator, good listener, and prepared). Of these professional competency/communication items, only knowledgeable appeared on each list. Additionally, graduate students placed the most professional competency/communication items in their top-ten list. Pharmacy students included five professional competency/communication items, and the remaining four samples only included four professional competency/communication items in their top-ten lists. This difference in subscale emphasis is likely another feature of the graduate student learner. With more academic experience and confidence, graduate students appear more likely to place a higher emphasis on teaching skill rather than faculty support as compared to undergraduate or professional students.

Comparison of Age Effects on Perceptions of Master Teaching

Unlike a graduate student's degree type, a graduate student's age may be more likely to influence perceptions of master teaching at the graduate level. There are mixed results when examining age as a factor in perceptions of master teaching. Mowrer et al. (2004) could not determine age affected ratings of TBC items. However, Jõemaa (2013) and Noll (2017) determined that age did significantly impact ratings of some TBC items. Results from the current study support the findings from the latter two studies.

Across four age groups participants agreed on four items: (1) knowledgeable; (2) enthusiastic; (3) confident; and (4) effective communicator (the items knowledgeable, confident, and effective communicator were also consistent across age categories in Jõemaa's study).

However, there were significant differences detected between age groups for seven items: (1) authoritative; (2) effective communicator; (3) establishes daily and academic term goals; (4) happy/positive/humorous; (5) prepared; (6) professional; and (7) technologically competent. Post-hoc comparisons determined that main differences occurred between younger (20 – 29 age group) and older (40 – 49 and 50+ groups). For all items with significant differences, students in the 20 – 29 age group gave lower ratings than students in the 40 – 49 and 50+ age groups.

Items differences yielded congruent subscale differences. Students in the 20 – 29 age group gave significantly lower ratings to the professional competency/communication subscale than did students in the 40 – 49 age group. This suggests that age groups will differ significantly from one another in their perceptions of what qualities and behaviors graduate-level faculty should exhibit in the classroom. The absence of significant differences on ratings of the caring/supportive subscale suggest that graduate students are generally in agreement on their perceptions of the qualities and behaviors graduate-level faculty should exhibit outside of class (i.e. items related to student-faculty interaction).

As was the case with academic discipline comparisons (discussed later in this chapter), graduate students and Estonian students showed significant differences between age groups on two common items: establishes goals and happy/positive/humorous. Further, it should be noted that graduate students in each of the younger age categories from emphasized the caring/supportive subscale over the professional competency/communication subscale. The reverse is true for students in the older age groups. Jõemaa concluded that younger students in her study tended to emphasize TBC items tied to support, while older students did not emphasize these items. The same appears to be the case for graduate students across age groups in the

current study. This suggests that graduate students will hold similar perceptions towards master teaching as their undergraduate counterparts where the effects of age are concerned.

Comparison of Years in School Effects on Perceptions of Master Teaching

In addition to students' ages, researchers have also examined the impact of students' years in school on perceptions of master teaching. Mowrer et al. (2004), Ford (2016), and Ripoll-Nunez et al. (2018) published conflicting results. The former found no effect of time in school. The latter two, however, determined that time pursuing degree had a significant effect on TBC items. Ford found significant effects on the qualities presents current information and provides constructive feedback. Ripoll-Nunez and her colleagues found newer students emphasized the qualities establishes goals, approachable/personable, good listener, and punctuality/manages class time. Older students were found to emphasize the qualities knowledgeable and presents current information.

Similar to Ford's and Ripoll-Nunez's studies, significant differences were detected when examining a student's years pursuing degree. Significant differences were found for two items: (1) humble; and (2) presents current information. Students who reported pursuing a graduate degree for five or more years (5+ group) emphasized the TBC quality humble more so than students in the 1 – 4 years group. Conversely, students in the 1 – 4 group emphasized the quality presents current information more so than those in the 5+ group. One explanation for these differences may be due to experience level in school. Just as Jõemaa suggested that older students might possess more life experience, it is possible that academic experience affects students' perceptions of master teaching. Students who have been pursuing a degree for five or more years are likely to have a wealth of knowledge and, therefore, value a professor that exhibits humility. It may be that these students value a professor that treats them as peers who

are approaching mastery of their subject. Students with less academic experience, on the other hand, may not have the same level of subject matter knowledge, thus prioritizing a professor that can supply useful information.

Given that only two items were significantly different between groups, it seems unsurprising that when considering the variable years pursuing degree there were no significant differences detected on the subscales. Despite this, it should be noted that students in the 1 – 4 years group rated the professional competency/communication subscale higher, while students in the 5+ years group rated the caring/supportive subscale higher. Once more, this difference may be due to academic experience. As newer students, those in the 1 – 4 years group value teaching qualities indicative of classroom structure and clarity. Those with more experience (i.e. self-regulated, more acquainted with course demands) appear to be valuing qualities indicative of faculty support.

Comparison of Undergraduate Degree Location Effects on Perceptions of Master Teaching

Researchers have examined students TBC responses in several different countries such as Canada (Vulcano, 2007), Japan (Keeley et al., 2012), Estonia (Jõemaa, 2013), China (Liu et al., 2015; Liu et al., 2016; Liu & Xie, 2018), Brazil (Henklain et al., 2018), Columbia (Donado et al., 2018; Ripoll-Nunez et al., 2018), and Germany (Zayac & Lenhard, 2018). The existing research is clear in its conclusion that nationality or cultural context influences undergraduate perceptions of TBC responses.

