This book presents a new and important scholarship on teaching, at the time when studies on teaching in teacher education are long overdue. This book is designed to put together such a set of chapters contributed by those teacher educators who are not only taking teaching as a professional practice, but also upholding teaching improvement as a scholarly pursuit that needs collaboration and systematic studies. Teaching at Work refers to not only the importance of effective teaching in K-12 classrooms and teacher preparation, but also the importance of taking teaching and its improvement as a subject of scholarly studies. In the field of teacher preparation, this book aims to make timely knowledge contribution and is positioned to stimulate further discussion and exploration on teaching and its improvement.

The book contains 13 chapters by 35 scholars in the United States. This collection presents many innovative teaching practices and approaches as well as provides new insights into this topic of interest to teacher educators, researchers, and graduate students who wish to learn about various teaching approaches and practices for advancing teacher preparation.
Teaching at Work
ADVANCES IN TEACHING AND TEACHER EDUCATION

Volume 1

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Advances in Teaching and Teacher Education is an international book series that aims to provide an important outlet for sharing the state-of-the-art research, knowledge, and practices of teaching and teacher education. The series helps promote the discussion, improvement, and assessment of teachers' quality, teaching, and instructional innovations including technology integration at all school levels as well as through teacher education around the world. With no specific restriction to disciplines, the series strives to address and synthesize different aspects and stages in teaching and teacher professional development both within and across disciplines, various interactions throughout the process of instructional activities and teacher education from various theoretical, policy, psychological, socio-cultural, or cross-cultural perspectives. The series features books that are contributed by researchers, teacher educators, instructional specialists, and practitioners from different education systems.

For further information:
Teaching at Work

Edited by
Yeping Li and Janet Hammer
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This book is a themed collection of chapters on the important topic of teaching and teacher education. Similar to many other books, it is an edited volume on a specific theme. At the same time, the book differs from many other volumes, as it contains several unique features that we would like to highlight as follows.

1. The volume is not typical, as it embodies close collaborations of 35 scholars who work in the same large department at a Research Tier I University. The faculty of this department take pride in their work of preparing quality educators. Their collaborations demonstrate joint efforts of many faculty members across tracks and ranks and together with graduate students, they are dedicated to the improvement of teaching and teacher preparation.

2. The volume presents collaborations stemmed from an open classroom program that started about three years ago. The open classroom program has fostered the spirit of pursuing excellence in teaching and teacher education through sharing, reflection, and collaboration. This volume goes beyond regular open classroom visits and organized discussions on Fridays to develop scholarship on teaching and teacher education.

3. With the launch of a new book series, this volume presents a starting point for expanded and increased collaborations within and across institutions to advance teaching and teacher education. The book series aims to provide a platform that can help facilitate important on-going discussion about teaching and teacher education nationally and internationally, especially in times of change. We hope the inaugural volume will reach a broad global readership.

We want to take this opportunity to thank and acknowledge all of those who have been involved in the process of preparing this book. This book would not have been possible without the dedicated group of more than 30 contributors who have been our colleagues and friends over the years and we thank them for their contributions. This group of contributors also worked together as a team to review chapters. Their collective efforts helped ensure this book’s quality.
Thanks also go to a group of peers who took the time to help review many chapters of the book. They include: Lynn Burlbaw, Mary Margaret Capraro, L. Quentin Dixon, Valerie Hill-Jackson, Patricia Larke, Mónica Vásquez Neshyba, and Julie Singleton. Their reviews and comments helped improve the quality of many chapters.

Finally, we want to thank Carol Gonzalez for her assistance in formatting many chapters of this book and Michel Lokhorst (a publisher at Sense Publishers) and Jolanda Karada for their professional assistance in making this publication a smooth and pleasant experience. As the first volume of the new book series on “Advances in Teaching and Teacher Education”, this book’s timely publication would not have been possible without Michel and his team.
PART 1
INTRODUCTION AND PERSPECTIVES
1. TEACHING AT WORK

Innovating and Sharing Teaching Approaches and Practices to Advance Teacher Preparation

INTRODUCTION

Teaching plays an important role in all of our lives and provides us opportunities to learn from others including parents, friends, and of course, our classroom teachers. It can occur in formal as well as informal settings and is a form of practice that is so common in our society that it often goes unnoticed. Everyone is a teacher in some form; however, not everyone engages in teaching as a professional practice. The same is the case when parents use Band-Aids to take care of their child’s minor scratches but are not trained in the professional practice as medical doctors to take care of their child’s broken arm. In contrast to medical doctors’ practices, teaching, as a professional practice, still needs more systematic studies to identify what helps determine good teaching practices and what helps make a good teacher.

This book is sparked by the on-going efforts in innovating, sharing and pursuing excellence in teaching and teacher preparation by a group of teacher educators and researchers who have been involved in teaching and teacher preparation for many years. This is not a book of rhetoric debates about the nature of high-quality teaching, nor a book that provides a bag of ‘tricks’ for others’ daily usage. Rather, this is a book by teacher educators to share their instructional approaches and practices in teacher preparation with reflection, often supported with collected evidence of preservice teachers’ learning. The title of the book highlights the nature of the book as follows.

The title, Teaching at work, refers to three related, yet different meanings: (1) good teaching makes a difference in students’ learning; (2) teaching can be taken as a platform to promote scholarly discussion and to study what defines and demonstrates good teaching; (3) teaching helps to prepare preservice teachers through teacher preparation programs for their future roles as classroom teachers.

