Effective Teacher Qualities from International Mathematics, Science, and Computer Teachers' Perspectives

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The purpose of this study is to investigate how international teachers, who were from overseas but taught in the United States, rate effective teacher qualities in three domains; personal, professional, and classroom management skills. The study includes 130 international mathematics, science, and computer teachers who taught in a multi-school charter school system in south-central America. It was found that international teachers perception of effective teachers was similar to findings of other research regardless of nationality as long as teachers enjoys teaching, explain the materials clearly, and grade student work fairly. Univariate ANOVA analysis revealed that international teachers' US teaching experience had statistically significant effect on teachers' ratings of professional skills. Findings were discussed in light of developing more general effective teacher qualities regardless of subject matter.

Keywords: teacher qualities, international, math education, science education, computer education

INTRODUCTION

Teacher effectiveness is an important theme in educational research and professional development programs due to inevitable role of teachers in students' learning. However, defining qualities of an effective teacher is not an easy task because of various quality dimensions determined by National Board for Professional Teaching Standards (NBPTS) (McColskey et al., 2005). For instance, some researchers might argue the primary component in teacher quality is content knowledge or effective use of pedagogy while others may argue teacher quality should be evaluated solely on

student outcomes (e.g., McCaffrey, Lockwood, Koretz & Hamilton, 2003; McCall, 2008). There may also be ambiguity from how those student outcomes describe effective teacher qualities.

One way to determine qualities of an effective teacher is to look at students' performance on end of the year state tests (McCaffrey, Lockwood, Koretz & Hamilton, 2003). With the current accountability movement, individual teachers have been held accountable for student achievement by looking at student scores on standardized state tests. For example, schools in Texas that receive inferior ratings are encouraged not to renew the contracts of those teachers whose students did not pass these high-stakes tests (McCall, 2008). Another way to measure teacher quality is look at long-term outcomes, which are more complicated. Researchers have claimed, "Teacher quality is multi-dimensional and complex in nature, and can be measured in multiple ways" (McColskey et al., 2005,

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p.2). The NBPTS defines a highly qualified teacher as one who has been assessed in terms of knowledge of content and pedagogy, use of high-quality instructional practices, assessment skills, reflection on their practice, and involvement in professional activities (McColskey et al., 2005). The NBPTS does not include teachers in terms of their students' achievement on state tests or other measures.

The No Child Left Behind Act defined "highly qualified" to ensure that all children receive an equitable, quality education (NCLB, 2002). This Act requires three qualifications in order for a teacher to be considered highly qualified: a bachelor's degree, state teacher certification, and the demonstration of subject matter competence in each subject taught (United States Department of Education, 2007). Accordingly, the characteristics of highly qualified teachers changes depending on who is researching the topic. However, it is not difficult to say that teacher effectiveness must be measured when students' learning is at stake. Rinaldo et al. (2009) underlined the importance of this task and proposed three solutions that should be implemented in teacher education programs:

First, they must operationally define the dispositional qualities that they expect of their graduates. Second, they must develop an instrument that allows them to measure teacher candidate dispositions over the course of the program as well as a process that provides intervention for candidates who fall short and an alternative plan for those who are deficient in one area or another (Weiss, 1997). Finally, there is a clear need to assess whether or not candidates exemplify these qualities upon graduation (p. 44).

There has been a substantial amount of international research focused on international teachers' (teaching in their own countries) professional and affective skills as it pertains to the teacher effectiveness (e.g., Arikan, Taser & Sarac-Suzer, 2008; Brosh, 1996; Hoon & Tomiko, 2008; Kalebic, 2005; Park & Lee, 2006). However, there is a paucity of research on international teachers' (who teach outside of their homeland) perspectives on qualities that make teachers effective. Therefore, it is necessary to shed light on this issue from an international teacher's perspective.

THEORETICAL FRAMEWORK

The theoretical framework of this study is derived from literature on (a) definition of effective teacher research, (b) effective teacher research for different levels, and (c) effective teacher research from an international perspective.

Who is an effective teacher?