Graduate students who received an undergraduate education in the U.S. or internationally agreed on five of the top-ten TBC items: (1) knowledge; (2) enthusiastic; (3) respectful; (4) confident; and (5) provides constructive feedback. Analysis of item responses determined significant differences on seven items: (1) effective communicator; (2) enthusiastic; (3) good

listener; (4) knowledgeable; (5) professional; (6) promotes critical thinking; and (7) strives to be a better teacher. U.S.-educated students emphasized each item except professional. Significant differences on subscale ratings were not detected, and both groups rated the professional competency/communication subscale higher than the caring/supportive subscale.

Comparison of Foreign-Educated Students

Across eight samples of foreign-educated students (Table 5.2), only the quality knowledgeable is included in each top-ten list. This is consistent with previous research suggesting that being knowledgeable is the number-one teaching quality faculty can possess according to students. There are also "near-universal" qualities that occur across these samples. The quality enthusiastic is shared across seven top-ten lists (87%) and the quality prepared is shared across six top-ten lists (75%). TBC quality effective communicator in included on six top-ten lists (75%) but does not appear on the foreign-educated graduate students' list. Five of eight (62%) samples included confident as a top-ten teacher quality. Qualities respectful and strives to be a better teacher are included in half of these studies (strives to be a better teacher does not appear on the foreign-educated graduate students' list). Although these qualities are not universally recognized as top-ten master teaching qualities, their inclusion in at least half of international student samples' lists indicates that they are still worthy of consideration by faculty who seek to better serve students from other nationalities.

Table 5.2 Foreign-Educated Student Comparisons of Top-ten TBC Qualities

Edge (2018)	Jõemaa (2013)	Vulcano (2007)	Keeley et al. (2012)	Liu and Xie (2018)	Henklain, et al. (2018)		Ripoll-Nunez et al. (2018)
Graduate	**Estonia**	**Canada**	**Japan**	**China**	**Brazil 2**	**Brazil 1**	**Colombia**
Respectful	Knowledgeable	Knowledgeable	Approachable/Personable	Respectful	Knowledgeable	Respectful	Respectful
Punctuality/ Manages Class Time	Enthusiastic	Interesting /Creative Lectures	Humble	Confident	Accessible	Knowledgeable	Effective Communicator
Understanding	Provides Constructive Feedback	Approachable	Confident	Realistic Expectations/Fair	Promotes Critical Thinking	Confident	Knowledgeable
Knowledgeable	Approachable/Personable	Enthusiastic	Effective Communicator	Approachable/Personable	Enthusiasm	Provides Constructive Feedback	Confident
Confident	Creative/Interesting	Fair/realistic expectations	Good Listener	Knowledgeable	Strives to be a better teacher	Effective Communicator	Enthusiastic
Prepared	Professional	Humorous/ happy/positive	Creative/Interesting	Enthusiastic	Flexible/Open-minded	Realistic Expectations/Fair	Authoritative
Realistic Expectations/Fair	Realistic Expectations/Fair	Effective Communicator	Knowledgeable	Strives to be a better teacher	Effective Communicator	Strives to be a better teacher	Accessible
Enthusiastic	Presents Current Information	Flexible/Open-minded	Strives to be a better teacher	Understanding	Encourages/Cares	Presents Current Information	Provides Constructive Feedback
Provides Constructive Feedback	Prepared	Encourages Participation	Enthusiastic	Effective communicator	Creative/Interesting	Prepared	Presents Current Information
Accessible	Flexible/Open-minded	Encourages/Cares	Prepared	Prepared	Prepared	Good Listener	Good Listener

Comparison of Teaching Experience Effects on Perceptions of Master Teaching

Researchers have examined the effect of teaching experience on TBC item rankings. Ripoll-Nunez et al. (2018) suggested that years of experience might influence a faculty member's perception of teaching excellence. Several previous researchers have examined the effect of teaching experience on perceptions of teaching excellence. Ismail (2014) examined faculty TBC responses based on respondents' participation in prior graduate preparation courses,

their faculty rank, and number of years spent teaching. Analysis found that each variable showed significant differences on TBC item rankings. Ford (2016) examined faculty rank, finding significant differences. McConner (2017) determined years of teaching experience had a significant effect on one TBC item. As we might expect, a prior relationship with teaching influences perceptions of master teaching.

A student's prior experience with teaching also affects these perceptions. For the graduate student sample, reported teaching experience resulted in significant differences on seven items: (1) creative/interesting; (2) presents current information; (3) professional; (4) provides constructive feedback; (5) rapport; (6) realistic expectations/fair; and (7) sensitive/persistent. Post-hoc testing indicates that the main differences came between the Elementary/Secondary and College/University experience groups. Further, the Elementary/Secondary group tended to give higher ratings to items than the None and College/University groups. Four of the items where significant differences were present loaded on the caring/supportive subscale (provides constructive feedback, rapport, realistic expectations/fair, and sensitive/persistent). The remaining three items do not load onto either subscale.

Analysis determined no significant differences on the TBC subscales between experience groups. However, it should be noted that the Elementary/Secondary group gave higher ratings to each subscale than the other groups. Further, students reporting Elementary/Secondary level teaching experience were the only ones to emphasize the caring/supportive subscale over the professional competency/communication subscale. This difference in emphasis may be a result of the population that the Elementary/Secondary experience group works with. Likely, those teaching in these contexts prize displaying a caring and supportive attitude towards their

students. As a result, it stands to reason that students with this level of experience will demand similar qualities be exhibited by their graduate faculty.

