Open Framework for Teacher Development and Evaluation: Version 1

April, 2024

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Goals of the Framework

The author has the following goals and principles in the development of this framework:

1. The framework will reflect the best available research that the author can find regarding effective teaching and effective teacher evaluation.

2. The framework will always be available for free.

3. Updated versions of the framework will also always be available for free. Credit/acknowledgement/co-authorship will be given to everyone who contributes to updates.

4. The framework may be used and adapted by anyone in any manner consistent with the terms listed below.

Limitations of the Framework

While the author has attempted to ensure that this framework reflects current research, there is an inevitable subjective bias in the design of any teacher evaluation framework. Accordingly, as per the copyright and usage information below, the author encourages teachers, schools, districts, and anyone else to change and adapt this framework as necessary to meet their unique needs. Any suggestions for changes to the framework can be sent to Kevin Butler at oftde1@gmail.com.

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[2] Suggested citation: Butler, K. (2024). *Open Framework for Teacher Development and Evaluation: Version 1*. oftde.blogspot.com.

Abstract

The actions of a teacher are one of the strongest factors influencing students' academic achievement and future life success. However, some of the most common frameworks that are used to evaluate teachers and guide their development or improvement are not based on or informed by research about effective teaching methods. Other frameworks are difficult for schools, districts, teachers, and other relevant parties to access due to barriers such as cost. Considering the value of effective teaching, it is worthwhile for a teacher development and evaluation framework informed by research to be created and made easily available. This paper attempts to outline such a framework. This framework has never been researched in practice, but it is based on the available research regarding which teaching practices are generally most effective for students' learning and what sort of evaluation elements are most predictive and useful in assessing teachers. Given this, the framework may be a valuable tool to be used and/or adapted by schools, districts, teachers, and others involved in evaluating teacher effectiveness and guiding professional improvement for teachers.

Introduction

Extensive research has shown that the actions of a teacher have a major effect on students' learning and future life outcomes, such as their likelihood of graduating high school, earning a higher income, avoiding incarceration, and maintaining better health (Chetty et al., 2013; Hanushek, 2014; Kim & Axelrod, 2005; Muijs et al., 2014). This effect is so great that it can overcome other factors that are often considered to be determinate of students' learning, such as socioeconomic status (Hanushek, 2014). Considering this, it is logical that all schools should have a goal of maximizing teacher effectiveness. Many schools, districts, and states have indeed implemented teacher evaluation systems in order to identify which teachers are most and least effective and to either eliminate or provide extra support to those who are least effective. However, these systems are not necessarily accurate measures.

One of the most widely-implemented teacher evaluation frameworks in the United States is the Danielson Framework (Johnson, 2019; Kalenze, 2014; Morris-Mathews et al., 2020). The Danielson Framework consists of largely disjointed practices grouped into four "domains," and unfortunately, only some of those practices have any connection to research on effective teaching (Johnson, 2019). An analysis of the Danielson Framework by Morris-Mathews et al. (2020) concluded that the Framework aligns poorly with cognitive psychology research regarding how people learn, as it portrays "constructivist" approaches as being ideal in all teaching situations. This contradicts the extensive literature showing that constructivist teaching approaches are usually only valuable once students already have significant background knowledge in a subject; at more novice levels, students need significant explicit instruction from the teacher (Kirschner & Hendrick, 2020), but techniques and methods aligned with explicit instruction are largely labeled as "unsatisfactory" in the Danielson Framework, irrespective of context

(Morris-Mathews et al., 2020). Additionally, while some research on the Framework's implementation in schools and districts shows a connection between a teacher's rating and their students' learning (Sartain et al., 2011), even the connections found in that research are fairly small (Dylan Wiliam, 2020). There is also significant conflicting research on the Danielson Framework, such as work by White (2017) showing that almost 100% of teachers are given the highest rating ("Distinguished") when judged by the Danielson Framework, regardless of their effectiveness measured in other ways (such as with value-added scores).

Other teacher evaluation frameworks that have a better research base do exist, such as the Marzano Framework (Marzano Evaluation Center, n.d.). However, the Marzano Framework and other popular options (such as that of Stronge & Associates, n.d.) are available in their entirety and are practically usable only if a school or district pays for them and/or for professional development related to them[3]. Even teacher standards from the National Board for Professional Teaching Standards are restricted from public use due to copyright (National Board for Professional Teaching Standards, n.d.). Of additional note is that the most common frameworks are often used simply for evaluation (determining whether a teacher is "excellent," "good," "unsatisfactory," etc.) without offering a process for how teachers can develop and/or improve their practice.

The framework in this piece, while not yet experimentally tested, has the benefits of being research-informed and openly available for public use and adaptation. The framework is also designed to be as comprehensive as possible while also being transparent and direct so that professional development (beyond reading the framework and perhaps its supporting research) should not be required for its use or adaptation. The framework also goes beyond simply

[3] Note as well that the Danielson Group, despite offering its Framework for free, also heavily advertises costly professional development.

evaluating teachers, as it includes parts that focus on having teachers develop and improve their practice.

Outline of the Framework

Any framework for evaluation and improvement must be based on certain expectations. The core expectations around which this framework is based are related to teachers' being as effective as possible. *"Effective teaching"* will be defined here as *teaching that leads to the most learning possible for students without causing harm to those students*. In pursuit of this objective, the following expectations are applied to teachers:

The competent teacher:

1. Meets basic professional standards that are needed for all careers, along with meeting basic standards that are necessary specifically for performing the job of teaching.

2. Is constantly trying to improve their practice by using research-informed teaching practices and responding to students' performance and needs.

3. Causes significant, measurable growth in students' learning.

Based on those expectations, this evaluation and development framework includes the following pillars on which teachers will be evaluated and guided in their development:

1. Basic professional standards for teachers.

2. An inventory of research-informed teaching practices.

3. Ways of measuring student learning growth.

4. Student surveys.

Each of these pillars is summarized below.

Basic Professional Standards for Teachers

These standards are based on two sources:

1. Work-readiness competencies, applicable across careers, developed by by the United States Department of Education [USDE] (n.d.) and organizations collaborating with the United States Department of Labor (Competency Model Clearinghouse [CMC], 2017[4]).

2. Research regarding the most basic pedagogical competencies needed by all teachers for effective instruction (Kirschner et al., 2022).

The expectation of this part of the framework is that teachers meet all standards given.

An Inventory of Research-Informed Teaching Practices

Assuming that a teacher meets the basic professional standards, the next step is for the teacher to be constantly striving for improvement of their practice. In order to do so, the teacher needs to be aware of teaching practices, actions, and behaviors that are most often effective. Such practices have been gathered and explained in this part. With knowledge of generally effective teaching practices, a teacher and their evaluator(s) can set goals for improving the teacher's practice, decide on ways to measure those goals, and track progress over time.

It is important to note that teaching is a very complex job, and no list, collection, or inventory of effective teaching practices could ever be complete or applicable to all contexts. The practices outlined in this part of the framework are those that have generally been shown to be effective across multiple subject areas, age groups, and demographics. In other words, they are strong guidelines, but not prescriptions.

Ways of Measuring Student Learning Growth

Ultimately, students' learning throughout their time with a teacher is the most concrete measure of a teacher's effectiveness. Generally speaking, the essential goal of all teachers -- regardless of subject, grade level, or other factors -- is that *all students in the course meet the*

[4] Material from CMC is available via a CC-BY 4.0 license. Material from the CMC website has been cited and adapted for this framework. The license is available at this link: https://creativecommons.org/licenses/by/4.0/

objectives of the course. This can be seen as the "universal basic objective" for teachers. This part of the framework outlines some potential ways that a school or district could objectively measure student learning growth towards class objectives in order to see teachers' effectiveness.

Student Surveys

Student feedback on teaching suffers from the issue of students' biases towards teachers (Senden et al., 2021); even so, student surveys have shown to be a valuable factor in teacher evaluation (English et al., 2015; Putman et al., 2018; Senden et al., 2021). This framework includes a potential ready-made student survey to be used as one part of teacher evaluation, along with research-informed principles for a school or district to develop their own survey.

Summary of the Pillars and How Teachers Will Be Evaluated and Guided

The rest of this document will consist primarily of five parts. The first four parts describe in detail the pillars outlined above. The fifth part describes specific procedures for evaluating teachers based on those pillars, noting that such procedures are only one potential option available to schools and districts, and that schools and districts should make adjustments to those procedures as necessary for their own needs.