When searching for answers to questions such as: who is an effective teacher and what makes the teacher effective, paradigm shifts need to be considered. According to a business school researcher, "A good teacher was tough. Whoever had the highest attrition rate was the best teacher. At that time, if you had a PhD, you were still breathing, and you could solve Problem #17-19 in a Finance class on the board, you were a teacher" (Bhada, 2002, p. 23). When the teacher-centered era became popular, administrators focused

more on student evaluations in order to determine who the successful teachers were. Today, the emphasis mostly focuses on student outcomes when measuring teachers' success (Bhada, 2002). In a more simplistic definition, Ayers (1994) stated that even an alien from another planet can describe an exemplary or effective teacher by just watching Hollywood movies in which teachers save children from drugs, violence, and their own families.

On the other hand, the No Child Left Behind (NCLB) Act's "highly qualified" teacher description requires teachers to hold minimum a bachelor's degree, state licensure/certification. In addition to these qualifications, teachers must demonstrate competency by taking state mandated exams such as the Praxis. However, contemporary research reveals that there is only a small relationship between teacher certification and teacher effectiveness in terms of student achievement (Gordon, Kane, & Staiger, 2006). Thus a bachelors' degree, state certification, and a competency test may not ensure teacher's effectiveness.

Walker (2008) defined an effective teacher as the one who is most successful in helping respondents learn. Namely, a teacher becomes effective when she/he provides instruction to students with different abilities while making sure that students ultimately learn. When all these definitions are considered, teacher's effectiveness is mainly related to teacher actions, but the factor that determines if the teacher is effective is students' learning or achievement (Clark, 1993). Overall, an effective teacher can be described as the one who always produces a class of high-achievers, or who generally receives positive evaluations from students, supervisors and administrators (Stronge, 2007).

Research on Teacher Effectiveness at Different Levels

Research on effective teaching has typically examined two categories: (1) professional skills such as pedagogy, subject matter knowledge, policy, teaching styles and etc. and (2) personal teacher characteristics such as caring, enthusiastic, fun, humorous, friendly, supportive, respectful, and etc (Mowrer-Reynolds, 2008). Substantial body of research has suggested that even though teachers' subject matter knowledge is important (Chabalengula, Mumba & Mbewe, 2012), their personal characteristics matter the most when the student achievement is at stake (Ayers, 1995; Bettencourt, Gillett, Gall & Hull, 1983; Noddings, 2003; Thompson, Greer & Greer, 2004). Therefore, the question needs to be answered should seek the existence and/or absence of which of those personal characteristics make one teacher effective and the other ineffective respectively.

In an elementary level study, Nikola-Lisa and Burnaford (1994) examined 32 sixth grade classrooms of urban and suburban schools in Chicago area. The results of their interviews with the students revealed that a good teacher was portrayed as *someone who catches your interest, helps students that need help, smart, and teaches in a fun way*. In one of the early studies at college level, Bousfield (1940) found that when college students were told to rate their professors, *professors' attitudes toward students* were perceived more important than their academic skills. Costin, Greenough and Menges (1971) also reported that college students associated their *teachers' agreeableness, emotional stability, and enthusiasm* with the teachers' effectiveness positively. Moreover, Kramer and Pier (1997) did interviews with college students and found that effective teachers were *energetic and enthusiastic*. Considering all these studies, findings point out that student benefited more from teachers' affective characteristics than teachers' content knowledge expertise (Mowrer-Reynolds, 2008).

In a fifteen-year longitudinal, qualitative and quasi-research study (Walker, 2008), students of education major were asked to write an essay on their most unforgettable teachers: "Those who had the greatest impact on their lives and who were most successful in teaching the subject matter; the teachers they most wanted to emulate and who might have had the greatest impact on their decision to enter teaching" (p. 63). This study also pointed out that several personality traits are prevalent among students' favorite and most memorable teachers. Such teachers *were prepared for the class; positive; creative; fair; compassionate and forgiving; hold high expectations; display a personal touch; cultivate a sense of belonging; have a sense of humor; respect students; and admit mistakes*. These were the twelve characteristics of an effective teacher developed by college students who committed themselves to be like.