Comparison of Academic Discipline Effects on Perceptions of Master Teaching

Academic discipline is known to affect perceptions of master teaching. Researchers have analyzed and compared student responses to the TBC based on reported academic discipline (Liu et al., 2016; Jõemaa, 2013; Ripoll-Nunez, 2018). Each study determined academic discipline had significant effects on TBC item ratings. Ismail (2014) and McConner (2017) each established the significant effects of discipline on faculty ratings of TBC items.

Disciplinary differences were present in the current sample of graduate students. Thirteen items showed significant differences based on student academic discipline: (1) accessible; (2) approachable/personable; (3) creative/interesting; (4) encourages/cares; (5) flexible/open-minded; (6) happy/positive/humorous; (7) knowledgeable; (8) presents current information; (9) promotes class discussion; (10) promotes critical thinking; (11) punctuality/manages class time; (12) rapport; and (13) strives to be a better teacher. Students who indicated they were in Non-STEM majors emphasized each of these items over their STEM counterparts.

Analysis revealed significant differences on the professional competency/communication and caring/supportive subscales between graduate students of different disciplines. Non-STEM students rated each subscale statistically significantly higher than STEM students. Not only did graduate students differ in overall subscale ratings, but also in their emphasis of each subscale. STEM students emphasized the professional competency/communication subscale, while Non-STEM students gave higher ratings to the caring/supportive subscale.

Research regarding effects of discipline is strengthened by the qualities on which students consistently differ when rating TBC items. Graduate students and Estonian students in various disciplines showed significant differences on seven common items (approachable/personable, creative/interesting, encourages/cares, presents current information, promotes discussion, promotes critical thinking, and accessible). Similar to graduate students, Estonian students in Non-STEM majors tended to rate these qualities higher than STEM students did. The opposite is true for the quality accessible.

Graduate students and Chinese undergraduates shared five items where significant differences were present (flexible/open-minded, happy/positive/humorous, presents current information, punctuality, and strives to be a better teacher). Chinese undergraduate students in STEM disciplines emphasized each of these items over Non-STEM students. Finally, the current sample of graduate students and a sample of Colombian undergraduate students had two items in common with significant differences between disciplines (promotes discussion and promotes critical thinking). Once more, Non-STEM students emphasized these qualities more so than STEM students did.

Comparison of STEM Student Top-ten

A descriptive comparison (Table 5.3) of selected top-ten lists from various studies reveals that TBC quality knowledgeable is the only quality shared between students in STEM disciplines. Like degree type and age comparisons, faculty knowledge continues as a "universal principle" of master teaching, even between students of different disciplines. Although no other TBC quality was present across all STEM samples, the qualities confident, effective communicator, and realistic expectations/fair were included on five of six (83%) STEM top-ten lists. Qualities respectful and enthusiastic were present on two-thirds of STEM top-ten lists. As is

the case with the non-U.S. student comparisons, faculty should consider these "near-universal" teaching qualities when approaching instruction in STEM classrooms.

Also, worth noting is the absence of the qualities promotes critical thinking and good listener from all lists except graduate students. Graduate students are one of few samples that include promotes critical thinking in their top-ten list, and the same is true for graduate students in STEM disciplines.

Table 5.3 STEM Student Comparisons of Top-ten TBC Qualities

Edge (2018)	Noll (2017)	Ford (2016)	Liu, et al. (2016)	Jõemaa (2013)	
Graduate	**Nursing**	**Pharmacy**	**Chemical Engineering**	**Natural Sciences**	**Technologies**
Knowledgeable	Knowledgeable	Knowledgeable	Respectful	Approachable/ Personable	Effective Communicator
Respectful	Approachable/Personable	Effective Communicator	Prepared	Accessible	Knowledgeable
Enthusiastic	Realistic Expectations/Fair	Realistic Expectations/Fair	Confident	Knowledgeable	Respectful
Confident	Effective Communicator	Approachable/Personable	Strives to be better	Confident	Confident
Effective Communicator	Enthusiastic	Enthusiastic	Enthusiastic	Effective Communicator	Approachable/Personable
Understanding	Understanding	Respectful	Knowledgeable	Creative and Interesting	Provides Constructive Feedback
Provides Constructive Feedback	Happy/Positive/ Humorous	Confident	Realistic Expectations/Fair	Prepared	Creative and Interesting
Realistic Expectations/Fair	Encourages/Cares	Encourages/Cares	Establishes Goals	Presents Current Information	Prepared
Promotes Critical Thinking	Flexible/Open-minded	Understanding	Punctuality/Manages Class time	Understanding	Presents Current Information
Good Listener	Strives to be better	Accessible	Flexible/Open-minded	Provides Constructive Feedback	Realistic Expectations/Fair

Comparison of Non-STEM Student Top-ten

A descriptive comparison (Table 5.4) of selected top-ten lists from various studies reveals that TBC qualities knowledgeable, respectful, and effective communicator are shared between six samples of students in Non-STEM disciplines (100% agreement). Once more, students consider knowledgeable a top teaching quality. For students in Non-STEM disciplines, effective communicator and respectful are shared across six samples (100%). In contrast, their STEM counterparts included effective communicator on only 83% and 66% of lists, respectively.

Several "near-universal" principles are present among Non-STEM student samples as well. For example, qualities approachable/personable and confident are present in five out of six (83%) top-ten lists, and qualities provides constructive feedback, creative/interesting, and prepared are present in four out of six (66%) of top-ten lists. The latter two, however, were not included in the graduate student list. Interestingly, the Non-STEM samples did not consider TBC quality enthusiasm to be as important as STEM students. The quality was only included on half of Non-STEM students' lists. Once more, however, only graduate students considered the quality promotes critical thinking to be a top-ten master teaching quality. This trend has occurred across several different subgroup comparisons; only foreign-educated graduate students omitted it from their lists (ranked 22nd overall by this graduate student sub-group).