Part 1: Basic Professional Standards for Teaching

Work done by the CMC in collaboration with the United States Department of Labor, along with work by the United States Department of Education, has led to the development of general "employability skills" that are valuable across all careers (CMC, 2017; USDE, n.d.), including teaching. The skills outlined are extensive and diverse; this framework aims to be both comprehensive and direct, so skills most directly applicable to teaching have been chosen and adapted, whereas those that have less connection to teaching (such as a focus on "customer needs" [CMC, 2017, p. 13]) are not emphasized. There is some subjectivity in these choices.

Additionally, research has shown certain basic pedagogical competencies to be necessary for effective teaching in particular (Kirschner et al., 2022). That research and the work on general employability skills inform the standards explained in the following table:

Basic Professional Standards for Teaching

STANDARD 1: PROFESSIONALISM		
SUBSTANDARD	**POTENTIAL INDICATIONS OF A TEACHER MEETING STANDARDS**	**BASIS FOR STANDARD**
1.A: The teacher demonstrates responsibility and dependability	-- The teacher comes to work and work functions on time -- The teacher completes necessary tasks on time -- The teacher demonstrates a positive attitude and willingness to do their job to the best of their ability	CMC, 2017; USDE, n.d.
1.B: The teacher demonstrates integrity	-- The teacher follows applicable codes of ethics -- The teacher uses class time responsibly -- The teacher is honest with others -- The teacher takes responsibility for mistakes	CMC, 2017; USDE, n.d.
STANDARD 2: INTERPERSONAL SKILLS		
2.A: The teacher works effectively with others as needed	-- The teacher collaborates with colleagues in order to achieve common goals as needed -- The teacher is open to others' differing views and opinions	USDE, n.d.

	-- The teacher engages in reasonable negotiation to solve conflict with colleagues, parents, or community members	
2.B: The teacher communicates appropriately with others	-- The teacher uses appropriate language and tone when communicating with students, parents, colleagues, and community members -- The teacher shows respect to others	CMC, 2017; USDE, n.d.
STANDARD 3: FUNCTIONAL ACADEMIC COMPETENCE		
3.A: The teacher can perform necessary reading and writing functions in the language(s) of instruction and professional tasks	-- The teacher can write instructions, class materials, and communicative documents (such as emails) in a coherent, professional manner	CMC, 2017
3.B: The teacher has sufficient mathematical skills for the demands of teaching	-- The teacher can grade assignments, using arithmetic as needed -- The teacher can perform the mathematical calculations necessary to confirm scores and grades	CMC, 2017
3.C: The teacher has sufficient technological skill for the demands of teaching	-- The teacher can use basic computer programs needed for teaching -- The teacher is aware of software and programs used by their school or district and can use those programs as needed	CMC, 2017
STANDARD 4: CONTENT AND PEDAGOGICAL KNOWLEDGE		

4.A: The teacher has thorough knowledge of their content area	-- The teacher has a college-level degree or other applicable training in the area that they teach -- The teacher can explain in detail *what* is being taught in a lesson	Kirschner et al., 2022
4.B: The teacher has thorough pedagogical knowledge related to their content area	-- The teacher can explain in detail *why* particular content is being taught in a lesson with regards to its relation to other class material -- The teacher has an understanding of how the human mind learns information -- The teacher can predict what information may be most difficult for students and what kind of misconceptions students are likely to have	Kirschner et al., 2022
4.C: The teacher reflects on their own performance	-- The teacher "sets" problems, identifying instructional issues to be addressed -- The teacher regularly reflects on their teaching and strives to find solutions to any issues	Brookfield, 2017; Kirschner et al., 2022

Part 2: Inventory of Research-Informed Teaching Practices

When creating a framework to assess the effectiveness of teaching and to help teachers improve their practice, it is vital to include a definition of what effective teaching is. With this definition, research-informed teaching methods can be identified.

A Definition of "Effective Teaching"

A simple definition of effective teaching was given earlier in this document; that definition is the following: *"Effective teaching" is teaching that leads to the most learning possible for students without causing harm to those students*. Accordingly, this part of the framework focuses on actions and behaviors that teachers can engage in that are likely to maximize student learning.

A Definition of "Learning"

Considering the above definition of "effective teaching," it is also important to define "learning." The definition used in this piece is that of the extensive work from educational and cognitive psychology, which is that *learning is a change in long-term memory* (AERO, 2023; Ashman, 2023; Kirschner et al., 2006).

Research-informed Elements of Effective Teaching

An extensive literature on effective teaching spans from the early 1900s to the present. Broadly speaking, three general themes emerge in the research:

1. Instructional practices/actions.

2. Affective practices/actions.

3. Instructional/curricular design.

With each of these themes, certain elements have generally been shown to lead to higher academic achievement and learning. Of course, the research literature is extensive and complex, and no educational practice is guaranteed to work in all situations and with all students. Accordingly, the framework outlined here (and, indeed, any other framework) should not be considered an absolute prescription for perfect teaching. Instead, this framework should be seen as a *general* guide describing teaching approaches that are *usually* highly effective. Each of the themes seen in the research is explained below.

Instructional Practices/Actions

"Instructional practices" will be defined here as actions taken by the teacher with an academic purpose. Several branches of research have resulted in clear indications regarding effective teaching methods.

Process-Product Research. A significant amount of research dubbed "process-product" research was performed from the 1960s through the 1990s. This research analyzed the actions and methods of teachers and assessed how effective those actions were for students' learning. Consistently, it was found that the most effective teachers performed certain actions, including the following (from Brophy & Good, 1986; Brophy & Good, 2008; Chall, 2000; Coyne et al., 2014; Ellis & Worthington, 1994; Muijs et al., 2014; Rosenshine, 2012; and Walberg, 2002):

-- Directly telling students the objectives of the lesson

-- Directly presenting information to students in small "chunks"

-- Following each "chunk" of information with guided practice

-- Modeling procedures

-- Asking many questions

-- Requiring that all students answer questions, such as by calling on students at random

-- Minimizing transition times and interruptions so as to maintain focus on academic activities

-- Avoiding activities that require students to learn on their own

-- Reteaching information that students do not initially master

-- Reviewing prerequisite knowledge for a lesson or topic

-- Integrating review of old topics

-- Providing time for independent (though supervised) practice of material

-- Summarizing at the end of the lesson

Some other findings of the process-product research (such as the value of homework) have since been shown to be less robust and more nuanced (Cooper et al., 2006), but the actions listed above are remarkably effective even in further research (Ashman, 2018). These actions also align with work from the field of cognitive psychology regarding how the human mind learns (Kirschner & Hendrick, 2020; Rosenshine, 2012; Sweller, 2021; Willingham, 2009); some of this work will be explained in the next section. Accordingly, the above-listed teaching actions and methods have a very strong research base indicating their effectiveness for students' learning. It is important to note, however, that the above listed actions are not necessarily needed in every lesson in every class. Depending on the content being taught and the goals of a particular lesson, many of the above actions would be absent. However, the absence of all or most of these actions across time in a teacher's classroom is likely negative.

Cognitive Psychology Effects. Research in the field of cognitive psychology aligns well with the process-product research and also provides additional recommendations for effective teaching. Cognitive Load Theory (CLT) is a model of how the human mind processes and learns information (Ashman, 2023). According to CLT, the human mind has two types of memory: a highly-limited "working memory" and a limitless "long-term memory." As noted previously, learning is defined as a change in long-term memory. In brief, CLT implies that due to the limits of working memory (through which information must pass in order to reach long-term memory), information should be presented to students in small "chunks" so as not to overwhelm working memory. Additionally, students should generally not be expected to learn information on their own if they are novices in a field, as this requires extensive exploration of information in the environment; this overloads working memory, therefore preventing learning. These general principles align well with the results of the process-product research and have been demonstrated

in several controlled experiments (AERO, 2023; Ashman, 2023). Also worth noting, however, is that once a person has a large amount of knowledge in a subject, the person will benefit more from independent exploration than from direct instruction of information; this is known as the "expertise reversal effect" (Ashman, 2023; Kalyuga, 2007), and it implies that even though approaches that expect students to learn primarily on their own (such as discovery-based learning and inquiry-based learning) are generally less effective, they do have a place for students who are relative "experts" in the topic of study.