Y. Li & J. Hammer (Eds.), Teaching at Work, 3–8.
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The first meaning, *good teaching makes a difference in students’ learning*, refers to all types of classroom and online instruction, pre-kindergarten through grade twelve as well as in a university setting. Certainly, it also includes good teaching practices developed and used in teacher preparation, which is the focus of this book. The general scope of *teaching at work* recognizes the importance of good teaching in students’ learning at all levels.

The second meaning, *teaching can be taken as a platform to promote scholarly discussion and to study what defines and demonstrates good teaching*, refers to such special settings where teaching becomes the subject of scholarly discussion and study. This meaning helps make the book different from many others that aim to provide practical suggestions for designing, planning, implementing, and assessing classroom instruction. This meaning highlights the focus of the book, which is scholarship development on teaching and its quality improvement.

The third meaning of this book’s title refers to such settings where the students are preservice teachers and the preparation of excellent teachers becomes the mission. In these settings, teaching differs from the case in K-12 education, where teaching is expected to help students learn knowledge and skills but not necessarily help students become qualified educators. The readers can find many books available on teaching in K-12 education within and across education systems (e.g., Li & Huang, 2013; Stigler & Hiebert, 1999), and about teaching in general (e.g., Gay, 2010; Richardson, 2001; Saha & Dworkin, 2009) as well as in different subject areas (e.g., Bain, 2004; Li, Silver & Li, 2014; Osborne & Dillon, 2010). However, there are a very limited number of books available on teaching in a teacher preparation program. In addressing this shortage, this book is designed to present and share many teaching approaches and practices that have been used and valued by a group of teacher educators who also uphold teaching improvement as a scholarly pursuit.

Indeed, this book presents a new and important scholarship on teaching, at the time when studies on teaching in teacher education programs are long overdue. This book is designed to put together such a set of chapters contributed by those teacher educators who are taking teaching not only as a professional practice, but also modeling good teaching practices for preservice teachers in an effort to prepare them for their future classrooms. What makes this set of chapters unique is that they are the result of collaborative efforts focusing on teaching in a large teacher preparation program in a research tier I institution in the U.S. As part of these collaborative efforts, teaching is being taken as the ‘subject’ of scholarly inquiry with and through an ‘open classroom’
TEACHING AT WORK

approach. It is in the spirit of pursuing excellence in teaching and discussing various instructional approaches and practices in teacher preparation through classroom observation and open discussion that we would like to share with you what we have learned.

This book also presents a unique collaboration between two scholars: Yeping Li and Janet Hammer. Teaching is not only what we do normally as faculty members, but also our shared interest from different perspectives. Li, as an educator and researcher originally from China, has been living in the United States for over 20 years and studying mathematics instruction in K-12 classrooms and teacher education programs between the East and the West (e.g., Li, Silver & Li, 2014). His previous experiences as a student, mathematics teacher and teacher educator in China have provided great sources for reflection on issues related to teaching and teacher education. Hammer, with over 25 years teaching experience in K-12 classrooms and teacher preparation programs, is an award-winning educator and has insight into the traits of high-quality teaching and what it takes to develop excellent teachers in the United States. Moreover, this book also represents the first of its kind in connecting scholarly collaboration and administrations, as we not only work closely together in leading and managing the department’s teacher preparation programs, but also encourage close collaborations among different tracks of faculty and graduate students within the department. Through editing this volume, we appreciate the valuable opportunities of learning from our contributors and colleagues. We are convinced that upholding teaching as a professional practice and its study as a scholarly pursuit, as this book presents, provides a unique lens for educators in different teacher education programs to work closely together to reflect upon and improve teaching.

OVERVIEW OF THE BOOK

This book is structured in three parts that include a total of 13 chapters: Part I: Introduction and Perspectives (3 chapters), Part II: Selected Approaches and Practices in Teaching and Teacher Preparation (9 chapters), and Part III: Commentary (1 chapter). In the following sub-sections, we will provide brief summaries for Parts I-III.

Part I: Introduction and Perspectives

The first part provides an overview of the book and select perspectives on identifying and assessing effective teaching practices and on the importance
of teachers’ knowledge in teaching. Because the quality of teaching is elusive, its effectiveness can be defined and affected by many different factors. No universal agreement is in existence to define and assess effective teaching practices. Nevertheless, efforts to improve teaching have led to the development of different perspectives and approaches in identifying and assessing effective teaching practices. In particular, Waxman and his colleagues (this book) provide a review of four approaches that have been developed and used to identify and assess the effectiveness of teaching practices.

The chapter by Cantrell and Joshi (this book) highlights the importance of teachers’ knowledge for making effective teaching possible. With the implicit assumption about the effectiveness of research-based instruction, the authors argue that teachers are key to the development and delivery of research-based instruction that will lead to student’s success. Preparing teachers with the knowledge necessary for research-based reading instruction thus holds the promise of developing and delivering effective teaching.

Part II: Selected Approaches and Practices in Teaching and Teacher Preparation

Making teaching effective within a teacher preparation program is more complicated than the act of delivering knowledge itself. By examining teaching beyond daily practices, readers can learn from reading the chapters included in this section several important aspects of teaching in a teacher preparation program. Designing and delivering teaching to preservice teachers needs careful consideration recognizing that the students must be prepared for tomorrow’s classrooms. By providing knowledge, skill sets and dispositions, preservice teachers can and shall obtain from their program studies, effective teaching practices and approaches. Also important when working with preservice teachers is the consistent modeling of effective teaching practices in order to help guide their learning.