Table 5.4 Non-STEM Student Comparisons of Top-ten TBC Qualities

Edge (2018)	Liu, et al. (2016)		Jõemaa (2013)		
Gradate	**Psychology**	**Education**	**Educational Sciences**	**Applied Social Sciences**	**Humanities**
Knowledgeable	Respectful	Respectful	Approachable/Personable	Effective Communicator	Respectful
Enthusiastic	Knowledgeable	Approachable/Personable	Respectful	Respectful	Effective Communicator
Respectful	Confident	Knowledgeable	Effective Communicator	Creative and Interesting	Knowledgeable
Effective Communicator	Prepared	Understanding	Creative and Interesting	Knowledgeable	Provides Constructive Feedback
Promotes Critical Thinking	Understanding	Confident	Provides Constructive Feedback	Confident	Approachable/Personable
Confident	Strives to be better	Realistic Expectations/Fair	Prepared	Provides Constructive Feedback	Prepared
Provides Constructive Feedback	Technologically Competent	Strives to be better	Knowledgeable	Approachable/Personable	Creative and Interesting
Strives to Be a Better Teacher	Realistic Expectations/Fair	Effective Communicator	Enthusiastic	Presents Current Information	Enthusiastic
Approachable/Personable	Creative/Interesting	Flexible/Open-minded	Confident	Prepared	Good Listener
Good Listener	Effective Communicator	Accessible	Good Listener	Accessible	Flexible/Open-Minded

Universal Principles of Master Teaching

Chapter Two concluded by introducing the universal principle theory of master teaching and the Teacher Behavior Checklist. Buskist and Keeley (2018) concluded that undergraduate students considered the TBC quality knowledgeable as a universal principle of master teaching. The quality was included on all top-ten lists generated by students. Buskist and Keeley also suggested that some master teaching qualities could be considered "near-universal" in that they are included in a high percentage of top-ten lists. These qualities included enthusiastic, realistic expectations/fair, effective communicator, and approachable/personable.

Table 5.5, adapted from Buskist and Keeley (2018), compares student ratings of TBC items from sixteen samples, including responses collected from graduate students. The left-hand column represents the item number for each TBC quality, while the right-hand column represents the number of times that quality was included in a top-ten by students. Data from the current study involving graduate students contributes to and strengthens the universal principle theory proposed in previous research. Graduate students included knowledgeable on their list as the number-one most important master teaching quality, continuing the trend of one-hundred percent agreement across student samples. Graduate student responses also strengthen the argument for "near-universal" principles. The sample included master teaching qualities enthusiastic (87% across samples), realistic expectations/fair (75% across samples), and effective communicator (75% across samples) in their list. Despite graduate students being an entirely different type of learner group, the sample seems to hold similar perceptions towards master teaching as other student samples.

Graduate students and faculty samples shared only two master teaching qualities in common: knowledgeable and promotes critical thinking. Results for the quality knowledgeable are hardly surprising. However, agreement between faculty and graduate students on the quality promotes critical thinking is a rare result. Only two other samples of students included the quality on their top-ten list. American students at a liberal arts college and Brazilian students were the only undergraduate student samples to include promotes critical thinking on their lists. Graduate students' inclusion of this master teaching quality serves as a reminder of the differences between undergraduate and graduate student learners, and perhaps illustrates the different demands of the degree levels.

Table 5.5 Comparative Student TBC Ratings Across Studies

TBC Item	USA 1	USA 2	USA 3	USA 4	USA 5	CAN	GER	EST	BRA 1	BRA 2	COL 1	JAP	CHI 1	CHI 2	CHI 3	**GRD**	Total Selections
1			1	10			6			2	7						5
2	4	2	4	4	2	3	2	4				1		8	4		11
3											6						1
4			3	7.5			5		3.5		4	3	3.5	2	2	**4**	10
5	6	5				2	8	5		9		6	8.5		9		9
6		6	7	2	4	7	3		3.5	7	1.5	4	10			**5**	12
7	8	8		7.5	8	9				8							6
8	10	7	6	5	5	4	10	2		4	5	9		9.5	6	**2**	14
9																	0
10	9	9			9	8		10		6							6
11			9						6.5		10	5				**9**	5
12	7				7	6											3
13												2					1
14	2	1	2	1	1	1	4	1	2	1	3	7	2	3	5	**1**	16
15			8				9	9	6.5	10		10	3.5	6	10	**10**	10
16								8	6.5		9						3
17								6									1
18																	0
19			10							3						**6**	3
20							7	3	3.5		8					**7**	5
21																	0
22																	0
23	1	3		3	3	5	1	7	3.5				8.5	7	3	**8**	12
24	5	4	5	6					1		1.5		1	1	1	**3**	10
25																	0
26					10				3.5	5		8	5.5	5	7		7
27													7	9.5			2
28	3	10		9	6	10							5.5	4	8		8

USA1 = Buskist et al. (2002); USA2 = Schaeffer et al. (2003); USA3 = Keeley et al. (2012); USA4 = Ford (2017); USA5 = Noll (2017); CAN = Vulcano (2007); GER = Zayac & Lenhard (2018); EST = Jõemaa (2013); BRA1, BRA2 = Kenklain et al. (2018); COL1 = Ripoll-Nunez et al. (2018); JAP = Keeley et al. (2012); CHI1 = Liu et al. (2015); CHI2 = Liu et al. (2016); CHI3 = Liu and Xie (2018); GRD = Edge (2018)

Much is made regarding similarities between samples of students and faculty, and for good reason. However, there is not the same volume of discussion regarding the differences between samples. The quality promotes critical thinking has been established as one master teaching quality that is valued by the current sample of graduate students and only two samples of undergraduate students. In addition to this, graduate students were one of only five samples to include the quality good listener and provides constructive feedback on their list. The first was emphasized by international student samples from Brazil, Colombia, and Japan, and by American liberal arts students. Only international students from Germany, Estonia, Brazil, and Colombia ranked the quality provides constructive feedback in the top ten.