In a similar college level study, Mowrer-Reynolds (2008) used *exemplary teacher* term instead of *effective teacher,* in which she investigated specific teacher qualities associated with an exemplary teacher determined by college students seeking teacher certification. 137 pre-service teachers selected five qualities from a list of twenty that best described their exemplary teachers and ranked them. It was found that students preferred teachers' personal characteristics to their professional skills as characteristics of an exemplary teacher. As in other studies, *enthusiasm* was ranked as the most important teacher quality that makes one teacher more effective than others. There was a gender difference in students' perceptions of exemplary teacher. While no female students chose professional skills as their top quality descriptors, 41% of the males selected both subject matter knowledge and enthusiasm as two of their top descriptors respectively. Top characteristics of exemplary teachers selected by fifty-

one male pre-service educators are ranked *enthusiastic* (41%), *knows subject matter* (41%), *respectful of students* (39%), *humorous/funny* (39%), *entertaining/holds attention* (35%), and *easy to talk to/approachable* (35%). Female selections of exemplary teachers are ranked *enthusiasm* (56%), *respectful of students* (37), *high expectations* (37%), *humorous/funny* (35%), and *provides outside help* (34%).

Given all such studies, it is clear to say that teachers may know the subject matter well, but they may not have the optimum effect on students' learning until they posses certain personal characteristics. Almost all related studies agree that the first character quality teachers should have is *enthusiasm*. Being *approachable and fair, holding high expectations, and having sense of humor* are the other qualities one should have in order to purposefully engage students to teach the material. Rogers (1969)' quotation eloquently explains the situation as follows:

> *…learning rests not upon the teaching skills of the teacher, not upon scholarly knowledge of the field, not upon curricular planning, not upon audiovisual aids, not upon lectures and presentations, not upon an abundance of books… No, the facilitation of significant learning rests upon certain attitudinal qualities that exist in the personal relationship between teacher and learner (p. 121).*

Research on Teacher Effectiveness at International Level

International studies on teacher qualities have revealed parallel results as well. To illustrate, Arikan, Taser and Suzer (2008) studied qualities of effective teachers from Turkish preparatory school students' perspectives. They surveyed 100 ESL students and found similar personal characteristics for teacher effectiveness: "An effective teacher is a friendly, young, enthusiastic, creative, and humorous person whose gender is not important" (p. 1). These students also named the teachers as ineffective, who are significantly following their lesson plans, not using different teaching techniques, and not caring the students' needs. Another study underlining the importance of personal traits in terms of exemplary teacher qualities was conducted on Japanese students who described their effective teachers as *the ones who teach outside the syllabus* (Hoon & Tomiko, 2008).

In a research being carried out Iran and studying qualities of effective ESL teachers, Shishavan and Sadeghi (2009) administered a tailor-made questionnaire to 59 ESL teachers and 215 ESL learners at universities, high schools, and language institutes. As opposed to other studies, the qualitative analysis of teachers' answers showed that teachers valued more professional skills over personal characteristics such as mastery of the target language, good knowledge of pedagogy, and the uses of different teaching methods as well as a good personality as it was the case in some other ESL teacher

quality studies (Brosh, 1996; Kalebic, 2005; Park & Lee, 2006; Pettis, 1997).

Considering all these international studies, the researchers emphasized the importance of language knowledge as a crucial factor in describing an effective ESL teacher. On the other hand, ESL learners chose more about the characteristics of teachers and the way they treat their students. More specifically, students stated some effective teachers' personal qualities including *being patient, flexible, caring about students' needs, optimistic, smart, creative, and having positive attitudes towards students.* Shortly, there is a general agreement between local and international research literature that teachers cannot be described or evaluated without taking their personal characteristics into account.

Determining the core qualities of an effective teacher is absolutely necessary due to teachers 'ultimate role in the classroom providing the greatest effect on students' learning. Thus, ignoring the views of the teachers means ignoring an extremely valuable source of information. Reviewed literature provides multiple definitions of effective teacher by mainly considering effectiveness criterion itself; but it is easy to say that core teacher qualities from each part of the research should be identified and used to provide rich instructional environments (McCall, 2008; Rinaldo et al., 2009). In addition to administrators, students, and local teachers' perspectives, the list should also need to include qualities determined from the international teachers' perspective because American public schools are in urgent need of quality science, math, and computer teachers. President Obama in his remarks on the "Educate to Innovate" Campaign and Science Teaching and Mentoring Awards said:

> *But despite the importance of education in these subjects (math, science, technology, and engineering), we have to admit we are right now being outpaced by our competitors. One assessment shows American 15-year-olds now ranked 21st in science and 25th in math when compared to their peers around the world. Think about that -- 21st and 25th. That's not acceptable. And year after year the gap between the number of teachers we have and the number of teachers we need in these areas is widening. The shortfall is projected to climb past a quarter of a million teachers in the next five years -- and that gap is most pronounced in predominately poor and minority schools (p.2, 2010).*