Specifically, many chapters in Part II highlight important aspects that preservice teachers can and shall learn for tomorrow’s classrooms through program studies, including: preservice teachers’ awareness of teaching for diversity and knowledge and the ability to employ problem-solving heuristics in Chapter 4 (Davis et al.), preservice teachers’ attitudes toward linguistic diversity in Chapter 5 (Eslami et al.), preservice teachers’ world views in Chapter 6 (Boettcher et al.), preservice teachers’ preparation for teaching in diverse urban schools in Chapter 7 (Williams and Carter), and preservice teachers’ learning of technology integration in teaching in Chapter
With the ever-increasing diverse student population and classroom environment, these chapters provide valuable suggestions to help prepare preservice teachers for teaching in tomorrow’s schools. Moreover, specific teaching practices and approaches are also shared in these chapters demonstrating the work of teacher educators within different content. Various research methods are employed by these contributors to document their teaching effectiveness. As a collection, these chapters provide rich ideas and useful information about teaching and teacher education.

Several other chapters in Part II also highlight some other teaching practices and approaches that are developed and used in preservice teacher preparation or graduate courses, including modeling, mentoring and digital storytelling. The chapter by Hodges et al. (this book) presents a quasi-experimental study that shows possible effects of modeling the “write” teaching practices for preservice teachers. In Chapter 9 (Wright et al.) and Chapter 12 (Goldsby and Figuero-Charles), the contributors present their use of a mentoring approach in educating undergraduate preservice teachers and graduate students, respectively. The use of digital storytelling approach, as presented in Chapter 11 (Walters et al.), shows another promising method that can be used to develop preservice teachers’ global competence and consciousness perception about culture and diversity through reflection and writing.

**Part III: Commentary**

The book concludes with a chapter in Part III, where Palmer highlights challenges that teacher education programs face, even more so in our current rapidly changing society. Addressing these challenges calls for more collaborations and knowledge development in teacher preparation. This book makes timely knowledge contribution and is positioned to stimulate further discussion and exploration.

**FINAL THOUGHTS**

The book’s title indicates the content of this book. Also explained in the beginning are the several meanings that this title is designed to contain. We do hope that the book, as outlined above, provides much useful information about different teaching practices and approaches developed and used in teacher preparation.

At the same time, we want to inform readers that this book is not put together to ‘ignore’ learning, in this case, preservice teachers’ learning. In
fact, readers should know that preservice teachers and their learning are actually at the center of different teaching practices and approaches that are discussed in this book. Teaching is never meant to be a purpose in itself for what readers can learn from this book, but rather learning is the focus. Just as we can learn from our own teaching through practice and reflection, we also learn about teaching through sharing and collaboration. Teaching, as a professional practice, needs systematic studies, especially in teacher preparation where much still remains to be explored.

REFERENCES


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INTRODUCTION

Research has found that having an effective teacher is one of the most influential factors that improve students’ academic achievement (Darling-Hammond, 2011). Unfortunately, the inequitable distribution of high-quality teachers within and across schools is one of our most serious educational problems (Darling-Hammond, 2010, 2011; Rothman, 2009; Waxman, Padrón, Shin, & Rivera, 2008). High-poverty schools that serve predominantly minority and poor students have been found to typically have less-experienced and less-qualified teachers than low-poverty schools (Almy & Theokas, 2010; Jerald, Haycock, & Wilkins, 2009). Students from high-poverty schools have also been found to have diminished opportunities to learn and receive a lower quality of classroom instruction than their more affluent peers from low-poverty schools (Boykin & Noguera, 2011; Camburn & Han, 2011). In addition, the quality of teachers’ classroom instruction has also been found to vary dramatically within the same school thus creating an additional equity concern for students who do not have opportunities to learn from effective teachers (Day & Gu, 2010; Duncan & Murnane, 2014). This lack of consistency across classrooms and grade levels also has been found to interfere with student learning (Duncan & Murnane, 2014). To address these concerns of providing equal access to good teachers to students of all ethnic and socioeconomic backgrounds, the federal government has recently developed a 2014 initiative “Excellent Educators for All” that requires states to develop plans for providing “effective educators” for all students.

One of the challenges in addressing this problem of closing the gap of access to effective teachers is that there is considerable debate in the field regarding the identification and assessment of effective teaching practices.
(Darling-Hammond, 2013). As City, Elmore, Fiarman, and Teitel (2009) describe this problem, “one of the greatest barriers to school improvement is the lack of an agreed-upon definition of what quality instruction looks like” (p. 3). Researchers’ different perspectives and approaches to defining and measuring the construct of teacher effectiveness has resulted in contradictory findings related to the critical question of identifying and evaluating effective teachers (Camburn & Han, 2011; Goe, Bell, & Little, 2008; Roehrig, et. al. 2012). These conflicting perspectives and approaches about identifying effective teachers have also impacted federal, state, and local educational policy regarding teacher evaluation and how to determine teacher effectiveness. The failure to systematically identify effective teaching practices has resulted in policymakers trying to evaluate teachers and teachings based solely on student test scores (Cuban, 2013). Consequently, this identification and measurement issue is one of the most important educational issues today. The present chapter describes four of the most prevalent approaches that are currently used to identify and assess effective teaching. They are (a) meta-analyses or research syntheses of quantitative studies in the field, (b) checklists of teaching skills and strategies, (c) systematic classroom observation, and (d) value-added measures of teacher evaluation. For each of these four approaches, we will explain the rationale of the approach, the qualities they generally use to define effective teaching, and then summarize some of the strengths and weaknesses of the approach. A description of each approach follows in the sections below.