Graduate students' emphasis of these items serves to illustrate the uniqueness of the graduate student sample. Working closely with faculty is common practice for graduate students, and the inclusion of master teaching qualities good listener and provides constructive feedback provide insight into the nature of graduate school demands and the unique perceptions that graduate students have regarding learning and their graduate master teaching faculty. Inclusion of TBC quality promotes critical thinking is perhaps the most telling difference between graduate students and students at other degree levels and conveys a different expectation and relationship that graduate students expect to have with master teaching faculty and excellent teaching.

Implications

Previous studies using the Teacher Behavior Checklist focused on undergraduate students in various academic contexts. Only one study (Jõemaa, 2013) included responses from graduate students; however, the researcher did not perform comparisons between undergraduate and graduate students. The current study was the first to exclusively explore graduate students' perceptions of master teaching using the TBC and provides new information that may be used to

assist faculty and administration in increasing teaching effectiveness and pursuing teaching excellence at the graduate level.

Implication One

Results showed that Masters and Ph.D. students agreed on seven of the top ten teaching qualities, nor were there significant differences in item ratings between groups. Instead, differences appeared to be due more to variables such as age, time spent pursuing the degree, whether they received an undergraduate degree from a U.S. or international institution, previous teaching experience, and academic discipline. These data provide new insights into graduate students for faculty and administration wishing to increase teaching effectiveness and continue pursuing excellence at the graduate level. Further, researchers may be able to increase their understanding of variables effecting perceptions of master teaching by examining what variables exert the most influence on TBC responses.

Implication Two

Item differences provide an understanding of the specific teaching qualities and behaviors valued by each graduate student subgroup. In addition, analysis of graduate student ratings of the caring/supportive and professional competency/communication subscales provide another unique understanding of the graduate student learner. In contrast to previous samples of undergraduate students, the full graduate student sample emphasized the professional competency/communication subscale (M = 4.29) over the caring/supportive subscale (M = 4.28). This difference is not statistically significant but should signal to stakeholders that graduate students are and should be treated as a separate learner population from undergraduate students.

Subscale emphasis varied within the graduate student sample across variables. Masters students emphasized the professional competency/communication qualities, younger students

emphasized caring/supportive qualities, and students in the first four years of their degree emphasized the professional competency/communication qualities. Examination of more general TBC perception differences offers insight into how faculty can approach interactions with different subgroups of graduate students. Faculty may need to exhibit TBC qualities associated with care and support when working mainly with doctoral students, younger students, and students who have been pursuing their degree for longer. In contrast, faculty can emphasize teaching technique when interacting with Masters students, older students, and those just beginning their degree. Armed with a deeper understanding of learners will allow faculty to tailor learning experience to students the moment they enter the classroom.

Implication Three

Previous authors have discussed the existence of universal principles of master teaching, and results from the current study support and expand upon prior research into this topic. The importance of faculty's knowledge of the subject matter remains as a universal principle, and faculty enthusiasm continues as a "near-universal" principle.

Is it possible that there are group-specific TBC qualities that could be considered universal or nearly so? Considering perceptions of student subgroups such as international students and STEM and Non-STEM disciplines, the answer may be "Yes." The quality knowledgeable remains a universal principle among each of these subgroups. When isolating and comparing responses from international students, instructor enthusiasm and preparation appear on more than seventy-five percent of lists. Instructor confidence is included in approximately sixty-two percent of lists. And while the quality effective communicator was not included by international graduate students, it was included on seventy-five percent of top-ten lists by international students.

Discipline comparisons reveal that within STEM samples the qualities confident, effective communicator, and realistic expectations/fair appear on a majority of lists (83%). TBC qualities respectful and enthusiastic made it on to two-thirds of STEM student lists. Non-STEM students included approachable/personable and confident on eighty-three percent of lists. Qualities provides constructive feedback, creative/interesting, and prepared appeared on two-thirds of the Non-STEM students' lists.

Finally, the current graduate student sample included TBC quality promotes critical thinking in the top-ten. Only two other samples of students included this quality. There is a strong case for this quality to be considered a "near-universal" principle among graduate students as it is present on twelve of fifteen subgroup lists. Only students from the 40 – 49 and 50+ age groups, and international students omitted promotes critical thinking from their subgroup top-ten lists.

Limitations

Online distribution of surveys allows for efficient collection of data (Dillman, 2006). However, online surveys typically yield low response rates compared to in-person distribution (Nulty, 2008). Response rates for the current study might have improved had survey distribution been executed using hard-copy surveys like other instances of TBC data collection (Buskist et al., 2002; Liu et al., 2015; Liu et al., 2016; Schaeffer et al., 2003). Access to graduate student participants was limited due to FERPA guidelines. Students were contacted though an official invitation from the Auburn University Graduate School to protect the privacy of potential respondents. According to Keeley et al. (2016), who surveyed master teachers, the Likert rating mechanism could result in all items being rated the same. However, master teachers in that study

were able to differentiate items in terms of importance, as were graduate students in the current study.

