USING FEEDBACK TO IMPROVE LEARNING

MARIA ARACELI RUIZ-PRIMO
AND SUSAN M. BROOKHART

Using Feedback to Improve Learning

Despite feedback's demonstratively positive effects on student performance, research on the specific components of successful feedback practice is in short supply. In *Using Feedback to Improve Learning*, Ruiz-Primo and Brookhart offer critical characteristics of feedback strategies to affirm classroom feedback's positive effect on student learning. The book provides pre- and in-service teachers as well as educational researchers with empirically supported techniques for using feedback as a part of formative assessment in the classroom.

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**Using Formative Assessment to Enhance Learning,
Achievement, and Academic Self-regulation**
Heidi L. Andrade and Margaret Heritage

**Using Students' Assessment Mistakes and Learning
Deficits to Enhance Motivation and Learning**
James H. McMillan

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**Maria Araceli Ruiz-Primo
and
Susan M. Brookhart**

Contents

Preface

Archimedes famously said "Give me a lever long enough and a fulcrum on which to place it, and I shall move the world." He was, of course, extolling the extraordinary power of the lever. In education, feedback is that lever, and what it moves is student learning. Feedback is information, based on evidence in student work that helps students learn and improve. There is ample evidence that, if done well, feedback can do this—and ample evidence that it does not always do so.

The purpose of this book is to present, from a practical and useful perspective, what is known about using feedback to improve student learning. It is written for teacher education students who are learning about feedback, practicing teachers who are interested in improving their feedback to students, and education researchers who study feedback. The book is organized into six chapters. Chapter 1 describes a framework for thinking about formative assessment, of which feedback is a major component. Chapter 2 describes how feedback needs to be rooted in the goals of learning and connected to criteria for that learning. Chapters 3 and 4, together, describe the characteristics of

effective feedback, providing a summary of what we know about the feedback message itself, the student and teacher learning that should result, and the next instructional moves that will ensure feedback is used effectively. While most of the book is about feedback from teachers to students, Chapter 5 discusses feedback from other sources, including self- and peer assessment, and feedback from computers. Chapter 6 concludes our book by discussing how feedback may be improved.

Acknowledgments

Dedication from Maria Araceli Ruiz-Primo

To my lovely, supportive, handsome, and always wonderful husband, Dr. Guillermo Solano-Flores. I have learned so much from you, my love. Nobody like you; I simply adore you!

To the Ruiz-Primo family. I wish my mother, Ayaucihuatl, and father, Daniel, were here. They were not only great role models but they also gave me the most wonderful siblings I could ever have—Maria Estela, Daniel, and Maria Elizabeth—who in turn have given me a wonderful and amazing extended family—my in-laws, nieces, and nephews. To all of you with love and admiration. I am so grateful for having you all in my life.

To Dr. Rich Shavelson, my advisor, my academic father, and a role model in every possible way. With gratitude, for your support and friendship all these years. To Patti Shavelson, with appreciation. You have been such a wonderful person with us!

To the teachers who have opened their classrooms' doors and allowed me to learn from them; the colleagues with whom I have had multiple conversations that have shaped my ideas; and the DEMFAP team, whose intense work was critical to concluding

Dedication from Susan M. Brookhart

There cannot be only one dedication for this book. Without the research and thoughtful scholarship of colleagues in the field, conversations with many practitioners in the field—both K–12 educators and teacher education faculty—and the love and support of family and friends, my participation in this book would not have been possible.

My colleagues in the field are too many to mention, but you can find their names in the reference sections of each chapter. However, I would like to mention two very special colleagues. Maria Araceli Ruiz-Primo, my coauthor, is a valued colleague and friend. Her leadership shaped the book. In particular, she has helped me see the way to fit both feedback comments and next instructional moves into the same framework. Personally, I value her unwavering friendship, her remarkable talent, and the unpretentious and humble—but totally amazing—way she strives to help make learning better for both students in classes and scholars in the field by clearly and carefully sweating the details and seeing the big picture at the same time. James H. McMillan, the editor of this series and the one who asked us to write this book, has also been a valued colleague and unwavering friend over many decades. Together we have seen the field of classroom assessment grow by leaps and bounds. He pushed me to do this book when I was hesitant, and I am glad he did.

Talking with educators in the field has given me insights about where research is needed, how research informs practice and, perhaps most significantly, how conundrums in practice illuminate productive areas for research. Again they are too numerous to name, but I would like to mention the teacher educators at Duquesne University and the administrators and teachers at Armstrong School District, where my colleague and friend Connie Moss and I worked on formative assessment for years. My conversations with Dr. Moss and our work with those K–12 educators helped shape my early understanding of formative assessment in general, and feedback in particular.