META-ANALYTIC APPROACHES

For the past three decades, meta-analyses or quantitative research syntheses of studies have helped education become a more evidence-based field. Meta-analysis is a method that summarizes prior research on specific instructional programs or teaching behaviors and quantifies how much of an impact that particular teaching practice has on students’ academic achievement. The effect size or scale that is used in meta-analysis is “$d$” or the standard deviation unit that is typically created by subtracting the mean of the control group from the mean of the treatment group and dividing the difference by the pooled sample standard deviation. For example, an effect size of $d = 1.0$ indicates that a particular teaching practice increases student’ academic achievement by standard deviation. Although there is no uniform standard for interpreting effect sizes, Cohen (1988) suggested that $d = 0.2$ was a small effect, $d = 0.5$ was a medium effect, and $d = 0.8$ was a large effect.
There have been over a thousand meta-analyses conducted in education during this period (Hattie, 2009, 2012) and researchers have begun summarizing these meta-analyses to specifically focus on those salient education processes (e.g., teaching behaviors and practices) that lead to improved student outcomes. John Hattie’s *Visible Learning: A Synthesis of Over 800 Meta-Analyses Related to Achievement* (2009) is one of the most comprehensive meta-syntheses in education; it included many meta-analytic studies that focused on teaching approaches and instructional strategies. Hattie’s (2009, 2012) findings revealed that the top teaching strategies based on overall effect sizes are (a) teacher credibility ($d = 0.90$), (b) providing formative evaluation ($d = 0.90$), (c) classroom discussion ($d = 0.82$), (d) teacher clarity ($d = 0.75$), (e) feedback ($d = 0.75$), (f) reciprocal teaching ($d = 0.74$), and (g) teacher-student-relationships ($d = 0.72$). Overall, Hattie (2009) found that teachers’ active involvement in teaching has greater effects on student learning as compared to teaching practices where the teacher is less involved or not involved at all.

Hattie’s research has also been rewritten for preservice and in-service teachers so that they could apply the principles to any classroom in the world (Hattie, 2012). His major perspective for effective teaching is that student learning needs to be visible to teachers and that teachers need to make teaching visible to students so that they can become their own teachers. Other educators like Robert Marzano have similarly summarized the findings of meta-analyses and developed professional development programs for teachers based on those findings (Marzano, 2007; Marzano, Pickering, & Pollock, 2001).

In the past decade, this evidence-based approach has been strongly promoted by the U. S. Department of Education (USDOE). The *What Works Clearinghouse* (WWC) was established by the USDOE to review the research on different programs, products, practices, and policies in education. By focusing on the results from high-quality research, the WWC tries to answer the question “What works in education?” Unfortunately, the rigorous criteria for selecting studies to be reviewed by the WWC (i.e., randomized controlled trials and quasi-experimental designs that established equivalence in matched control designs) have often resulted in the WWC being called the “what doesn’t work clearinghouse’ due to the large number of studies that have not met the criteria for selection.

One of the major concerns with meta-analyses and evidence-based education approaches is that they typically only focus on what is scientifically “proven” to be effective for improving students’ academic
achievement and they often ignore examining the impact of instructional practices and programs on other important student outcomes such as engagement in learning or motivation to learn (Hargreaves & Fullan, 2012). A second concern is that most meta-analyses only include experimental or quasi-experimental studies that report appropriate quantitative statistics. Meta-analyses ignore all qualitative research that has made important contributions to the field of teaching. This is an important selection bias that should always be considered when making assertions from meta-analytic research. A third concern is that meta-analyses and meta-syntheses generally aggregate the findings from individual studies and often ignore emphasizing important individual student or school contextual variables that may mediate the overall effects. In other words, meta-analyses often ignore key school demographics (e.g., socio-economic status, size of school, and location of school) and student characteristics (e.g., sex, ethnicity, etc.). A fourth major concern is that individual meta-analyses often focus on individual variables like teacher clarity, feedback, and classroom discussion. In typical classroom situations, however, these variables occur simultaneously and are considered related components of quality instruction. In other words, meta-analyses often simplify the instructional process to focus on individual variables rather than clusters of variables that typically comprise classroom instruction. A final concern with the meta-analytic and “what works” approach is that it assumes that evidence only comes from research and it ignores the value of teacher expertise and experience (Hargreaves & Fullan, 2012; Payne, 2008).