Recommendations for Future Research

This study represents new territory for research using the Teacher Behavior Checklist as graduate students were a previously unexamined student population. There are several important recommendations that may help motivate and guide researchers interested in learning more about graduate student perceptions of master teaching. First, interested parties might consider enlisting the help of a national organization to help distribute surveys to a much wider sample than was possible in this study. A greater graduate student sample size will undoubtedly provide new insights and more generalizable results. Second, it would be valuable for future research to include graduate-level faculty. Previous research compared student responses to faculty responses. The door is open to those interested in comparing graduate student responses to graduate faculty responses in the future.

Researchers have examined the effects of gender and race/ethnicity on perceptions of master teaching (Buskist et al., 2002; Donado et al., 2018; Ford, 2016; Ismail, 2014; Jõemaa, 2013; Liu & Xie, 2018; McConner, 2017; Mowrer et al., 2004; Noll, 2017; O'Meara, 2007; Schaeffer et al., 2003; Zayac & Lenhard, 2018). Given the wealth of research available on the effect of these demographic variables, the current study did not analyze their effects among graduate students. However, future researchers would do well do examine the effect of these variables among a graduate student sample. Further, future research might focus on any differences between men and women students' perceptions of men and women master teachers (i.e. how do students of different genders rate men and women faculty using the TBC).

Finally, it is time to expand TBC research to new populations. To date, TBC research has been performed in Asia, North and South America, and Europe. No studies have yet been performed in Australia or Africa. What cultural or societal influences might be uncovered that could influence perceptions of master teaching on these continents and provide valuable contributions to the current body of knowledge of master teaching? Researchers interested in breaking new ground in master teaching research are encouraged to seek opportunities to examine undergraduate and graduate student perceptions of master teaching from new areas of the globe such as Australia and Africa.

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Appendix A: Teacher Behavior Checklist

Item	Teacher Qualities and Corresponding Behaviors
1	*Accessible* (Posts office hours, gives out phone number, and e-mail information)
2	*Approachable/Personable* (Smiles, greets students, initiates conversations, invites questions, responds respectfully to student comments)
3	*Authoritative* (Establishes clear course rules; maintains classroom order; speaks in a loud, strong voice)
4	*Confident* (Speaks clearly, makes eye contact, and answers questions correctly)
5	*Creative and Interesting* (Experiments with teaching methods; uses technological devices to support and enhance lectures; uses interesting, relevant, and personal examples; not monotone)
6	*Effective Communicator* (Speaks clearly/loudly; uses precise English; gives clear, compelling examples)
7	*Encourages and Cares for Students* (Provides praise for good student work, helps students who need it, offers bonus points and extra credit, and knows student names)
8	*Enthusiastic about Teaching and about Topic* (Smiles during class, prepares interesting class activities, uses gestures and expressions of emotion to emphasize important points, and arrives on time for class)
9	*Establishes Daily and Academic Term Goals* (Prepares/follows the syllabus and has goals for each class)
10	*Flexible/Open-Minded* (Changes calendar of course events when necessary, will meet at hours outside of office hours, pays attention to students when they state their opinions, accepts criticism from others, a allows students to do make-up work when appropriate)
11	*Good Listener* (Doesn't interrupt students while they are talking, maintains eye contact, and asks questions about points that students are making)
12	*Happy/Positive Attitude/Humorous* (Tells jokes and funny stories, laughs with students)
13	*Humble* (Admits mistakes, never brags, and doesn't take credit for others' successes)
14	*Knowledgeable About Subject Matter* (Easily answers students' questions, does not read straight from the book or notes, and uses clear and understandable examples)
15	*Prepared* (Brings necessary materials to class, is never late for class, provides outlines of class discussion)
16	*Presents Current Information* (Relates topic to current, real-life situations; uses recent videos, magazines, and newspapers to demonstrate points; talks about current topics; uses new or recent texts)
17	*Professional* (Dresses nicely [neat and clean shoes, slacks, blouses, dresses, shirts, ties] and no profanity)
18	*Promotes Class Discussion* (Asks controversial or challenging questions during class, gives points for class participation, involves students in group activities during class)
19	*Promotes Critical Thinking/Intellectually Stimulating* (Asks thoughtful questions during class, uses essay questions on tests and quizzes, assigns homework, and holds group discussions/activities)
20	*Provides Constructive Feedback* (Writes comments on returned work, answers students' questions, and gives advice on test-taking)
21	*Punctuality/Manages Class Time* (Arrives to class on time/early, dismisses class on time, presents relevant materials in class, leaves time for questions, keeps appointments, returns work in a timely way)
22	*Rapport* (Makes class laugh through jokes and funny stories, initiates and maintains class discussions, knows student names, interacts with students before and after class)
23	*Realistic Expectations of Students/Fair Testing and Grading* (Covers material to be tested during class, writes relevant test questions, does not overload students with reading, teaches at an appropriate level for the majority of students in the course, curves grades when appropriate)
24	*Respectful* (Does not humiliate or embarrass students in class, is polite to students [says thank you and please, etc.], does not interrupt students while they are talking, does not

	talk down to students)
25	*Sensitive and Persistent* (Makes sure students understand material before moving to new material, holds extra study sessions, repeats information when necessary, asks questions to check student understanding)
26	*Strives to Be a Better Teacher* (Requests feedback on his/her teaching ability from students, continues learning [attends workshops, etc. on teaching], and uses new teaching methods)
27	*Technologically Competent* (Knows now to use a computer, knows how to use e-mail with students, knows how to use overheads during class, has a Web page for classes)
28	*Understanding* (Accepts legitimate excuses for missing class or coursework, is available before/after class to answer questions, does not lose temper at students, takes extra time to discuss difficult concepts)

Appendix B: Teacher Behavior Checklist (Online Survey)

Add this approval information in sentence form to your electronic information letter!