CLT also posits that domain-general skills (such as generic "critical thinking skills" or "creativity") can not be taught; instead, only specific knowledge can be taught, and it is with that knowledge in long-term memory that critical thinking can occur (AERO, 2023; Ashman, 2023). Extensive research has shown this concept to be accurate (Hendrick & Kirschner, 2020; Willingham, 2009), including a very recent study showing that use of a curriculum that is knowledge-rich rather than focused on domain-general skills leads to significant improvements in achievement in reading, mathematics, and science (Grissmer et al., 2023). This conclusion also was seen in some of the process-product research, which found that as a general rule, covering more material led to higher academic achievement (Brophy & Good, 1986). Of course, this does not imply that a "mile-wide but inch-deep" curriculum that only lightly touches on a wide variety of topics should be used. Instead, curricula and instruction that emphasize both direct teaching of large amounts of knowledge *and* students' application of that knowledge in complex situations requiring higher-order thinking tend to be the most effective (Brophy & Good, 2008; Coyne et al., 2014).

Additional research in cognitive psychology has found other profound effects for learning. Bjork & Bjork (2011) define a variety of "desirable difficulties" -- learning conditions

that make the situation more difficult for a student but that improve learning at the same time. Three of the most important for teaching are the following:

1. Retrieval practice

2. Spaced practice

3. Interleaved practice

"Retrieval practice" consists of actively trying to recall information rather than repeatedly exposing oneself to information. An example is answering questions about material rather than re-reading notes about that material. This concept is one of the most extensively studied and validated effects in the field of cognitive psychology, and is seen in the "testing effect" -- the fact that taking tests and quizzes over material is extremely effective for learning that material (McDaniel et al., 2007; Roediger & Karpicke, 2006; Weinstein & Sumeracki, 2019). The implication for teaching, then, is that students should be frequently quizzed or tested on material that has been taught or studied (noting that this testing can -- and perhaps should -- be done without grades being assigned).

"Spaced practice" involves the study of material in a spaced schedule as opposed to a block schedule. For example, studying for thirty minutes each day over the course of four days leads to more learning than studying for two hours in a single session (Weinstein & Sumeracki, 2019). An implication of this for teaching is the need for review of older material in order to help solidify that material in long-term memory.

"Interleaved practice" involves mixing different types of material together rather than studying one topic at a time. An example in elementary-school mathematics is to practice with a mixture of addition and subtraction problems rather than doing a series of addition problems followed by a separate series of subtraction problems. While this interleaving tends to make

work more challenging, it leads to more learning in the long-term (Weinstein & Sumeracki, 2019). The primary implication of this for teaching is that mixing and interleaving different topics (rather than proceeding in a simple progression of disconnected topics) will improve students' learning.

Formative Assessment. Kirschner and Hendrick (2020) state that formative assessment is one of the "best bets" when it comes to effective educational practice. Formative assessment -- also called "assessment for learning" -- is the use of assessment to gauge what students know and understand so that further instruction can be adapted as necessary. The use of formative assessment has an incredibly powerful positive effect on students' learning (Kirschner & Hendrick, 2020). Recommendations related to formative assessment include the following (based on Black et al., 2003, and Kirschner & Hendrick, 2020):

-- Ask students questions and use their answers to identify gaps in knowledge

-- Adapt teaching to fill in any gaps in students' knowledge

-- Use low-stakes assessments (such as ungraded quizzes) in the same manner as general questioning

-- Adapt further teaching based on the results of summative assessments

-- Share criteria for success (such as rubrics) with students so that they know exactly what the learning goals are

-- Ask students to assess their own progress towards learning goals

-- Provide feedback on students' assignments without assigning a grade; this makes the student focus on what they did well and what they need to improve, rather than drawing their attention to a simple number or letter

-- Feedback should describe how the student can improve their work

Conclusions Regarding Instructional Practices/Actions. Process-product studies have shown consistent findings regarding which teaching actions and methods generally lead to the most learning. Additionally, research in the field of cognitive psychology has bolstered the findings of the process-product research with a strong theoretical base and further experimental evidence. There is also extensive evidence showing the power of formative assessment for improving learning. From this research, many broad recommendations can be provided for teachers.

Affective Practices/Actions

"Affective practices" will be defined here as actions taken by the teacher (either intentionally or not) that are social-emotional in nature and that also have an effect (intended or not) on academic achievement and learning. For example, some affective practices were involved in the previously discussed process-product research. Brophy & Good (1986; 2008), Rosenshine (1970), and Westwood (1996) noted in research reviews that a teacher's level of enthusiasm in their instruction is causally correlated with students' academic achievement. Additionally, Brophy & Good (1986; 2008) note that a positive or at least neutral classroom atmosphere is better for students' learning than a negative classroom atmosphere. Other process-product research, such as that from Charlesworth et al. (1993), shows that teacher criticism and ridicule of students tend to lead to worse behavioral outcomes and decreased learning. Research beyond the process-product literature has also looked at other affective practices. A meta-analysis from 2011 showed that teacher empathy and warmth is beneficial for students' engagement, behavior, and academic achievement (Roorda et al., 2011). Hattie (2009) notes in his meta-analysis that students who show resistance to coming to school often cite dislike of their teachers as a primary reason. Reviewing the available literature, de Bruyckere

(2018) concluded that it is vital to "like your students" in order for them to learn, recommending "direction, understanding and friendliness" as three key elements of building positive teacher-student relationships (p. 120). Affective practices are much more difficult to define specifically than instructional practices, but general recommendations can still be made (based on AERO, 2023; Brophy & Good, 2008; de Bruyckere, 2018; Kirschner et al., 2022; and Roorda et al., 2011):

-- Enforce classroom rules in a clear, non-emotional way

-- Encourage students to ask questions

-- Be responsive to students' questions and needs

-- Do not ridicule or criticize students for wrong answers or bad behavior

-- Maintain high expectations for all students

-- Be supportive of students' attempts to meet expectations

-- Talk to students informally outside of class at appropriate times (such as during passing periods and recess)

-- Be honest, genuine, and authentic with students in order to develop trust

-- Maintain appropriate professional distance

As a general conclusion regarding affective practices, encouraging learning while respecting students' unique differences and needs is generally beneficial.

Instructional/Curricular Design

"Instructional/curricular design" will be defined here as the way in which instructional materials (such as assessments, assignments, and presentation materials) are made and organized. In many schools, teachers have minimal control over what sort of curricula and materials they may use; instead, they are prescribed specific programs or textbooks. That being said, in schools

in which teachers have significant influence on curriculum development, teachers should ensure that their curriculum is as effective for learning as possible. Certain pre-made curricula and programs have been studied extensively and been shown to be highly effective -- see, for example, research on Engelmann's "Direct Instruction" programs (Mason & Otero, 2021, and Stockard et al., 2018). Other pre-made curricula (such as the Core Knowledge curricula) have been studied less extensively, but have still shown strong results (Grissman et al., 2023; New York City Department of Education, 2012). Analyzing the characteristics of these curricula can help to determine what makes a curriculum effective. Additionally, research on instructional and curricular design (such as that summarized by AERO, 2024, Coyne et al., 2014, and Kirschner et al., 2022) has found several general principles that tend to be effective when designing curricula. Based on the instructional-design research and the characteristics of well-studied curricula that have shown to be consistently effective (such as Direct Instruction and Core Knowledge), the following recommendations are supported:

-- Objectives should define what tasks students will be able to do and what problems they will be able to solve, rather than consisting of disconnected, abstract descriptions of what students will "know"

-- Objectives should be made clear to students

-- There should be alignment between objectives, instruction, and assessments

-- Students should be told exactly how they will be assessed and should be shown models of high-quality work

-- Information should be taught to students in a way that moves from the most simple components to more complex problems

-- Student tasks should also move from simple to more complex

-- Strategies, procedures, and routines should be taught clearly in a "how-to" fashion

-- Review of routines and procedures that need to be automatic for more complex performance should occur frequently and in varied contexts

-- Students should be told how routines and procedures factor into complex, authentic problems

-- Curricula should be "knowledge-rich" -- covering large amounts of information -- while also ensuring that information is used in context for higher-order tasks rather than being learned as a series of disconnected facts

The above characteristics of effective instructional/curricular design are not comprehensive, but they are a reasonable outline for teachers.

Conclusions about Research-Based Elements of Effective Teaching

An extensive research literature indicates that certain instructional actions, affective actions, and principles of instructional/curricular design are generally effective for helping students learn. The use of these research-informed practices is useful in evaluating teachers and, perhaps more importantly, guiding their improvement.