CHECKLIST APPROACHES

Historically, research on effective teaching typically consisted of subjective data based on personal and anecdotal accounts of effective teaching (Nuthall & Alton-Lee, 1990). These accounts have often developed into specific checklists of teacher behaviors or teaching practices that educators argue leads to improved student outcomes. Recently, educators and researchers have re-emphasized this approach and begun developing checklists to identify and assess teaching practices. Several popular education books such as Doug Lemov’s (2010), Teach Like a Champion: 49 Techniques that Put Students on the Path to College, and Bryan Goodwin’s (2013), The 12 Touchstones of Good Teaching: A Checklist for Staying Focused Everyday are good examples of the recent checklist approach. Deborah Ball and her University of Michigan colleagues have also initiated a
project called *TeachingWorks* that focuses on 19 high-leverage practices that are hypothesized to improve student outcomes. These practices are very diverse and range from making content explicit through explanation, modeling, representations, and examples to communicating with parents and other professionals. Some additional high-level practices include designing a sequence of lessons toward a specific learning goal and implementing organizational routines, procedures, and strategies to support a learning environment. These high-leverage practices are intended to be a comprehensive framework that can be used for the professional preparation of teachers.

Many of these checklist approaches are used for teacher evaluation and preparation purposes that advocate a more practice-oriented perspective for teachers’ professional development (Ball & Forzani, 2009). Often, performance assessments are developed from these checklists and professional development programs are designed based on these assessments that measure these specific practices. Checklists provide a common language for teachers and researchers to analyze, discuss, and reflect on quality teaching practices (Chen et al., 2012). This common language facilitates clear communication between teachers, administrators, and evaluators, allowing for specific feedback on strengths and weaknesses as well as areas for improvement and informs professional development needs assessments (Chen et al.). The evaluation of teaching practices fosters improved quality of teaching for individual teachers by analyzing the extent to which specific strategies are successfully implemented (Chen et al.). Chen and colleagues, outline several benefits of checklists. Checklists can be used: (a) as a means for self- and peer-evaluation, (b) as a diagnostic tool for evaluators to assess teaching practices and overall teaching quality, (c) to allow administrators and decision-makers to compare and contrast the teaching practices of more- and less-effective teachers, and to help differentiate between the quality levels of teacher instruction as well as provide a means for gauging instructional practices and diagnosing the overall quality of an individual teacher.

Evaluations based on a checklist of strategies can be particularly accessible for teachers as they are less inclined to refer to published research, which typically addresses achievement gains on standardized exams. Published research generally does not easily translate to strategies that can be immediately implemented in classrooms to address “today’s problems” (Goldstein, 2012). Teachers are often overwhelmed by their day-to-day responsibilities and value meaningful feedback that helps them develop their
practice to increase positive student academic outcomes. Improving student
education and learning is highly dependent upon teacher preparation and
support (Ball & Forzani, 2009), so providing teachers with feedback that
helps them improve efficiency and efficacy for their practice will help them
manage their classrooms, motivate students and promote academic effort,
improve students’ retention of previously learned material, and deliver
effective and engaging instruction (Goldstein, 2012).

There are a number of concerns with the use of checklists to assess
effective teaching. First, the behaviors included on the checklists are often
derived from personal experiences or individual’s perceptions regarding
the importance of individual practices. Second, checklists are often laundry
lists of simple techniques that over-simplify the complexity of teaching and
distract educators from focusing on aspects of teaching that are not easily
measured (Hargreaves & Fullan, 2012). Third, these checklists are often used
to identify deficiencies in classroom practice rather than focus on teachers’
strengths and assets.

CLASSROOM OBSERVATION APPROACHES

Classroom observation approaches to examine effective teaching have been
prevalent for decades and they generally consist of systematic classroom
observation or walkthrough instruments. Systematic classroom observation
is a quantitative method of measuring classroom behaviors from direct
observations that specify both the events and behaviors that are to be observed
and how they are to be recorded (Waxman, 2003). For the past several
decades, researchers have begun to use more objective and reliable measures
of systematic classroom observations in order to develop a scientific basis to
teaching (Hilberg Waxman, & Tharp, 2004). Generally, data collected from
this procedure focus on the frequency with which specific behaviors or types
of behavior occurred in the classroom and the amount of time they occurred.
There are several elements that are common to most observational systems:
(a) a purpose for the observation, (b) the operational definitions of all the
observed behaviors, (c) the training procedures for observers, (d) a specific
observational focus, (e) a setting, (f) a unit of time, (g) an observation
schedule, (h) a method to record the data, and (i) a method to process and
analyze data (Stallings & Mohlman, 1988).

Systematic classroom observation has often been used to provide a
description of current classroom instructional practices and to identify
instructional concerns (Waxman, 2003). Descriptive observational studies
allow researchers to examine the extent to which specific instructional practices (e.g., small-group instruction, teacher explanations and feedback) are implemented in the classroom as well as to evaluate programs and the fidelity of program implementation. Systematic classroom observation has also been used to provide individualized feedback to teachers regarding their classroom instruction. Most importantly, classroom observation research has yielded scientific evidence that the teaching practices like (a) opportunity to learn, (b) effective use of time, (c) focus on meaning and practice, (d) teacher expectations, and (e) good classroom management predict students’ academic achievement (Good, 2011; Good & Brophy, 2008).