The Auburn University Institutional Review Board has approved this Document for use from 11/13/2017 to 11/12/2020 Protocol # 17-453 EX 1711

TBC - Grads

Start of Block: Default question block

INFORMATION LETTER

for a Research Study entitled

"Graduate Students' Perceptions of Master Teaching"

You are invited to participate in a research study to assess graduate students' perceptions of the behaviors and qualities that constitute excellence in college and university teaching. Enrolled graduate students at this institution are being asked to participate.

This study is being conducted by **Jon Mitchell Edge**, doctoral candidate, in the Auburn University Department of Educational Foundations, Leadership, and Technology under the direction of **Dr. James E. Groccia**, Professor Emeritus in the Department of Educational Foundations, Leadership, and Technology at Auburn University. You are invited to participate because you are an enrolled graduate student at this institution.

What will be involved if you participate? Your participation is completely voluntary. If you choose to participate in this research study, you will be asked to answer a few demographic items. You will also be asked to rate 28 teaching qualities and behaviors on a 1 to 5 Likert-type scale. Your total time commitment will be approximately 5-7 minutes.

Are there any risks or discomforts? There are no risks or discomforts associated with participating in this survey. Participation is completely voluntary and no compensation will be offered.

If you change your mind about participating, you can withdraw at any time by closing your browser window. If you choose to withdraw, your data can be withdrawn as long as it is identifiable. Once you have submitted anonymous data, it cannot be withdrawn since it will be unidentifiable. Your decision about whether or not to participate or to stop participating will not jeopardize your future relations with Auburn University or the Department of Educational Foundations, Leadership, and Technology.

Any data obtained in connection with this study will remain anonymous. You will not be asked to provide any identifiable information (i.e. your name). Information collected through your

participation may be published in a dissertation, professional journal, or presented at a professional meeting.

If you have any questions about this study, please contact Jon Mitchell Edge at (205) 901-7143 or jme0002@auburn.edu.

If you have questions about your rights as a research participant, you may contact the Auburn University Office of Research Compliance or the Institutional Review Board by phone at (334) 844-5966 or email at IRBadmin@auburn.edu or IRBChair@auburn.edu.

HAVING READ THE INFORMATION ABOVE, YOU MUST DECIDE IF YOU WANT TO PARTICIPATE IN THIS RESEARCH PROJECT. YOU MAY PRINT A COPY OF THIS LETTER TO KEEP.

TBC Please respond to each of the following items by rating the extent to which "master teachers" display each quality and the accompanying behaviors using a 1 (master teachers never exhibit this quality) to 5 (master teachers frequently exhibit this quality)

Add this approval information in sentence form to your electronic information letter!

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	1. (*Never exhibits this quality*)	2	3	4	5. (*Frequently exhibits this quality*)
Accessible (Posts office hours, gives out phone number and e-mail information)	○	○	○	○	○
Approachable/Personable (Smiles, greets students, initiates conversations, invites questions, responds respectfully to student comments)	○	○	○	○	○
Authoritative (Establishes clear course rules; maintains classroom order; speaks in a loud, strong voice)	○	○	○	○	○
Confident (Speaks clearly, makes eye contact, and answers questions correctly)	○	○	○	○	○
Creative and Interesting (Experiments with teaching methods; uses technology devices to support and enhance lectures; uses interesting, relevant, and personal examples; not monotone)	○	○	○	○	○
Effective Communicator (Speaks clearly/loudly; uses precise English; gives clear, compelling examples)	○	○	○	○	○
Encourages and Cares for Students (Provides praise for good student work, helps students who need it, offers bonus points and extra credit, and knows student names)	○	○	○	○	○

Enthusiastic About Teaching and About Topic (Smiles during class, prepares interesting class activities, uses gestures and expressions of emotion, to emphasize important points, and arrives on time for class)	○	○	○	○	○
Establishes Daily and Academic Term Goals (Prepares/follows the syllabus and has goals for each class)	○	○	○	○	○
Flexible/Open-Minded (Changes calendar of course events when necessary, will meet at hours outside of office hours, pays attention to students when they state their opinions, accepts criticism from others, and allows students to do make-up work when appropriate)	○	○	○	○	○
Good Listener (Doesn't interrupt students while they are talking, maintains eye contact and asks questions about points that students are making)	○	○	○	○	○
Happy/Positive Attitude/Humorous (Tells jokes and funny stories, laughs with students)	○	○	○	○	○
Humble (Admits mistakes, never brags, and doesn't take credit for others' successes)	○	○	○	○	○

Knowledgeable About Subject Matter (Easily answers students' questions, does not read straight from the book or notes, and uses clear and understandable examples)	○	○	○	○	○
Prepared (Brings necessary materials to class, is never late for class, and provides outline of class discussion)	○	○	○	○	○
Presents Current Information (Relates topic to current, real-life situations; uses recent videos, magazines, and newspapers to demonstrate points; talks about current topics; and uses new or recent texts)	○	○	○	○	○
Professional (Dresses nicely [neat and clean shoes, slacks, blouses, dresses, shirts, ties] and no profanity)	○	○	○	○	○
Promotes Class Discussion (Asks controversial or challenging questions during class, gives points for class participation, and involves students in group activities during class)	○	○	○	○	○
Promotes Critical Thinking/Intellectually Stimulating (Asks thoughtful questions, uses essay questions on tests and quizzes, and assigns homework, and holds group discussions/activities)	○	○	○	○	○