An Inventory of Research-Informed Teaching Practices to Guide Teachers' Development

Considering the above research, a collection of research-informed teaching practices can be put together. However, as stated by Kirschner et al. (2022, p. 38), in education, "everything works somewhere, and nothing works everywhere." It is important to note that not all of these practices are applicable to every single lesson in all classrooms; rather, they should be considered general guidelines that have shown robust and consistent effectiveness in the research done in the field of education. That consistent effectiveness has been demonstrated in a wide variety of contexts, such as different subjects, age groups, and with students who have different backgrounds and characteristics (AERO, 2023). In the context of this framework, the idea would

be that teachers (with evaluator guidance) look through these practices and identify ones that they would like to implement and/or areas in which they would like to improve. This information would then be used for the teacher and their evaluator(s) to set goals for the teacher. Additionally, it is important to point out that no inventory of effective practices can ever be complete, so teachers and evaluators could identify other research-informed practices that are not in this inventory as they set goals.

Inventory of Research-Informed Teaching Practices

SECTION 1: RESEARCH-INFORMED INSTRUCTIONAL PRACTICES		
PRACTICE	**POSSIBLE EXAMPLES**	**RESEARCH JUSTIFICATION**
1.A: The teacher makes objectives/goals of lessons clear to students	-- The teacher writes a lesson's objectives on the board each day -- The teacher orally explains each lesson's objectives to students at the beginning of the lesson	Brophy & Good, 2008; Ellis & Worthington, 1994; Rosenshine, 2012
-- 1.A.1: The teacher clarifies how students will show mastery of objectives	*-- Criteria for success (such as rubrics) are shared with the students*	*Black et al., 2003; Kirschner & Hendrick, 2020*
1.B: The teacher reviews prerequisite knowledge/information if necessary for a lesson	-- The teacher explains to students what knowledge/information is necessary before engaging in the current lesson -- The teacher uses effective practices, such as those in the next standards, to review prerequisite knowledge/information	Brophy & Good, 2008; Ellis & Worthington, 1994; Rosenshine, 2012
1.C: The teacher presents the	-- The teacher presents	Ashman, 2023; Brophy &

lesson's content directly if students have minimal prior knowledge of the content *--1.C.1: The teacher presents information in an effective way*	information directly rather than expecting students to learn it on their own *-- The teacher presents information in small "chunks"* *-- The teacher models concepts, rules, and procedures* *-- The teacher provides multiple examples* *-- The teacher doesn't simply "lecture," but rather presents information in an interactive way, such as with frequent questioning*	Good, 2008; Ellis & Worthington, 1994; Rosenshine, 2012 *Ashman, 2023; Brophy & Good, 2008; Ellis & Worthington, 1994; Rosenshine, 2012*
1.D: The teacher has *all* students engage in guided practice of the lesson's content *-- 1.D.1: The teacher adjusts instruction based on students' responses in guided practice*	-- The teacher frequently asks questions during presentation and modeling of material and requires answers from *all students*, possibly using the following strategies: -- Calling on students at random -- Having all students write answers on mini whiteboards that they then hold up for the teacher to review -- Having all students answer questions electronically via one-to-one devices *-- The teacher slows down instructional pace if students are struggling* *-- The teacher maintains or speeds up instructional pace*	Brophy & Good, 2008; Ellis & Worthington, 1994; Rosenshine, 2012 *Black et al., 2003; Kirschner & Hendrick, 2020*

	if students are performing very well *-- The teacher identifies gaps in students' knowledge based on their responses and provides supplemental instruction/explanation to address those gaps*	
1.E: The teacher has students practice and apply the lesson's content independently after sufficient direct instruction and guided practice *-- 1.E.1: The teacher responds appropriately to students' performance in independent practice*	-- The teacher has students perform practice activities independently, or in groups as appropriate, while the teacher supervises *-- The teacher gives individual help to struggling students* *-- If a significant number of students are struggling, the teacher may stop independent practice in order to reteach material*	Brophy & Good, 2008; Ellis & Worthington, 1994; Rosenshine, 2012 *Brophy & Good, 2008; Ellis & Worthington, 1994; Rosenshine, 2012*
1.F: The teacher includes retrieval practice in lessons	-- The teacher requires students to answer questions very frequently in lessons -- The teacher requires students to take quizzes and tests frequently, even if those quizzes and tests are not graded	Bjork & Bjork, 2011; Roediger & Butler, 2011; Roediger & Karpicke, 2006; Weinstein & Sumeracki, 2019
1.G: The teacher includes spaced practice in lessons	-- The teacher uses intentional "gaps" when covering material, such as covering material one day, having students do something different the next day, then	Bjork & Bjork, 2011; Roediger & Butler, 2011; Roediger & Karpicke, 2006; Weinstein & Sumeracki, 2019

	returning to the original material the next day	
1.H: The teacher interleaves content in lessons	-- The teacher uses activities and assignments that require students to use multiple previously-covered topics at the same time and/or to integrate new material with previously-covered material	Bjork & Bjork, 2011; Roediger & Butler, 2011; Roediger & Karpicke, 2006; Weinstein & Sumeracki, 2019
1.I: The teacher adapts instruction for "expert" students	-- For students who are already knowledgeable about the material being covered, the teacher provides more exploratory/discovery-based tasks -- As students who were initially novices with the material become relative "experts," the teacher provides them with exploratory/discovery-based tasks	Ashman, 2023; Kalyuga, 2007; Kirschner & Hendrick, 2020
1.J: The teacher provides clear feedback to students that indicates how they can move forward	-- The teacher gives feedback beyond a simple letter/numerical grade or simple comments (such as "Good job!" or "Needs improvement") -- The teacher's feedback explains specific steps for how the student can improve and achieve the learning goals	Black et al., 2003; Kirschner & Hendrick, 2020
SECTION 2: RESEARCH-INFORMED AFFECTIVE PRACTICES		
PRACTICE	**POSSIBLE EXAMPLES**	**RESEARCH JUSTIFICATION**

2.A: The teacher is consistent with enforcing classroom rules and is not emotional in their enforcement	-- Rules are made clear to students -- The teacher avoids personal criticism of students when they break rules	AERO, 2023; Brophy & Good, 2008; de Bruyckere, 2018; Roorda et al., 2011
2.B: The teacher encourages students to ask questions	-- The teacher accepts questions from students -- The teacher does not label questions as "stupid" or unnecessary	Brophy & Good, 2008
2.C: The teacher maintains high expectations for all students	-- The teacher expects all students to participate, such as by calling on students at random and expecting an answer	AERO, 2023; Brophy & Good, 2008; Muijs et al., 2014
2.D: The teacher is supportive of students' attempts to participate and meet expectations	-- The teacher emphasizes that wrong answers are better than no answer -- The teacher does not show disappointment, ridicule, or criticism with wrong answers -- The teacher emphasizes to the class that students should not judge others for wrong answers	Brophy & Good, 2008
2.E: The teacher expresses interest in students' lives	-- The teacher has informal conversations with students at appropriate times	de Bruyckere, 2018
2.F: The teacher is honest, authentic, and genuine with students	-- This standard is nearly impossible to describe in terms of specific teacher actions, but "authenticity" is subjectively reported by students as the teacher's having strong subject knowledge, being passionate,	de Bruyckere, 2018; Kirschner et al., 2022

	being unique, and being caring (Kirschner et al., 2022)	
SECTION 3: RESEARCH-INFORMED PRINCIPLES OF INSTRUCTIONAL AND CURRICULAR DESIGN		
PRACTICES	**POSSIBLE EXAMPLES**	**RESEARCH JUSTIFICATION**
3.A: The curriculum/materials show alignment between objectives, instructional activities, and assessments	-- Instructional activities and assessments are directly related to the learning goals/objectives	Kirschner et al., 2022
3.B: The objectives of the curricula are clear and define what tasks students will be able to do and what problems they will be able to solve	-- Materials clearly state objectives so that teachers, students, and others can understand them -- The objectives do NOT consist of disconnected, abstract descriptions	AERO, 2024; Kirschner et al., 2024
3.C: The ways students will be assessed are clearly stated and explained	-- Descriptions and examples of high-quality work are included -- Specific descriptions of assessments are included and made clear to students	AERO, 2024

Part 3: Measuring Student Learning Growth

Student learning growth is one major indicator of a teacher's effectiveness. For example, using what are called "value-added models" (VAMs), teacher effectiveness can be assessed with regards to student learning growth. In brief, VAMs work in the following way: based on standardized test scores, one can predict how much students with particular characteristics (such as high or low socioeconomic status) will learn in a particular subject in one school year. One

can then look at the performance of students with those characteristics in a particular teacher's class. Research has shown that with the most effective teachers, those students will learn 1.5 years worth of material in only one year. With the least effective teachers, those students learn only 0.5 years worth of material in one year (Hanushek, 2014).