A more recent observational approach that is also being used both for research and evaluative feedback purposes is the walkthrough or walkabout instrument that is designed to obtain multiple snapshots of classroom practices in order to provide a rich data picture (Early, Rogge, & Deci, 2014; Kachur, Stout, & Edwards, 2010; Smith, Cude, Braziel, Waxman, & Smith, 2008). These typically are short observations (e.g., 5 – 20 minutes) that focus on specific teacher behaviors and general classroom environment measures in the classroom. Kachur, Stout, and Edwards (2010) describe the common elements of a classroom walkthrough as: (a) informal and brief, (b) involving administrators, instructional leaders, and teachers, (c) quick snapshots of classroom activities—instructional and curricular, (d) not intended for formal teacher evaluation purposes, (e) focused on specific elements to improve teaching and learning, (f) an opportunity to give feedback to teachers for reflection on their instruction, and (g) having the improvement of student achievement as its ultimate goal. City, Elmore, Fiarman, and Teitel (2009) have a specific type of the walkthrough that they call “instructional rounds.” Instructional rounds are based on the medical rounds model and they integrate improvement strategies in their approach.

Classroom observation approaches have long served as the foundation of traditional teacher evaluation systems; however, research has found that many of these evaluation systems rate most teachers as proficient or highly proficient even when schools are failing to meet state standards (Weisberg, Sexton, Mulhern, & Keeling, 2009). Additionally, many of the traditional evaluation systems fail to identify instructional areas in need of development or teachers that are most effective. In an effort to improve classroom instruction in Chicago Public Schools, the Excellence for Teaching Pilot using the Charlotte Danielson Framework for Teaching was launched in 44 elementary schools in the first year and expanded to 101 elementary schools in the second year (Sartain, Stoelinga, & Brown, 2011). Results from the
pilot study were promising and indicated that the classroom observation ratings were valid measures of teaching practice—students showed the most academic growth in classrooms where teachers received a high rating and the least academic growth in classrooms where teachers received a low rating.

Classroom observation research along with studies using more indirect measures have revealed that instructional practices and levels of cognitive demand vary greatly from classroom to classroom within the same school (Rothman, 2009). Hamre and colleagues (2013) developed the Teaching through Interactions framework, which suggests that much of the effect that teachers and the classroom have on student learning is found in the teacher-student interactions. Results from over 4,000 classroom observations indicated that teacher-student interactions across grade levels fit into three domains: (a) emotional support, (b) classroom organization, and (c) instructional support.

While classroom observation instruments have a primary role in examining effective teaching, critics of current practices argue that classroom observations have failed to provide teachers with the necessary feedback to improve their instructional practices (Sartain, Stoelinga, & Brown, 2011; Hill & Grossman, 2013; The New Teacher Project, 2013). Additionally, it has been noted that the observation instruments used are often “generic” in regard to content area and grade level observed indicating the feedback from the observation lacks the specificity needed for instructional changes. Additional concerns regarding whether this observational approach will lead to improved teaching and student outcomes involve the expertise of the observer. School principals or other administrators often conduct classroom observations that are used for the purpose of teacher evaluation and instructional feedback (Hill & Grossman, 2013). Principals and administrators, however, often lack the instructional expertise for specific content areas making it nearly impossible to provide effective feedback. Furthermore, teachers are typically only observed two to four times per year making it unlikely that such infrequent feedback can have a meaningful impact on classroom instruction.

While there are many critics regarding current observational practices, feedback from classroom observations is still viewed as a crucial aspect to making changes in instructional practices in order to ultimately impact student learning. Hill and Grossman (2013) argue specific changes that should be made to current practices of using classroom observation to examine effective teaching including (a) develop content area specific observation protocols with appropriate instructional practices for the grade level being observed, (b) conduct more observations for struggling
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teachers rather than fewer observations across all teachers, and (c) consider the possibility of using content area observers (e.g., department chairs) to provide more specific feedback than administrators. The New Teacher Project (TNTP) (2013) recommended additional specific changes to be made to existing classroom observations practices including (a) removal of any items on the observation instrument that cannot be directly observed, (b) simplify the observation instrument by condensing items that measure the same instructional aspects, and (c) provide meaningful formative feedback on lesson content and support adaptation efforts.

VALUE-ADDED APPROACHES

The most controversial approach for assessing and evaluating effective teaching is the use of value-added measures. Value-added is a measure of teachers’ contributions to the achievement growth of their students and the purpose of this approach is to determine how much a teacher contributes to student growth during the time students are in that teacher’s classroom. This approach is strongly advocated by the U.S. Department of Education and a key component of the U. S. Department of Education’s “Race to the Top” program. Currently, over 40 states in the United States have adopted “value-added” measures to evaluate teachers. Advocates of this approach argue that a teacher’s record of promoting achievement remains the strongest single predictor of the achievement gains of their future students (Kane & Staiger, 2012). Additionally, many states have passed legislation to enforce that 30-50% of the teacher’s evaluation is linked to the student’s test scores on standardized tests (Everson, Feinauer, & Sudweeks, 2013).

The National Research Council and the Educational Testing Service, among other research organizations, however, have concluded that ratings of teacher effectiveness based on student test scores are too unreliable—and measure too many things (i.e., school demographics and student characteristics) other than the teacher—to be used to make high-stakes decisions. Other critics of value-added measures are concerned that they are (a) based on one test given on one day, (b) based on state tests that do not measure growth and higher-order skills, and (c) penalize teachers who serve the neediest students (e.g., low SES students who have fewer opportunities for summer learning). Other critics of value-added teacher evaluation argue that the majority of teachers do not teach in tested subjects or grades and as a consequence standardized student achievement data is not available to be used in their ratings. It is believed that publicly reporting teachers’ effectiveness will be
another reason among many why talented young people will avoid entering the teaching profession or leave just as they are becoming effective teachers (Darling-Hammond, 2013).