Provides Constructive Feedback (Writes comments on returned work, answers students' questions, and gives advice on test-taking)	○	○	○	○	○
Punctuality/Manages Class Time (Arrives to class on time/early, dismisses class on time presents relevant materials in class, leaves time for questions, keeps appointments, and returns work in a timely way)	○	○	○	○	○
Rapport (Makes class laugh through jokes and funny stories, initiates and maintains class discussions, knows student names, and interacts with students before and after class)	○	○	○	○	○
Realistic Expectations of Students/Fair Testing and Grading (Covers material to be tested during class, writes relevant test questions, does not overload students with reading, teaches at an appropriate level for the majority of students in the course, and curves grades when appropriate)	○	○	○	○	○
Respectful (Does not humiliate or embarrass students in class, is polite to students [says thank you and please, etc.], does not interrupt students while they are talking, and does not talk down to students)	○	○	○	○	○

Sensitive and Persistent (Makes sure students understand material before moving, holds extra study sessions, repeats information when necessary, and asks questions to check student understanding)	○	○	○	○	○
Strives to Be a Better Teacher (Requests feedback on his/her teaching ability from students, continues learning [attends workshops, etc. on teaching], and uses new teaching methods)	○	○	○	○	○
Technologically Competent (Knows how to use a computer, knows how to use e-mail with students, knows how to use overheads during class, and has a Web page for classes)	○	○	○	○	○
Understanding (Accepts legitimate excuses for missing class or coursework, is available before/after class to answer questions, doesn't lose temper at students, and takes extra time to discuss difficult concepts)	○	○	○	○	○

End of Block: Default question block

Start of Block: TBC - Open-ended Question

Q9 Are there any other qualities or behaviors you would add to the previous list?

_____

_____

End of Block: TBC - Open-ended Question

Start of Block: Please Respond to the following Questions

Q3 What is your age?

Q5 How many years have you been pursuing your degree?

▼ 1 ... 10+

Q11 Country where you completed your undergraduate degree

▼ U.S.-based institution ... International-based institution

Q4 What type of degree are you currently seeking?

▼ Masters ... Professional (J.D., M.D., PharmD, etc.)

Q6 Please indicate your academic discipline.

Q8 Which of the following best describes your teaching experience

▼ None ... Full-time appointment

End of Block: Please Respond to the following Questions

Appendix C: IRB Approval Form

AUBURN UNIVERSITY INSTITUTIONAL REVIEW BOARD for RESEARCH INVOLVING HUMAN SUBJECTS

REQUEST FOR EXEMPT CATEGORY RESEARCH

For Information or help completing this form, contact: **THE OFFICE OF RESEARCH COMPLIANCE**, 115 Ramsay Hall
Phone: 334-844-5966 **e-mail:** IRBAdmin@auburn.edu **Web Address:** http://www.auburn.edu/research/vpr/ohs/index.htm

Revised 2/1/2014 **Submit completed form to IRBsubmit@auburn.edu or 115 Ramsay Hall, Auburn University 36849.**

Form must be populated using Adobe Acrobat / Pro 9 or greater standalone program (do not fill out in browser). Hand written forms will not be accepted.

Project activities may not begin until you have received approval from the Auburn University IRB.

1. PROJECT PERSONNEL & TRAINING

PRINCIPAL INVESTIGATOR (PI):

Name Jon Mitchell Edge, M.Ed. **Title** Graduate Student **Dept./School** Educational FLT

Address 392 S. Donahue **AU Email** jme0002@auburn.edu

Phone (205) 901-7143 **Dept. Head** Sheri Downer

FACULTY ADVISOR (if applicable):

Name James E. Groccia, Ph.D. **Title** Professor Emeritus **Dept./School** Educational FLT

Address 3084 Haley Center

Phone (334) 844-4460 **AU Email** groccje@auburn.edu

KEY PERSONNEL: **List Key Personnel (other than PI and FA).** Additional personnel may be listed in an attachment.

Name	Title	Institution	Responsibilities
David Shannon	Professor	Auburn University	Data Analysis

KEY PERSONNEL TRAINING: **Have all Key Personnel completed CITI Human Research Training (including elective modules related to this research) within the last 3 years?** ☑ **YES** ☐ **NO**

TRAINING CERTIFICATES: **Please attach CITI completion certificates for all Key Personnel.**

2. PROJECT INFORMATION

Title: Graduate Students' Perceptions of Master Teaching

Source of Funding: ☑ **Investigator** ☐ **Internal** ☐ **External**

List External Agency & Grant Number: N/A

List any contractors, sub-contractors, or other entities associate with this project.

N/A

List any other IRBs associated with this project (including those involved with reviewing, deferring, or determinations).

N/A

FOR ORC OFFICE USE ONLY

DATE RECEIVED IN ORC: _____ **by** _____ **APPROVA**
DATE OF IRB REVIEW: _____ **by** _____ **APPROVA**
DATE OF ORC REVIEW: _____ **by** _____ **INTERVAL**
DATE OF APPROVAL: _____ **by** _____
COMMENTS:

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Protocol # 17-453 EX 1711