The purpose of the study is to compile a list of qualities of effective teachers as categorized by international beginning and in-service teachers to determine if the qualities of effective teachers are universal. Some studies like Stronge's (2007) *Qualities of Effective Teachers* suggested that although most research indicates that teacher effectiveness is determined based on instructional and management processes. However, there are a number of qualitative studies supporting

teacher's affective characteristics or social behaviors over professional skills. In this study, particular teacher qualities and how international teachers rank both personal, professional and classroom management characteristics were investigated.

METHOD

In contrast to other studies, this study attempts to describe the qualities of an effective teacher from the perspectives of international teachers who work in the United States and teach middle and high school mathematics, middle school science, and high school computer technology.

Instrument

An instrument modified from the studies of McBer (2000) and McCall (2008) was used to measure teacher's personal opinions regarding the qualities of effective teaching (QETS). It included questions dealing with teachers' demographics and the quality items. The central construct of the quality of an effective teacher was composed of three sub-constructs: personal, professional and classroom management. The QETS was designed for and used with a population similar to the ones in the other studies that administered well-researched instruments, thereby increasing its content validity.

The demographic part included questions identifying position, teaching service, major, years of experience, degree, gender, marital status, and number of children, which provided information for possible future analysis and allowed a comparison based on such categories.

Here, the term "educator" was used to include teachers as well as school services personnel, such as school counselors, school administrators, speech and hearing specialists, school nurses, and school psychologists. There were three quality sub-constructs included in the 20 items on personal characteristics (PEC), 15 on professional characteristics (PRC), and nine on classroom management (CM). All QETS items were randomly arranged based on a Likert-type five-point scale scored using the following key: 5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, and 1 = strongly disagree.

Participants

Participants included international grades 4-12 beginning and in-service/experienced teachers from 33 different campuses of the Harmony Public Schools (HPS). Harmony Public Schools (HPS) is a charter school system consisting of 40 schools serving more than 25,000 students with each campus having its' own building level administration. Harmony has a diverse student population including mostly underserved communities. "Of the current total student population, 46 percent are Hispanic, 18.5 percent are Caucasian, 19 percent are African American, 16.4 percent are Asian, and 0.4 percent are Native American. Fifty-seven percent are economically disadvantaged (in certain cities and schools, this number is higher)" (Harmony Public Schools, 2013, p.1). The reason for selecting the HPS system was (1) HPS employs some Mathematics, Science, and Computer teachers who are non-US citizens and (2) Most of its campuses are successful according to the state's standardized test and college

Table 1. Participants by key demographics

Characteristics		Area			
		Math (*n* = 58)	Science (*n* = 39)	Computer (*n* = 33)	Total (*n* = 130)
Total Experience	0-1 Year	25	14	10	49
	1-3 Years	14	11	11	36
	4-7 Years	8	9	4	21
	8-10 Years	5	1	2	8
	10+ Years	4		2	6
US Experience	0-1 Year	39	18	14	61
	1-3 Years	10	9	9	28
	4-7 Years	1		4	5
	8-10 Years	1			1
Degree	Bachelor's	52	34	27	113
	Master's	6	5	6	17
Marital Status	Single	23	16	11	50
	Married	34	23	22	79
Gender	Female	10	9	9	28
	Male	48	30	23	101

admission results.

The study was conducted with teachers who were in their mandatory 10-day summer teacher preparation programs in July of 2010 ($N = 180$). 130 teachers were purposefully included in the current study (see Table 1) to test the qualities of effective teachers. Gender distribution showed an approximate 4:1 ratio in favor of male teachers. Their years of experience ranged from 0 to 1 (37.7%), from 1 to 3 (27.7%), from 4 to 7 (16.2%), from 8 to 10 (6.2%), and over 10 (4.6%). Less than half of the participants (38.5%) were single.

Data Collection

To address the qualities of effective teaching from international teachers' perspectives, qualitative and quantitative data were gathered from the following two sources, thus requiring a mixed methods approach (Johnson & Onwuegbuzie, 2004) for this study.