It is important to understand the underlying assumptions of the value-added approach since there are different models that are commonly used. Scherrer (2012) points out that the “underlying assumptions of value-added modeling are dubious, at best” (p. 58). He considers that value-added models improve current accountability systems using status models to measure student performance on a one-time assessment and then compares it to a target level. He also believes that this approach seems to “reward teachers for whom they teach and not how they teach” (p. 58). Some value-added models rely exclusively on student test scores from previous grades and prior teacher effects to estimate the teacher’s contribution to current learning as opposed to other models that adjust for differences in regards to the student, classroom, and the school. Consequently, the latter not only include students’ test scores from the previous year, but also account for other background characteristics that could be related to student learning such as school level aggregates and other measures of classroom and school-level inputs (Kersting, Chen, & Stigler, 2012).

Kersting et al. (2012) argue that it is crucial to understand how much teacher value-added estimates depend on the type of data and statistical models used. They explored the effects of (a) differences among students in their prior learning, (b) using single or multiple cohorts of students, and (c) the number of students contributing to the value-added estimates for each teacher on the stability of value-added estimates. Additionally, they highlight that studies have divided the value-added distribution into different types of performance groups. For example some have divided teachers in three groups according to how effective they are according to the student data (i.e., below average, average, and above average), while others have divided teachers into quartiles when they report the percentage of teachers that either remained in the same group or changed categories. This difference in classification confuses users of value-added scores when comparing percentage changes in teacher designations if these are based on different numbers of performance groups. Kersting and colleagues concluded that almost two-thirds of teachers remained in the same performance group across all conditions. Additionally, they found that differences in number of students used in the statistical model accounted for up to one-third of teacher reclassifications into different performance groups while single versus multiple cohort models accounted for about one-fifth. Different methods for controlling for student prior learning accounted for about one-sixth of teacher reclassifications.
In another study, Chetty, Friedman, and Rockoff (2012) analyzed school-district data from grades 3–8 for 2.5 million children and linked it to information on their outcomes as young adults and the characteristics of their parents. They concluded that value-added measures accurately predicted teachers’ impacts on test scores when they controlled for student characteristics. They also found that students who are assigned to high value-added teachers are more likely to attend college, earn a higher salary, and live in higher socioeconomic status neighborhoods. Furthermore, they argued that teachers in grades 4-8 have large impacts on their students’ adult lives. They also emphasized that replacing a teacher whose value added is in the bottom five percent with an average teacher would increase students’ total lifetime incomes by a significant amount of money.

Advocates and critics of the value-added approach have led to much controversy in the field regarding whether this approach will lead to improved teaching and student outcomes. Amrein-Beardsley, Collins, Polasky, and Sloat (2013), for example, describe the debate between policymakers and researchers in regards to value-added models and the evaluation of teacher effectiveness and educational quality. They argue that although policymakers are increasing the use of value-added models within educational evaluation and accountability systems, researchers question the methodological, technical, and inferential attributes of these models.

Darling-Hammond, Amrein-Beardsley, Haertel, and Rothstein (2012), who are critics of value-added models, argue gains in student achievement are not only influenced by an individual teacher, but also by other factors such as school factors (i.e., class size, resources, curriculum), individual student needs, home environment, prior teachers, summer learning loss, as well as the kinds of tests used. Darling-Hammond and colleagues (2012) emphasize that value-added models of teacher effectiveness are inconsistent, teachers’ value-added performance is affected by the students assigned to them, and that value-added ratings cannot disentangle the many influences on student progress. They advocate other ways of evaluating aspects of effective teaching and incorporating these into professional standards for teaching. In fact, they recommend using other approaches to evaluate teachers’ performance, such as multiple classroom observations, expert evaluators, multiple sources of data, as well as timely and meaningful feedback to teachers (Darling-Hammond, et al., 2012).

In contrast to Darling-Hammond et al. (2012), Chetty and colleagues (2012) showed that standard value-added measures are not biased by the students assigned to each teacher when they statistically control for student
characteristics. Hence, value-added metrics successfully disentangle teachers’ impacts from the many other influences on student progress. They concluded that students who have high value-added teachers not only benefit from scoring higher on math and reading tests at the end of the school year, but also through improved outcomes later in life such as students’ future earnings.

**DISCUSSION**

In spite of the recent attention, effective teaching practices remains a construct with few agreed-up characteristics or descriptions (Tellez & Waxman, 2006). Better ways of measuring and recognizing effective teaching practices need to be developed (Darling-Hammond, 2011). One of the most serious problems related to the increased use of approaches for examining effective teaching is that there has been a proliferation of approaches prior to the completion of adequate research and evaluation examining their effectiveness. Before certain approaches become widely implemented, they should undergo systematic programs of research. In addition, this research needs to be widely disseminated so that their findings can be used to guide and improve practice. Furthermore, there needs to be more systematic programs of research that incorporate several of the distinct approaches described in this chapter. For example, one of the more promising programs of research for examining and assessing effective teachers is being conducted by the Measures of Effective Teaching (MET) project from the Bill and Melinda Gates Foundation (Kaine & Staiger, 2012). The MET project focuses on improving teaching and learning through better evaluation, feedback, and professional development on effective teaching. They maintain that in order to make reliable and valid assessments of effective teachers, the evaluation system should include (a) multiple systematic classroom observations of teachers, (b) student feedback or perceptions of teaching, and (c) student achievement gains.