Finally, but most importantly, the love and support of my family keeps me going, to do this work and in all other ways. My husband Frank, our daughters Carol and Rachel, and their partners Sean and Amanda are the most wonderful family anyone could have. Together we can do almost anything, and this book is only one example.

1

Formative Assessment and Feedback in the Classroom

The literature on formative assessment has increased substantially in the last 18 years. We can easily find definitions of classroom formative assessment in books and articles; however, frameworks that guide our thinking about formative assessments are rarer.

The goal of this chapter is to introduce you to a framework for thinking about feedback and formative assessment in the classroom. The framework was designed with two essential purposes in mind: (a) to provide a model for thinking about formative assessment and feedback in the classroom, and (b) to help conceptualize feedback in a context broader than oral or written comments in response to student work. This model then provides a way to organize the information presented in each of the subsequent chapters of this book.

We begin with a general discussion of formative assessment and feedback in the classroom that provides a larger context for

a description of the major aspects of the framework. This discussion includes an overview of studies that were intended to evaluate the impact of feedback on student learning. We then describe the framework in detail. The chapter closes with a general discussion/overview of the role, purpose, and functions of classroom feedback.

Some Background in Formative Assessment and Feedback

Black and Wiliam (1998) defined formative assessment as "encompassing all those activities undertaken by teachers, and/or by their students, which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged" (p. 7). In this definition feedback is a critical component of the formative assessment process. However, not all definitions of formative assessment include feedback. For example, Bell and Cowie (1999) defined formative assessment as the "process used by teachers and students to recognize and respond to student learning in order to enhance learning during the learning" (p. 198); and Shepard, Hammerness, Darling-Hammond, and Rust (2005) defined it as the "assessment carried out during the instructional process for the purpose of improving teaching or learning" (p. 275). The Assessment Reform Group (nd) in England proposed five elements of assessment. Feedback was included as one of these elements but it was not at the center of what the group called "assessment to improve learning."[1] Leahy, Lyon, Thompson, and Wiliam (2005) identify feedback as a strategy of formative assessment. In a more recent definition of formative assessment the term *feedback* disappears:

> Assessment functions formatively to the extent that evidence about student achievement is elicited, interpreted, and used by teachers, learners, or their peers to make decision about the next steps in instruction that are likely to be better, or better founded, than the decisions they would have made in the absence of that evidence.
>
> (Wiliam, 2011a, p. 43)

Whether the term is part of the definition or not, feedback is regarded as a critical characteristic of formative assessment. Different models have been developed to capture the essence of feedback in the context of formative assessment (e.g., there are models of formative assessment around feedback; see Heritage, 2010). Indeed, to evaluate the impact of formative assessment on improving student learning, researchers mainly cite studies on the effects of feedback.

A substantial literature of books and papers on the topic of feedback and its impact on student learning has accumulated over the last 20 years. Multiple meta-analyses have provided evidence of the effects of feedback on student learning. Feedback has been considered one of the most powerful interventions in education (Hattie, 1999) but also one with the highest variability in its effects (Hattie & Gan, 2011). Most of the recent meta-analyses (e.g., Hattie & Timperley, 2007; Kluger & DeNisi, 1996; Van der Kleij, Feskens, & Eggen, 2015) and reviews (Black & Wiliam, 1998; Shute, 2008) have demonstrated positive effects on student learning outcomes (medium- to large-effect sizes), with a few exceptions showing small effects (Bangert-Drowns, Kulik, Kulik, & Morgan, 1991) and even negative effects (Kluger & DeNisi, 1996; Shute, 2008). Many resources present detailed results of these meta-analyses and reviews (e.g., Black & Wiliam, 1998; Brookhart, 2004, 2007; Mory, 2004; Shute, 2008; Wiliam, 2011a, 2011b).

Despite this accumulated evidence of the effects of feedback, it is difficult to determine clearly what specific types of feedback are effective (Shute, 2008). Furthermore, the overall results of the meta-analyses indicate that not all types of feedback are equally effective. Different issues account for this variability of impact. One of the major issues is that feedback has not been consistently characterized across studies (Ruiz-Primo & Li, 2013a). Feedback can be characterized, for example, by dimensions such as (a) who provides the feedback (e.g., teacher, peer, self, technology-based), (b) the setting in which the feedback is delivered (e.g., individual student, small group, whole class), (c) the role of the student in the feedback event (e.g., provider, receiver), (d) the focus of the feedback (e.g., product, process, or