The QETS. To measure participants' choices on the qualities of effective teaching, data were gathered from QETS responses. The paper-based version was administered to four different groups of participants in summer 2010. All participants ($N = 180$) were asked to take the survey after their preparation programs. 130 (72.2%) completed surveys were collected with an assurance of confidentiality.

Focus group interview. To obtain more in-depth information on the perceptions of participants regarding effective-teacher characteristics and increase the validity of the QETS findings, data were collected through semi-structured interviews during a focus group of teachers. The focus group consisted of four math teachers (two males and two females), who volunteered to be interviewed during their training. Participants were asked seven questions (see Appendix) about the most important characteristics of effective teaching, characteristics they possessed, and their advice for new educators. These focus groups provided qualitative information, which supported the data for the purpose of answering each of the three research questions.

Data Analysis

Both qualitative and quantitative data analysis techniques were used to test the qualities of effective teacher (Johnson & Onwuegbuzie, 2004). Quantitative analysis was used for participants' responses on the QETS. Qualitative analysis was used for non-quantifiable data, focus groups, and to test the validity of participants' scores obtained from the QETS. The analysis techniques were performed separately, but the results were combined at the interpretive stage.

Due to the nature of the data collected (survey data

Table 2. Means of Personal Characteristics of Effective Teacher Across by Participants' Teaching Subject

Characteristics	Teaching Subject			
	Math ($n = 58$)	Science ($n = 39$)	Computer ($n = 33$)	Total ($n = 130$)
Willingness to admit mistakes	4.14	3.68	4.12	4.00
Not egotistical	4.24	3.85	4.03	4.08
Good communication skills (including listening)	4.49	4.47	4.61	4.52
Ability to resolve conflicts	4.29	4.24	4.52	4.33
Ability to motivate students	4.47	4.37	4.55	4.46
Caring relationships with students	4.33	4.54	4.42	4.42
Respectful of all students	4.52	4.46	4.79	4.57
Non-judgmental	4	4.06	4.33	4.10
Interested in students	4.47	4.41	4.58	4.48
Enjoys teaching	4.64	4.49	4.7	4.61
Sense of humor	3.83	4.15	4.24	4.03
Enthusiastic about the subject	4.45	4.08	4.62	4.38
Self-confident	4.53	4.21	4.61	4.45
Friendly	4.16	4.38	4.45	4.30
A life-long learner	4.34	4.29	4.61	4.39
Advanced degrees (master, doctorate, etc.)	3.47	3.43	3.69	3.51
Tolerant of other viewpoints	4.14	4.13	4.42	4.21
Flexible	3.66	4	4	3.84
Shows concern for student progress	4.26	4.39	4.31	4.31
Invites constructive criticism	3.93	4.05	4.38	4.07

using Likert-scale items on three constructs measuring participants' perceptions on teacher qualities), non-parametric inferential and descriptive statistics were calculated on the scores of the dependent measures. To test differences among the groups of teachers based on their discipline, a non-parametric MANOVA (Hair, Black, Babin, Anderson, & Tatham, 2006) was employed using SPSS 18.0 software. The three constructs of the QETS served as the dependent variables. Moreover, data consolidation, transformation, and coding techniques were used to evaluate core qualities of effective teachers based on the qualitative portion of this study (Anfara, Brown, & Mangione, 2002).

RESULTS

The results represent both a quantitative and qualitative summary of the qualities of effective teachers using data from the QETS responses and focus-group interviews respectively. The initial quantitative analysis of the QETS responses was a calculation and simple ranking of means for each of the items in the personal, professional, and classroom management categories. Rankings of the three categories by all teaching subjects resulted in slightly different mean ranks for the personal (M = 4.25) and professional (M = 4.18), and classroom management (M = 4.34) categories. Both the personal and classroom management categories had relatively higher mean ranks than the professional skills category. None of the characteristics or skills had below 3.0 accepted as an average score, on the Likert scale (QETS). *Enjoys teaching, respectful of all students*, and *grades student work fairly* were the highest ranked characteristics or skills in all three categories from all the teachers. Tables 2, 3 and 4 contain the results related to teacher ratings for qualities of effective teachers from the QETS responses in each category separately.