A second critical issue relates to the exclusive emphasis of some approaches on improving student test scores such as done with the value-added approaches. Focusing on improving test scores, for example, may be detrimental to improving other important non-cognitive or socio-emotional outcomes such as motivation, self-control, interpersonal skills, and grit. These non-cognitive outcomes have been found to be critical in predicting students’ life success (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Tough, 2012), yet there are very few studies focusing on teaching strategies or practices that promote these affective dimensions. In addition,
there have been few studies examining teacher practices which specifically foster students’ resilience or internal protective factors that contribute to students’ academic and social success (Rivera & Waxman, 2011; Waxman & Chen, 2006).

A third major concern with most of these approaches for evaluating and assessing effective teaching is the lack of conceptual and theoretical models. Cuban (2013) describes this issue as the “black box of classrooms” because we have a lack of understanding of what actually happens in the classroom during instruction. Comprehensive theories of instruction are needed to provide us with explanations of which instructional practices are most important and how they should be combined in order to provide greater effects on student outcomes. Classrooms are highly complex and generally consist of different domains or dimensions of teaching. Roehrig and her colleagues (2012), for example, argue that there are four dimensions of effective teaching that make up a dynamic, highly-complex inter-rated system: (a) developing caring classroom communities, (b) enhancing students’ motivation to learn, (c) planning and delivering engaging, assessment-driven instruction, and (d) supporting students’ deep processing and self-regulation. Although the dimensions or constructs of teaching have been identified in this model, we do not have an explicit specification of the model that provides us with an understanding of how these constructs impact each other during ongoing classroom instruction.

Another important issue to address is whether the teaching practices described in this chapter are generic and effective for all students or are some instructional practices differentially effective for some students. Research on effective instructional practices often fails to take into account important individual student characteristics or school contextual differences that may differentially impact their relative effectiveness. For example, effective classroom instruction for students in urban schools or high-poverty schools may be different than schools serving suburban or rural classrooms. Similarly, effective classroom instruction for English language learners (ELLs) may be different than instruction for non-ELLs (Waxman, Padrón, & Garcia, 2007). Classroom contexts are diverse and educators need to focus on what works best, under what conditions, and for whom.

A final concern and policy implication is the need for researchers to collaborate with practitioners to design better research on assessing effective teaching. John Easton, the former director for the Institute of Education Sciences, has recently argued “our greatest challenge is in working better with practitioners and policy makers to use the research to make schools
better places where students learn more” (Easton, 2010, p. 1). Others have similarly advocated for “use-inspired basic research” (National Research Council, 2002; Stokes, 1997) or engineering approaches to educational research that focus on how to make things actually work in the settings we want to improve. Berliner (2009) succinctly describes this issue, “it is the tinkering by teachers and researchers and the study of their craft by the teachers themselves, that seems to me the most likely to pay off in improved education” (p. 311). The Carnegie Foundation for the Advancement of Teaching, for example, describes this collaborative process as building networked improvement communities in education (Bryk, Gomez, & Grunow, 2011). Penuel, Fishman, Cheng, and Sabelli (2011) similarly describe the emerging model of design-based implementation research that focuses on the persistent problems of practice from multiple stakeholders’ perspectives and calls for reconfiguring the roles of researchers and practitioners. Such collaboration can lead to improved approaches for identifying and assessing effective teaching practices. Hargreaves and Fullan (2012) support this position by arguing that, “good teaching is perfected through continuous improvement (p. 14)”. In their recent book on improving teaching, Professional Capital: Transforming Teaching in Every School, Andy Hargreaves and Michael Fullan (2012) argue that the “professional expertise is not just having and being aware of evidence, it’s also about knowing how to judge the evidence and knowing what to do with it” (p. 54). We strongly agree with their perspective and also maintain that educational researchers similarly need to be able to (a) be more mindful and reflective of the quality of their own work, (b) focus on the “ignorance” or biases in their own research, and (c) try to work collaboratively with researchers from other disciplines, practitioners, and policy makers to address important research questions (Waxman, 2013-14). When these three activities are done on a more consistent basis, it will promote more mindful research that will make a difference in education. The serious equity-related teacher quality issues that plague many students from high-poverty schools highlight the need for schools and teachers to begin using scientific evidence to determine effective teaching practices and then ensure that all students have access to high-quality teachers. Furthermore, critical out-of-school factors that affect the outcomes of schooling for students must also be addressed. If we only focus on school or teacher factors and ignore the importance of family and community influences on the education of students, we will clearly fail in our endeavors. There is a critical need to develop a solid knowledge base on effective teaching
practices and policy for all students that focuses on practices that improve students’ academic achievement and affective outcomes. Hargreaves and Fullan (2012) argue that the teaching profession continuously creates new practices while (a) building on the knowledge base, (b) testing the impact of classroom practices, and (c) developing, circulating, and adapting best practices. In other words, communities of teachers need to simultaneously use best practices while developing new, innovative practices. Strengthening links between evidence-based research and educational practices can benefit the growing population of students at risk of failure in schools and those who share responsibility for educating them. With greater understanding and support of the needs of all students and their teachers, schools can improve the quality of teaching practices and ensure that no child, teacher, or school—is left behind.

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