VAMs are a very valuable form of measurement, but they are not without their flaws. Some potential issues with VAMs are the following:

1. Unless standardized testing data is available across multiple years, accurate calculations can not be made. This is especially problematic for teachers whose subjects have little or no standardized testing on a wide scale (such as teachers of art, music, foreign language, science, and other subjects); approximately 70% of teachers in the United States fall into this category (Lin et al., 2020).
2. Even with sufficient data, it is impossible to control for all confounding factors that affect students' learning growth.
3. VAMs involve complex statistical analysis models that are not always easily available for schools and districts.

Considering these factors -- especially the lack of availability for many schools and districts -- VAMs are unlikely to be of much value in this framework. Even so, measuring student learning growth during students' time with a particular teacher is still an important aspect of measuring teachers' effectiveness.

Given the lack of accessibility of VAMs, this framework will focus largely on Student Learning Objectives (SLOs). SLOs are a much more accessible way of measuring student growth, as they are adaptable to a large variety of situations with different data available. The research on how accurate SLOs are for teacher evaluation is limited and mixed (Lin et al., 2020),

but to the best of the author's knowledge in reviewing the literature, there are no better options for measuring student learning growth that are openly available to schools and districts. Additionally, the implementation of SLOs has been shown in some research to increase students' academic achievement (Lin et al., 2020).

Part of why there is limited and mixed research regarding SLOs is because the concept of a SLO is very broad. As explained by Lin et al. (2020, p. 3), "[g]enerally, applying SLOs for teacher evaluation involves three steps: (a) setting targets, (b) assessing student growth, and (c) evaluating teachers based on students' target-reaching condition." This is obviously a vague, subjective process. Below, a more objective way of using SLOs is discussed.

Making SLOs More Meaningful

The first part of an SLO is "setting targets" (Lin et al., 2020, p. 3). The issue is that teachers and evaluators can set any target that they want, regardless of whether or not it is logical or reasonable. This prevents any sort of standardization of teacher evaluation. To address this, it is better for all teachers to have the same target. A logical target/objective for any teacher of any class is the following:

All students will meet the objectives of the course.

A failure to meet this objective is not necessarily an indication that a teacher lacks competence; teachers obviously face many challenges in their pursuit of this objective, such as students' levels of prerequisite knowledge for a class, students' home-life conditions, and students' initial levels of intrinsic motivation. Even so, it is a worthy goal to pursue.

Considering the above, the following procedure can be used for measuring student learning growth:

1. Identify and define the objectives of a course.

2. Create an assessment that aligns with those objectives, along with a rubric for how that assessment will be graded.

3. Give a form of that assessment to students at the beginning of the course as a pre-test.

4. Give a form of that assessment to students at the end of the course as a post-test.

5. Analyze students' progress towards meeting course objectives.

This is a simple, straightforward process that can be applied by all schools and districts. However, a difficulty arises in deciding what level of student progress would indicate that a teacher is competent or not. Making that decision is, ultimately, an arbitrary value judgment. Below, a few common options are offered, along with a discussion of their strengths and weaknesses.

Percentage of Students Meeting Course Objectives

With the goal of all students meeting the objectives of a course, a cutoff score on the post-test (for example, 80%) is chosen as indicating that a student has met the course objectives. After the post-test is administered, the teacher is evaluated based on what percentage of their students reached the cutoff score, such as by saying that a teacher for whom 80% or more of students met course objectives is "excellent"; a teacher for whom 60-79% of students met course objectives is "proficient"; and a teacher for whom less than 60% of students met course objectives is "unsatisfactory."

Strengths and Weaknesses of the "Percentage of Students Meeting Course Objectives" Model	
Strengths	***Weaknesses***
-- Easy to understand and implement -- Directly measures how many students become competent in the subject matter over the course of the school year	-- A proficiency cutoff score needs to be chosen somewhat arbitrarily (although this can be attenuated by having a rubric for how the assessment is graded)

	-- Does not factor in circumstances outside of the teacher's control, such as students' homelife -- Does not differentiate for students with distinct needs and starting levels -- Scores/percentages for determining teacher evaluation are chosen arbitrarily

"Half-the-Distance" Growth Target

With this approach, each student's pre-test score is used to set a personalized target score for their post-test. That personalized target is half of the way from their pre-test score to 100% on the post-test. This is calculated with the following formula:

$$G = X + (Y-X) * 0.5$$

In which "G" is the student's target score, "X" is the student's pre-test score, and "Y" is the maximum score for the assessment. A spreadsheet that can automatically make these calculations is available at oftde.blogspot.com. A teacher would then be evaluated on what percentage of their students met their personal growth targets, such as with the same "excellent/proficient/unsatisfactory" scale mentioned previously.

Strengths and Weaknesses of the "Half-the-Distance Growth Target" Model	
Strengths	***Weaknesses***
-- Easy to understand and implement -- Differentiates for students' initial starting points	-- The "half-the-distance" measure is chosen arbitrarily -- Does not factor in circumstances outside of the teacher's control, such as students' homelife -- Is not based on how many students meet the objectives of the course

	-- Scores/percentages for determining teacher evaluation are chosen arbitrarily

Customized Growth Target

This approach is identical to the "Half-the-Distance" approach, except that rather than "half the distance" to 100% being the goal, a custom goal (such as 20% growth towards 100%) is set. In order to do this, the formula for the "Half-the-Distance" approach simply needs to replace "0.5" with another number (such as 0.2 for measuring 20% growth). This approach essentially has the same strengths and weaknesses as the "Half-the-Distance" approach.

Data-based Growth Target

This approach is the most similar to VAMs. Instead of setting arbitrary growth targets, growth targets are based on average growth shown by previous cohorts of students (Lin et al., 2020). In other words, if the same post-test has been used for the past five years, the data on how students tended to improve in past years would be used to set a growth target. This would use the following equation:

$$G = X + (Y-X) * Z$$

In which "G" is the student's target score, "X" is the student's pre-test score, "Y" is the maximum score for the assessment, and "Z" is the "actual mean growth over the maximum possible growth" in previous years (Lin et al., p. 7). "Z" would be calculated in the following way:

$$Z = (A-B) / (Y-B)$$

In which "A" is the average of all previous students' post-test scores, "B" is the average of all previous students' pre-test scores, and "Y" is the maximum score for the assessment.

Assume, for example, that in the last five years, two students each year have taken the assessment being used, for a total of 10 students (obviously, in a real scenario, the number of students would likely be much larger). They received the following pre-test and post-test scores:

Student	**Pre-test score (out of 100)**	**Post-test score (out of 100)**
1	50	66
2	12	65
3	76	80
4	45	55
5	32	59
6	34	83
7	57	100
8	68	75
9	56	60
10	52	66

The average pre-test score over the past five years was 48.2. The average post-test score was 70.9. Using this data, one can calculate the average student growth seen for students on this test:

$$Z = (70.9 - 48.2) / (100-48.2)$$

The result is 0.44, or 44% growth. Using this data, the following equation would be used to set personalized growth targets for each student in the current year:

$$G = X + (Y-X) * 0.44$$

In which "G" is the student's target score, "X" is the student's pre-test score, and "Y" is the maximum score for the assessment. A teacher would then be evaluated on what percentage of

their students met their personal growth targets, such as with the same "excellent/proficient/unsatisfactory" scale mentioned previously.