An examination of data contained in Table 2 reveals the mean rating of personal characteristics of effective teachers by those respondents who teach mathematics, science and computer technology. The personal category resulted in similar means for mathematics (M = 4.22) and science (M = 4.18) teachers, but slightly different means (M = 4.4) for technology teachers. The highest-ranked personal characteristics listed by mathematics, science and technology teachers respectively were *enjoys teaching, caring relationships with students* and *respectful of all students* with means of 4.64, 4.54, and 4.79 respectively. The lowest-ranked personal characteristic was the same, *advanced degrees (master, doctorate, etc.)*, for all three teaching subject categories with means of 3.47, 3.43 and 3.69, respectively.

The data compiled in Table 3 shows participant responses ranking professional characteristics of effective teachers by subject. Means of the professional category resulted in slightly different means for math (M = 4.12), technology (M = 4.27) and science (M = 4.37) teachers. The highest professional characteristics listed by mathematics, science and computer teachers respectively were *explains clearly, uses a variety of teaching methods* and *ability to make the material interesting* with means of 4.62, 4.46, and 4.58 respectively. The lowest-ranked professional characteristic was the same, *encourages class discussion*, for both science and technology teachers with means of 4.03 and 4, respectively. However, mathematics teachers indicated *emphasis on lab activities* as the lowest-ranked characteristic.

Table 4 contains data from international in-service teacher responses ranking classroom management quality characteristics by subject area. Rankings of the classroom management category resulted in similar means for mathematics (M = 4.32), science (M = 4.36) and computer (M = 4.34) teachers. The highest-ranked classroom management skills, listed by mathematics, science and technology teachers respectively, were *effective use of class time, available for help outside of class* and *grades student work fairly* with means of 4.61, 4.54, and 4.69 respectively. The lowest-ranked personal characteristic was the same, *few discipline problems,* according to all three content area teachers with means of 3.89, 4.05 and 3.58, respectively.

A MANOVA was performed on all three dependent variables (categories) by grouping participants based on three factors, *teaching subject, teaching experience in the United States (US experience)* and *total teaching experience (total experience)*. One of the group levels (8-10 years) for "US experience" was excluded to satisfy the assumptions of related statistical analyses. The overall group factor for "US experience (F (6, 128) = 1.382, p = .227)," "total experience (F (12, 193) = .748, p = .703)" and "teaching subject (F (6, 158) = 2.011, p = .067)" were not statistically significant in the multivariate analysis, which means that international teachers' perceptions of teacher qualities were not significantly dependent on their "teaching experience in the United States," "total teaching experience" and "teaching subject." On the other hand, an examination of univariate ANOVAs yielded only one statistically significant dependent measure, professional characteristics (F (2, 86) = 4.182, p < .05), among the three levels of "US experience" factor, which indicates that participants' "US experience" had a statistically significant effect on teacher qualities related to professional skills. To follow up this significant effect, Tukey's HSD post-hoc tests showed that mean scores for "professional characteristics" category were statistically significantly different between teachers who have "0-1 year" and "1-3 years" experiences (p < .05), but not between teachers who have "0-1 year" and "4-7 years" experiences (p = .688), and between teachers who have "1-3 year" and "4-7 years" experiences (p = .953).

Table 3. Means of Professional Characteristics of Effective Teachers Across by Participants' Teaching Subject

Characteristics	Teaching Subject			
	Math (*n* = 58)	Science (*n* = 39)	Computer (*n* = 33)	Total (*n* = 130)
Ability to make the material relevant/related to life	4.19	4.34	4.42	4.29
Ability to make the material interesting	4.25	4.31	4.58	4.35
High expectations for students	4.09	4.33	4.25	4.20
Engages students with the content	4.3	4.34	4.5	4.36
Good questioning, structuring and probing techniques	4.44	4.16	4.56	4.38
Less lecture/more hands-on activities	3.59	4.21	4.3	3.95
Emphasis on lab activities	3.42	4.16	4.32	3.87
Encourages class discussion	3.83	4.03	4	3.93
Presents origins of concepts and ideas	4.12	4.15	4.23	4.16
Emphasizes learning of concepts over facts	4.07	4.22	4.22	4.15
Explains clearly	4.62	4.41	4.5	4.53
Presents recent developments	3.95	4.18	4.44	4.14
Summarizes major points	4.45	4.39	4.34	4.40
Allows students to share their knowledge and experiences	4.14	4.37	4.53	4.31
Uses a variety of teaching methods	4.29	4.46	4.38	4.36