Strengths and Weaknesses of the "Data-Based Growth Target" Model	
Strengths	***Weaknesses***
-- Easy to understand and implement -- Differentiates for students' initial starting points -- Uses a data-based (rather than arbitrary) growth goal for students	-- Does not factor in circumstances outside of the teacher's control, such as students' homelife -- Is not based on how many students meet the objectives of the course -- Is dependent on the same (or very similar) pre-test and post-test having been used in previous years -- Scores/percentages for determining teacher evaluation are chosen arbitrarily

Utilizing Measures of Student Learning Growth for Teacher Development and Evaluation

Student learning growth has the benefit of being the most concrete measure of how much students have learned in a course, which -- considering the evidence that a teacher's actions have a major effect on students' learning (Muijs et al., 2014) -- is likely an accurate measure of a teacher's effectiveness. However, it is difficult to control for other factors that can affect students' achievement, such as their socioeconomic status. VAMs can control for many of these factors, but unfortunately, VAMs are not easily accessible to teachers, schools, and school districts. Additionally, VAMs are of little or no value for the approximately 70% of teachers whose subjects are not regularly subjected to wide-scale standardized testing (Lin et al., 2020). Accordingly, SLOs are a much more viable option. Even so, SLOs suffer from the issue of significant subjectivity in their application. This subjectivity can be minimized to some extent by using a universal goal for all teachers, rather than letting teachers and/or their evaluators pick

individual goals. However, even with a universal goal, the cutoff decisions for what defines a teacher's level of effectiveness are arbitrary (is a teacher "excellent" because more than 80% of their students met course objectives? What if 79% of their students met those objectives? What value does the number "80" have?). The evaluation system described in Part 5 defines cutoff scores and decisions while acknowledging that such scores are largely arbitrary.

Part 4: Student Surveys

While student surveys can be negatively affected by students' bias towards certain teachers (Senden et al., 2021), research explained by English et al. (2015), the MET Project (2012), Putman et al. (2018), and Senden et al. (2021) shows that surveys of students regarding the practices and actions of their teachers have validity and can contribute to teacher evaluation. English et al. (2015, p. 7) note that "[a] state or local education agency opting to develop its own survey might consider the following criteria for approval:

-- Whether the survey is aligned with relevant standards for teaching

-- Whether the survey content is grounded in research about teaching and designed to provide evidence of effectiveness of teachers' practice for formative and/or summative purposes

-- Whether the survey meets appropriate standards of validity

-- Whether the survey meets appropriate standards of reliability."

English et al. (2015, p. 8) also note that the five items/questions most strongly correlated with student achievement and teacher effectiveness are the following, with which students would indicate their level of agreement (such as on a Likert scale ranging from "strongly disagree" to "strongly agree"):

"-- Students in this class treat the teacher with respect.

-- My classmates behave the way my teacher wants them to.

-- Our class stays busy and doesn't waste time.

-- In this class, we learn a lot almost every day.

-- In this class, we learn to correct our mistakes."

English et al. (2015) mention various pre-made surveys, such as the the "Tripod" survey, the "Survey of Teacher Practice (STeP), and the "Panorama Student Survey." There is some research validating these surveys, but it is largely led by the organizations that developed the surveys in the first place, introducing some level of bias (English et al., 2015). Furthermore, the use of these surveys is largely limited by requirements for schools and districts to pay for access (an exception is the Panorama Student Survey, which is available for educators to use "free of charge") (Panorama Education, n.d., p. 4).

The author has developed the following survey that includes the five key questions mentioned above from English et al. (2015), along with other questions that align with recommendations from English et al. and the MET Project (2012), such as aligning questions with research on effective teaching practices. As with this framework as a whole, the author acknowledges that the survey offered below is not experimentally validated but is simply one option for a school or district to use and/or adapt.

Student Survey

Question number	**Question**	**Strongly Disagree**	**Disagree**	**Not sure**	**Agree**	**Strongly Agree**
1	Students in this class treat the teacher with respect					

2	My classmates behave the way my teacher wants them to					
3	Our class stays busy and doesn't waste time					
4	In this class, we learn a lot almost every day					
5	In this class, we learn to correct our mistakes					
6	I know what is expected of me in this class					
7	My teacher makes sure that all students participate					
8	We have time to practice the material we learn in class					
9	We review old					

	material sometimes					
10	We have opportunities to apply material to real-world situations					
11	My teacher encourages students to ask questions					
12	My teacher has high expectations for students					
13	My teacher is supportive					
14	My teacher gives clear feedback that helps me learn more					
15	My teacher is consistent with applying classroom rules					
16	My teacher explains how I will be assessed and graded in this					

	class					
17	My teacher explains things clearly					
18	My teacher enforces rules in a "business" way rather than a "personal/emotional" way					
19	My teacher respects students					
20	My teacher only expects students to learn on their own if they're ready					

Part 5: A Comprehensive Evaluation System

Research from the National Council on Teacher Quality (NCTQ) has found that, despite the many complexities of evaluating teachers, the most accurate evaluation systems tend to include the following elements (Putman et al., 2018):

1. Multiple measures for calculating an evaluation score, including classroom observations, student surveys, and objective measure of student growth.
2. Written feedback after lesson observations.
3. At least three rating categories, as binary ratings (such as simply calling a teacher

"satisfactory" or "unsatisfactory") tend to be more biased.

Putman et al. (2018) also recommend that all teachers be evaluated yearly, regardless of status such as tenure, and that compensation be tied to evaluation; however, these suggestions are a school or district-level decision outside the actual design of an evaluation framework, so they will not be addressed here.

Using the pillars described in Parts 1-4, a specific procedure for evaluating teachers can be designed. As recommended by Putman et al. (2018), this procedure will involve multiple different forms of measuring effectiveness, including observations, student surveys, and student learning growth. As the author has noted several times in this document, despite the research base for all that has been said, there is no experimental evidence validating the use of the specific tools developed here, and the procedure outlined below is simply one potential model that a school or district could use.

Evaluation Procedure Throughout a School Year

Based on the available evidence regarding effective teaching and effective teacher evaluation, the author proposes the following procedure for evaluating teachers. The steps of the procedure are listed in order (other than the first step, which is to be carried out on a semi-formal basis throughout the school year).

ACTION	**REASON**
Throughout the school year, if the teacher engages in behavior that does *not* meet standards 1-3 of the "Basic Professional Standards for Teaching," it will be noted by the evaluator. The evaluator can make these notes on Form A.2. If few or no difficulties with these standards are noted throughout the year, the teacher will be assumed to have met the standards.	Shows that the teacher meets standards 1-3 of "Basic Professional Standards for Teaching."

Repeated and/or major difficulties with these standards would indicate that a teacher may need to be placed in the lowest evaluation category and will require significant remediation or dismissal.	
Prior to the start of a school year, the teacher develops a pre-test and post-test aligned with course objectives and standards. The evaluator approves the pre-test and post-test.	Preparing to measure student learning growth.
Within the first few weeks of the school year, the teacher administers the pre-test to students.	Preparing to measure student learning growth.
Within the first few weeks of the school year, the evaluator observes a lesson (Observation 1). This observation is *not* announced ahead of time. The evaluator will use the "Inventory of Research-Informed Teaching Practices" to do the following: -- Note the practices that a teacher is implementing well. -- Note practices that the teacher is implementing but is struggling with. -- Note practices that are applicable to the lesson but that the teacher is not implementing at all. The evaluator will use Form B.1 for this observation.	Preparing for teacher development.
After the lesson observation, the teacher will fill out a form (A.1) explaining what they taught in the lesson, why they taught it, and how it relates to the curriculum. The teacher will also reflect on what they could have done differently.	Shows that the teacher meets standard 4 of "Basic Professional Standards for Teaching."
Soon after the lesson observation, the teacher and evaluator will have a discussion (Discussion 1). In this discussion, they will use Form B.2 to identify areas where the teacher could potentially improve. They will also use Form B.2 to set a goal for the teacher, plan for how the teacher will achieve the goal,	Improving/developing the teacher's practice.

and decide on how the teacher's progress towards the goal will be measured. They will choose a date on which they will discuss the teacher's achievement of or progress towards the goal (Discussion 2).	
Prior to Discussion 2, the evaluator will observe another lesson (Observation 2). This observation may be either planned or unannounced, depending on the goals set by the teacher and evaluator. The evaluator will specifically be looking for evidence that the teacher is attempting to meet their goal(s). The evaluator will use Form B.3 for this observation.	Improving/developing the teacher's practice.
After Observation 2, the teacher and evaluator will have another discussion (Discussion 2). Prior to this discussion, the teacher will fill out Form B.4 to guide the discussion. In Discussion 2, the teacher and evaluator will decide to either: 1. Do further work on the teacher's goal. 2. Set a new goal. Regardless of the choice, the teacher and evaluator will again fill out Form B.2. The teacher and evaluator will set a date for Discussion 3.	Improving/developing the teacher's practice.
Prior to Discussion 3, the evaluator will observe another lesson (Observation 3). This observation may be either planned or unannounced, depending on the goals set by the teacher and evaluator. The evaluator will specifically be looking for evidence that the teacher is attempting to meet their goal(s). The evaluator will use Form B.3 for this observation.	Improving/developing the teacher's practice.
After Observation 3, the teacher and evaluator will have Discussion 3. Prior to this discussion, the teacher will again fill out Form	Improving/developing the teacher's practice.

B.4 to guide the discussion.	
Near the end of the school year, a student survey will be given to all the teacher's students. One potential survey is provided in Appendix C (Form C.1).	Improving/developing the teacher's practice.
At or near the end of the school year, the teacher's students will be given the approved post-test.	Measuring student learning growth.
At the end of the school year, all data collected is used to evaluate the teacher.	Teacher effectiveness evaluation.

Calculating a Teacher's Effectiveness

Using the above procedure, teachers could be given one of the following three ratings:

1. Distinguished

2. Proficient

3. Needs improvement

Based on a score ranging from 0-100, teachers could be rated as follows:

RATING	**SCORE (Out of 100)**
Distinguished	85-100
Proficient	70-84
Needs improvement	Below 70

A teacher's score could be balanced in the following way:

Lesson observations and discussions: 45 possible points.

Student learning growth: 45 possible points.

Student surveys: 10 possible points.

Total possible: 100 points.

It is important to note that these numbers and scores have been chosen arbitrarily, but with the intention of using multiple measures as factors in teacher evaluation, as recommended by Putman et al. (2018).

Lesson Observations and Discussions

The following rubric could be used:

Success criteria	**Points awarded (out of 45)**
The teacher: -- Chooses a reasonable, research-informed goal in Discussion 1 (Form B.2) -- Sets SMART criteria for reaching that goal -- Demonstrates attempts to progress towards the goal in Observation 2 (Form B.3) -- Explains progress towards the goal in Form B.4 and Discussion 2 -- Shows continued attempts to progress towards either the original goal or a new goal in Observation 3 (Form B.3) -- Explains progress towards goals in Form B.4 and Discussion 3	45
The teacher meets all success criteria for the "Distinguished" level ***EXCEPT***: -- Does not demonstrate attempts to progress towards the goal in Observation 2 ***OR***: -- Does not manage to explain progress towards the goal in Form B.4 and Discussion 2 ***OR:*** -- Does not show continued attempts to progress in Observation 3 ***OR:*** -- Does not manage to explain progress towards goals in Form B.4 and Discussion 3	30
Does not meet *all* success criteria outlined in the "Proficient" level	15

Student Learning Growth

After choosing a learning goal (such as percentage of students reaching mastery, a "half-the-distance" growth target, a customized growth target, a data-based growth target, or another goal), the following rubric could be used:

Success criteria	**Points awarded (out of 45)**
80% or more of students reach the learning goal	45
70-79% of students reach the learning goal	35
60-69% of students reach the learning goal	25
50-59% of students reach the learning goal	15
Less than 50% of students reach the learning goal	0

Student Survey

When using a student survey to assess a teacher's effectiveness, one possible procedure is the following:

1. Choose or make a survey.

2. Assign a "score" for each answer to each question. For example, in the author-designed survey provided in this framework, a score of 1-5 could be attributed to each answer, from "1" for "strongly disagree" to "5" for "strongly agree."

3. Give the survey to all students that a teacher has or to a representative sample of the teacher's students.

4. Calculate the maximum possible score that a teacher can achieve in this way:

$$(X * Y) * Z = A$$

Where "X" is the maximum points per question, "Y" is the number of questions on the survey, "Z" is the number of students surveyed, and "A" is the maximum possible score

that a teacher can achieve. As an example, using the author-designed survey (which has 20 questions, each question having a maximum value of five points) given to 90 students, the equation would be as follows:

$$(5 * 20) * 90 = 9{,}000$$

5. Assign cutoff percentages for teacher evaluation and connect those cutoffs to a number out of the maximum evaluation points awarded to a teacher for students surveys (in this case, 10 points). An example would be the following:

Student survey percentage	**Evaluation points awarded (out of 10)**
80% or higher	10
60-79%	5
Lower than 60%	0

Evaluation points awarded could also be directly equivalent to the student survey percentage (i.e., a student survey percentage of 67% would equate to 6.7 evaluation points being awarded out of a maximum of 10).

6. Calculate a teacher's student survey percentage with the following formula:

$$(B/Z) * 100 = C$$

In which "B" is the sum of points from students' surveys, "Z" is the maximum total points that a teacher could earn, and "C" is the teacher's final percentage for evaluation.

Basic Professional Standards for Teaching

These standards are not part of the calculation of a teacher's effectiveness because the expectation is that *all* teachers meet these standards as a basic foundation for being a teacher. The recommendation of the author is that a teacher who does not meet these standards should either receive significant remediation or be dismissed.

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Appendix A: Documents for Assessing Basic Professional Standards for Teaching

Form A.1: Lesson Reflection

Teacher: _____ *Date of observed lesson: _____*

This form asks you to reflect on the lesson that your evaluator observed (Observation 1). Your completion of this form will show that you meet standard 4 of the "Basic Professional Standards for Teaching."

1. Explain what you were teaching in the observed lesson.

2. Why did you teach that material? How does it relate to previous and future lessons?

3. What difficulties did you expect students to have during the lesson? Did those difficulties materialize? If so, how did you address them?

4. Why did you decide to use the teaching methods, techniques, and materials that you implemented in this lesson?

5. Reflecting on this lesson, what would you have done differently?

Form A.2: Evaluator Notes Regarding Basic Professional Standards for Teaching

Teacher: _____ *Evaluator:* _____

On this form, note behaviors that clearly indicate that a teacher is ***not*** meeting standards 1-3 of the "Basic Professional Standards for Teaching." Be as detailed as possible.

STANDARD 1: PROFESSIONALISM			
SUBSTANDARD	**POTENTIAL INDICATIONS OF A TEACHER MEETING STANDARDS**	**Behavior observed indicating that teacher does *not* meet standards**	**Date, time, and location observed**
1.A: The teacher demonstrates responsibility and dependability	-- The teacher comes to work and work functions on time -- The teacher completes necessary tasks on time -- The teacher demonstrates a positive attitude and willingness to do their job to the best of their ability		
1.B: The teacher demonstrates integrity	-- The teacher follows applicable codes of ethics -- The teacher uses class time responsibly -- The teacher is honest with others -- The teacher takes responsibility for mistakes		
STANDARD 2: INTERPERSONAL SKILLS			

2.A: The teacher works effectively with others as needed	-- The teacher collaborates with colleagues in order to achieve common goals as needed -- The teacher is open to others' differing views and opinions -- The teacher engages in reasonable negotiation to solve conflict with colleagues, parents, or community members		
2.B: The teacher communicates appropriately with others	-- The teacher uses appropriate language and tone when communicating with students, parents, colleagues, and community members -- The teacher shows respect to others		
STANDARD 3: FUNCTIONAL ACADEMIC COMPETENCE			
3.A: The teacher can perform necessary reading and writing functions in the language(s) of instruction and professional tasks	-- The teacher can write instructions, class materials, and communicative documents (such as emails) in a coherent, professional manner		
3.B: The teacher has sufficient mathematical skills for the demands of teaching	-- The teacher can grade assignments, using arithmetic as needed -- The teacher can		

	perform the mathematical calculations necessary to confirm scores and grades		
3.C: The teacher has sufficient technological skill for the demands of teaching	-- The teacher can use basic computer programs needed for teaching -- The teacher is aware of software and programs used by their school or district and can use those programs as needed		

Appendix B: Documents for Setting and Tracking Goals Related to Part 2

Form B.1: Observation 1 Form for Evaluator

Teacher: _____ *Evaluator:* _____

Data of observation: _____

This form should be used for the first observation of the school year, and it should be seen as a way of helping the teacher set instructional goals. As you observe the teacher's lesson, use this form to take notes on the following:

-- Note how a teacher implements practices from the inventory of research-informed teaching practices

-- Note areas where a teacher may not be implementing a practice well

-- Note practices that are applicable to the lesson but that are not being implemented by the teacher