Table 4. Means of Classroom Management Skills of Effective Teachers Across by Participants' Teaching Subject

Skills	Teaching Subject			
	Math (*n* = 58)	Science (*n* = 39)	Computer (*n* = 33)	Total (*n* = 130)
Keeps students on-task	4.41	4.39	4.28	4.38
Effective use of class time	4.61	4.41	4.41	4.50
Good classroom organization	4.41	4.28	4.47	4.39
Recognizes and greets students outside of class	4.14	4.35	4.26	4.23
Holds students accountable	4.1	4.24	4.31	4.20
Few discipline problems	3.89	4.05	3.58	3.87
Provides feedback on assignments	4.38	4.47	4.48	4.43
Available for help outside of class	4.4	4.54	4.59	4.49
Grades student work fair	4.52	4.51	4.69	4.56

The attribute of teacher quality was also assessed from focus group interviews with four mathematics teachers. Major themes related to teacher effectiveness were "relationships between students and teachers," "preparedness" and "classroom organization." In regard to the first and second major themes, when asked about their perceptions of effective teaching, all participants focused on caring relationships with students and showing concern for students' progress. For example, one typical comment was, "teachers should create such a warm (or conducive) environment that students feel safe and encouraged to ask questions so they can believe and trust their teachers." Another comment to the same question was, "teachers [should be] prepared, motivated, positive and enthusiastic about the topic they teach,"

which potentially supports the second major theme. When asked about their perceptions of ineffective teacher, participants pointed out classroom organization issues at most. To illustrate, one participant reported, "I think that an ineffective teacher is the one who does not [know how to] manage the classroom well and gets angry [easily] with the students in extraordinary situations."

DISCUSSION

The purpose of this research was to investigate qualities of an effective teacher from perspectives of international teachers, who taught in the United States, in three different categories: personal, professional and

classroom management respectively. The second aim was to determine whether international teachers prioritize qualities similar to the ones ranked by native born educators teaching in the U.S. Overall, the findings show that the top-ranked teacher qualities of this study were supportive of past findings regardless of nationality as long as teachers enjoy teaching, explain teaching materials clearly, and grade students work fairly.

One of the findings was that teachers' personal characteristics (M = 4.25) were higher than their professional skills (M = 4.18) when quality matters. The top three personal characteristics determined in this study were similar with findings of the previous studies such as *enjoys teaching* (McCall, 2008: Walls, Nardi, von Minden & Hoffman, 2002), *respectful of all students* (McCall, 2008; Walker, 2008), and *good communication skills* (including listening) (McCall, 2008). This finding was also supported by focus group results in which all four teachers highlighted the importance of *being positive* and *enthusiastic* in their teaching (Delpit, 2006; Mowrer-Reynolds, 2008). This might indicate that teachers' personal qualities are, at least, as important as their professional skills when it comes to engaging students and teaching content, thus affecting student learning (Kramer & Pier, 1997; Mowrer-Reynolds, 2008; Nikola-Lisa & Burnaford, 1994).

One of the important findings of this study revealed that having an advanced degree could be necessary but not sufficient to teach well as it was ranked as the lowest personal characteristic of effective teacher by all three subject (Mathematics, Science and Technology) teachers. Accordingly, this may indicate that teachers do not teach with a diploma (Master's or Ph.D.) unless they maintain care and concern for their students, and find ways to engage them first. This can also be seen in the ratings of classroom management skills ranked as the highest (M = 4.34). Similarly, as noted in qualitative results, teachers described effective teachers as the ones who were prepared and disciplined and ineffective teachers as the ones who usually have major classroom management problems. Truly, these findings are congruent with Marzano, Pickering and Pollock's (2001) study in which they indicated that effectively managed classrooms could make a huge difference in student achievement. In other words, classroom management is a crucial component for effective teaching.

International teachers rated *explaining clearly*, *summarizing major points* and *good questioning techniques* as the top three professional skills that effective teachers possessed respectively regardless of subject matter they taught. This finding is closely coupled with the results of the previous research study on the qualities of an effective science teacher from 125 high school students' perspectives (McCall, 2008). One reason of having "explain clearly" as the top professional quality might be

that teachers are always considered as effective when they take a complex concept and teach it in a way that all students can understand (Malikow, 2005- 2006; McCall, 2008). Also, rating good questioning skills as another top professional skill could be due to its important and critical role in student engagement and learning (Sahin, 2008; Sahin & Kulm, 2008).

When it comes to classroom management skills, the top quality international teachers chose was to *grade student work fairly*. This was parallel with the findings of past studies (McCall, 2008; Walker, 2008). This can be explained by the fact that an exemplary teacher may play a significant role in students learning and career choice. For instance, Walker (2008) found that students chose education majors because of their exemplary teacher characteristics such as teacher *fairness in treating students* and *grading their works*. Therefore, teachers have to be very careful and mindful when they are grading student papers because it means a lot to students.

Regarding the perceptions of international teachers on professional qualities of effective teaching, there was a statistically significant difference between mean scores of teachers who had 0-1 year and 1-3 years of U.S. experiences in favor of the latter regardless of total teaching experience. Thus, it would be fair to say that international teachers' interpretation of effective teaching changed the greatest—valued professional skills more— after their first year of teaching in the U.S. To illustrate, international teachers who gain more U. S. experience considered making the materials interesting, allowing students to share their knowledge and experiences, summarizing major points and using a variety of teaching methods as a matter of effective teaching. These results are similar to past studies (Stigler & Hiebert, 1999) discussing that native (from U.S.) teachers teach less rigorously and put more of their efforts on helping their students. Those teachers also viewed *high expectations from students* and *engages students with the content* as the indicators of effective teaching, which was parallel to past findings revealing that international teachers teach more advanced concepts and hold students more accountable (Stigler & Hiebert, 1999). This could imply that international teachers' perceptions may be affected in their first years by cultural differences in classroom behavior and management issues. Accordingly, these perceptions may have changed as they started acquiring skills they need to run their classroom smoothly.

It was also remarkable to see how international teachers' perceptions of effective teaching qualities (on all three constructs but mainly with the classroom management construct) did not differ significantly by the subject they teach. Notably, math and science teachers perceived as important almost the same qualities of personal construct, however, such qualities were perceived differently (more positively) by

technology teachers. A reason for non-significant differences between teachers of the three content areas (math, science and technology) could be that those teachers teach human beings who have similar expectations such as engaging, motivating, and caring teachers that convince students to succeed (Strong, Silver, & Robinson, 1995). Likewise, a reason for perceiving personal qualities more significantly for effective teaching could be that technology is seen as a subject that is more popular and social than math and science so technology teachers see *being flexible, non-judgmental* and *humorous* as more important personal indicators of effective teaching. Therefore, it was outstanding to find that there were certain traits all teachers agreed on. Thus, colleges, education service centers, and all other professional development institutions should develop programs in which new teachers are trained in a way that all graduate with aforementioned qualities for better student learning (Bartholomew, Anderson & Moeed, 2012).

CONCLUSION

This study builds on previous findings providing a more complete picture of the qualities of an effective teacher by adding the perspectives of international teachers based on three constructs: personal, professional, and classroom management. Because the United States is in urgent need of science, technology, engineer, and mathematics [STEM] teachers, it was pivotal to explore how international teachers perceived effective teaching. The most important contribution of this study was the analysis of effective teacher qualities based on the participants' "teaching subject," "teaching experience in the United States (US experience)" and "total teaching experience (total experience)."

One of the drawbacks of this study could be the fact that the teachers chosen for this study were all from a certain charter school system in Texas and teacher license was not one of the requirements to teach in this charter school system. Therefore, the researchers did not probe whether they were certified Texas teachers. This could have affected the international teachers' perspectives on teacher qualities in various ways. Further research should investigate how a group of high achievers on state high stakes tests rate their teachers in terms of personal, professional, and classroom management characteristics to determine whether they rate different teacher qualities higher.

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APPENDIX

Focus Group Questions

1. What characteristic of an effective teacher do you feel is the *most important* from a teacher perspective (may be chosen from the listings above or your own description)?
2. Are these the ones you already own or the ones you want to develop?
3. What is your description of an effective teacher?
4. What advice would you give to a new schoolteacher just entering their first job?
5. What are the biggest rewards and struggles you encounter as a schoolteacher?
6. Describe the practices of an ineffective schoolteacher. Be as specific as possible.
7. Can you please describe the qualities of your best teacher you remember?