SECTION 1: RESEARCH-INFORMED INSTRUCTIONAL PRACTICES		
PRACTICE	**POSSIBLE EXAMPLES**	**Does the teacher use this practice in the lesson? If so, how? If not, is there a way that it could/should be used?**
1.A: The teacher makes objectives/goals of lessons clear to students *-- 1.A.1: The teacher clarifies how students will show mastery of objectives*	-- The teacher writes a lesson's objectives on the board each day -- The teacher orally explains each lesson's objectives to students at the beginning of the lesson *-- Criteria for success (such as rubrics) are shared with the students*	
1.B: The teacher reviews	-- The teacher explains to	

prerequisite knowledge/information if necessary for a lesson	students what knowledge/information is necessary before engaging in the current lesson -- The teacher uses effective practices, such as those in the next standards, to review prerequisite knowledge/information	
1.C: The teacher presents the lesson's content directly if students have minimal prior knowledge of the content *--1.C.1: The teacher presents information in an effective way*	-- The teacher presents information directly rather than expecting students to learn it on their own *-- The teacher presents information in small "chunks"* *-- The teacher models concepts, rules, and procedures* *-- The teacher provides multiple examples* *-- The teacher doesn't simply "lecture," but rather presents information in an interactive way, such as with frequent questioning*	
1.D: The teacher has *all* students engage in guided practice of the lesson's content	-- The teacher frequently asks questions during presentation and modeling of material and requires answers from *all students*, possibly using the following strategies: -- Calling on students at random -- Having all students write answers on mini whiteboards that they then hold up for the teacher to	

-- 1.D.1: The teacher adjusts instruction based on students' responses in guided practice	review -- Having all students answer questions electronically via one-to-one devices *-- The teacher slows down instructional pace if students are struggling* *-- The teacher maintains or speeds up instructional pace if students are performing very well* *-- The teacher identifies gaps in students' knowledge based on their responses and provides supplemental instruction/explanation to address those gaps*	
1.E: The teacher has students practice and apply the lesson's content independently after sufficient direct instruction and guided practice *-- 1.E.1: The teacher responds appropriately to students' performance in independent practice*	-- The teacher has students perform practice activities independently, or in groups as appropriate, while the teacher supervises *-- The teacher gives individual help to struggling students* *-- If a significant number of students are struggling, the teacher may stop independent practice in order to reteach material*	
1.F: The teacher includes retrieval practice in lessons	-- The teacher requires students to answer questions very frequently in lessons -- The teacher requires	

	students to take quizzes and tests frequently, even if those quizzes and tests are not graded	
1.G: The teacher includes spaced practice in lessons	-- The teacher uses intentional "gaps" when covering material, such as covering material one day, having students do something different the next day, then returning to the original material the next day	
1.H: The teacher interleaves content in lessons	-- The teacher uses activities and assignments that require students to use multiple previously-covered topics at the same time and/or to integrate new material with previously-covered material	
1.I: The teacher adapts instruction for "expert" students	-- For students who are already knowledgeable about the material being covered, the teacher provides more exploratory/discovery-based tasks -- As students who were initially novices with the material become relative "experts," the teacher provides them with exploratory/discovery-based tasks	
1.J: The teacher provides clear feedback to students that indicates how they can move forward	-- The teacher gives feedback beyond a simple letter/numerical grade or simple comments (such as "Good job!" or "Needs	

	improvement") -- The teacher's feedback explains specific steps for how the student can improve and achieve the learning goals	
SECTION 2: RESEARCH-INFORMED AFFECTIVE PRACTICES		
PRACTICE	**POSSIBLE EXAMPLES**	**Does the teacher use this practice in the lesson? If so, how? If not, is there a way that it could/should be used?**
2.A: The teacher is consistent with enforcing classroom rules and is not emotional in their enforcement	-- Rules are made clear to students -- The teacher avoids personal criticism of students when they break rules	
2.B: The teacher encourages students to ask questions	-- The teacher accepts questions from students -- The teacher does not label questions as "stupid" or unnecessary	
2.C: The teacher maintains high expectations for all students	-- The teacher expects all students to participate, such as by calling on students at random and expecting an answer	
2.D: The teacher is supportive of students' attempts to participate and meet expectations	-- The teacher emphasizes that wrong answers are better than no answer -- The teacher does not show disappointment, ridicule, or criticism with wrong answers -- The teacher emphasizes to the class that students should not judge others for wrong	

	answers	
2.E: The teacher expresses interest in students' lives	-- The teacher has informal conversations with students at appropriate times	
2.F: The teacher is honest, authentic, and genuine with students	-- This standard is nearly impossible to describe in terms of specific teacher actions, but "authenticity" is subjectively reported by students as the teacher's having strong subject knowledge, being passionate, being unique, and being caring (Kirschner et al., 2022)	
SECTION 3: RESEARCH-INFORMED PRINCIPLES OF INSTRUCTIONAL AND CURRICULAR DESIGN		
PRACTICES	**POSSIBLE EXAMPLES**	**Does the teacher use this practice in the lesson? If so, how? If not, is there a way that it could/should be used?**
3.A: The curriculum/materials show alignment between objectives, instructional activities, and assessments	-- Instructional activities and assessments are directly related to the learning goals/objectives	
3.B: The objectives of the curricula are clear and define what tasks students will be able to do and what problems they will be able to solve	-- Materials clearly state objectives so that teachers, students, and others can understand them -- The objectives do NOT consist of disconnected, abstract descriptions	
3.C: The ways students will be assessed are clearly stated	-- Descriptions and examples of high-quality work are	

and explained	included -- Specific descriptions of assessments are included and made clear to students	

Other notes:

Form B.2: SMART Goals for Developing Teaching Practices (Discussions 1 and 2)

1. Discuss with your evaluator and choose research-informed instructional practices from the "Inventory of research-informed teaching practices" that you:

-- Do NOT implement in your classroom

-- Already implement, but would like to implement better

You can also choose other research-informed practices not included in the "Inventory" after discussing with your evaluator.

---

2. Describe the practice(s) that you've chosen:

---

3. Create a "SMART" goal for implementing or improving your implementation of the chosen practices. "SMART" goals are specific, measurable, achievable, relevant, and time-bound.

Here is an example of a SMART goal:

I will include formative assessment practices in all of my lessons for the next two weeks.

Your SMART goal:

---

4. What will you do to reach your goal?

---

5. How will you measure progress towards your goal?

---

6. How will you determine whether or not you met your goal?

Date that you will discuss achievement of your goal with evaluator: _____

Form B.3: Observation 2 and 3 Form for Evaluator

Teacher: _____ *Evaluator:* _____

Date of observation: _____

This form should be used for the second and the third observations of the school year, and it should be seen as a way to assess how well the teacher is progressing towards achieving their SMART goal outlined in Form B.2 and talked about in the most recent discussion.

Teacher's goal(s) [copy from Form B.2]:

Evidence from the lesson that the teacher is progressing towards their goal(s):

Form B.4: Discussing Achievement of and Progress towards SMART Goal(s) (Discussions 2 and 3)

This form is intended to be used to guide a discussion between a teacher and their evaluator regarding progress towards achieving the teacher's SMART goal(s) outlined in form B.2.

Date of discussion: _____

---

1. Have you met your goal?

---

2. What has gone well in your attempts to meet your goal?

---

3. What have you struggled with in your attempts to meet your goal?

---

4. Do you think that working towards your goal has helped improve your students' learning?

---

5. At this point, do you think you should do further work focusing on this goal, or do you think you should pursue a different goal? Why?

Appendix C: A Possible Student Survey

Form C.1: Student Survey

This survey is intended to be given to students near the end of the school year.

Student Survey

Question number	Question	Strongly Disagree	Disagree	Not sure	Agree	Strongly Agree
1	Students in this class treat the teacher with respect					
2	My classmates behave the way my teacher wants them to					
3	Our class stays busy and doesn't waste time					
4	In this class, we learn a lot almost every day					
5	In this class, we learn to correct our mistakes					
6	I know what is expected of me in this class					
7	My teacher makes sure that all students participate					
8	We have time to practice the					

	material we learn in class					
9	We review old material sometimes					
10	We have opportunities to apply material to real-world situations					
11	My teacher encourages students to ask questions					
12	My teacher has high expectations for students					
13	My teacher is supportive					
14	My teacher gives clear feedback that helps me learn more					
15	My teacher is consistent with applying classroom rules					
16	My teacher explains how I will be assessed and graded in this class					
17	My teacher					

	explains things clearly					
18	My teacher enforces rules in a "business" way rather than a "personal/emotional" way					
19	My teacher respects students					
20	My teacher only expects students to learn on their own if they're ready					