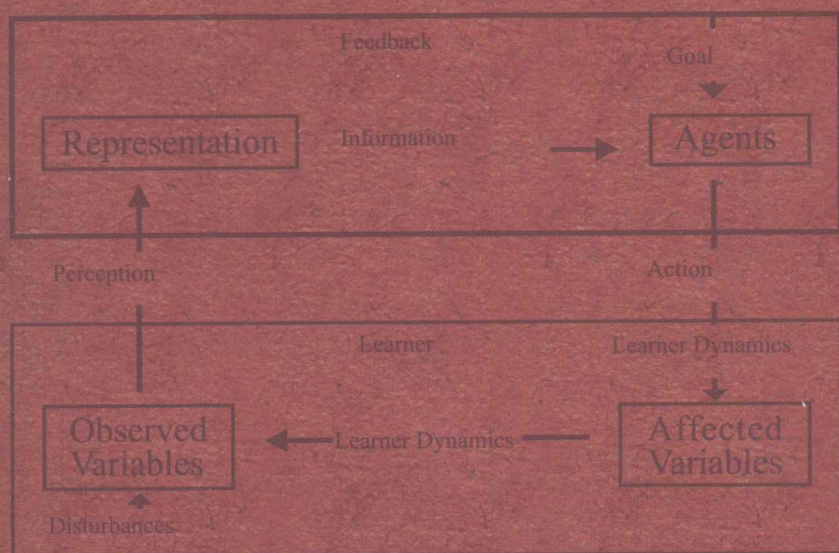语 言 学 论 丛

# 形成性评估的概念重构

Towards a Re-conceptualization of Formative Assessment:

A Cybernetic Perspective

平 (Evelyn Rongping Cao) 著

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## Formative Assessment：A Cybernetic Perspective

曹荣平(Evelyn Rongping Cao)　著

# Preface

In "An elusive science", Ellen Condliffe Lagemann(2000) suggested that the development of the study of education can be seen as a search for disciplinary foundations. A hundred years ago, it seemed that education should be grounded in the disciplines of philosophy or psychology. The inadequacy of theories based entirely in these two disciplines resulted, about 50 years ago, in interest in the contributions that other disciplines, such as sociology and social anthropology, might make to the understanding of educational processes. More recently, a number of other disciplinary perspectives have been explored, but what now seems clear is that education is far too complex an enterprise ever to be adequately understood from a single disciplinary perspective. Instead, different disciplinary perspectives shed different kinds of light on educational processes. This is why I welcome Evelyn Rongping Cao's reconceptualization of formative assessment from a cybernetic perspective. It sheds a new kind of light on familiar phenomena, making us think about things in a different way.

As used by Norbert Wiener (1948), in the emerging field of cybernetics, the term "feedback" was clearly regarded as meaningful only within a system. However, when the term became common in psychology, the meaning became further and further detached from its original meaning, so that by the 1970s, it was common for feedback to be defined as any information given to a learner. For example Kulhavy (1977) defined feedback as "any of the numerous procedures that are used to tell a learner if an instructional response is right or wrong" (p. 211), but went on to say that feedback could become more and more complex "until the process itself takes on the form of new instruction, rather than informing the student solely about correctness. " (p. 212)

For much of the next 20 years, research on feedback tried to quantify the impact of feedback on learning, but much of the research produced conflicting findings; sometimes feedback helped learning, sometimes it did not. The failure to find any clear consensus is hardly surprising given the fact that most of these studies looked only at the nature of the feedback, and ignored the role of the context in which the feedback was provided. Even when feedback was shown to

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increase achievement, the effects were often limited, or transient. In their review of all published studies of feedback from 1905 to 1995, Kluger and DeNisi(1996) concluded that it was impossible to make sense of feedback without considering the kinds of responses that feedback interventions cued in learners, which requires seeing the learner as part of a wider system. As I have argued elsewhere (Wiliam 2012), the attempt to research the effects of feedback without taking into account the system within which it is provided has resulted in research that is of little impact on educational systems.

Over the last 15 years, it has been increasingly common to regard feedback as one aspect of formative assessment, and while this has provided a welcome impetus to the use of assessment to improve learning, the term formative assessment is used in so many different ways, by so many different people, that often it is not clear what, exactly, is being proposed.

There have been attempts to re-connect the term feedback, and other aspects of formative assessment, with its origins in the design of systems, perhaps most notably in the work of francophone researchers who view feedback as one mechanism for the regulation of learning processes (see for example, Perrenoud 1998). However, these attempts have tended not to connect with the existing work on formative assessment in anglophone countries, and this is why this book by Evelyn Rongping Cao is so welcome. By grounding formative assessment firmly within a cybernetic framework, she proposes a way of thinking about feedback and other aspects of formative assessment that is clearly connected with existing work, but allows richer, and more illuminating, ways of looking at how learning happens, and the role of information in enhancing, and optimizing, learning. Drawing on her extensive fieldwork in China and the UK, she shows how such a framework provides richer accounts of what formative assessment is, and how it functions within educational settings, but considering the role of the learning within a *system*. I am confident that anyone interested in the role of assessment in improving learning will find something of interest in this book.

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# 序

    长期以来人们把形成性评估视为一种独立于学习活动以外、与终结性评价相对立的学习评价方式。在很多教师看来，建立学生"个人档案袋"(portfolio)等形成性评价方式耗时费力，因此，尽管形成性评价的概念频频出现在教师培训者和教师的话语体系中，对于这种教育理念的理性认识和在课堂上的实践还远未得到接纳和普及。究其个中原委，首先是由于教师对形成性评估尚未形成充分的、科学的理解；其次是形成性评估理论在他国本土环境的运用中还暴露出了一些尚待完善的问题。但是存在问题并不能抹杀形成性评估在学生的学习过程中能够担当的作为以及这一理论的可操作性。可喜的是，本书作者保持着独立的思想、求真的态度，以及自信、坚持的品质，倾注多年的时间和精力不畏艰辛地反复研究和实践这一概念，努力完善形成性评估体系，最终构建了能够有效分析和解释学习行为和过程、推动教学与学习同步发展的理论模型。正是这种可贵的青年学者的科研精神和勇气促使我认真地、细细地读完了这本书。

    运用控制论的视角重新对形成性评估在学习过程中的运行机理及其在教学中的作用和意义进行分析和解读是这本书的新颖独到之处。形成性评估被视为学习系统中不可或缺的组成部分，它是一个复杂的控制系统。在教学信息传递和反馈的动态过程中，这个控制系统帮助学习者达到学习效果的稳定提升状态以及学习者内部评价环境和外部评价环境之间的平衡状态，最后促进学习者的自我完善和发展。简言之，评估的形成性和社会性迫使学生在学习的过程中进行自我管理和自我调整。根据他评（来自教师、同伴、家长）从积极的角度调整自己的学习，同时客观、科学地自评，是提高学习者学习效率、优化学习效果的高效路径。

    曹荣平博士是在我国较早进行形成性评估研究与实践的教师之一。早在2002年她通过自己的硕士研究首次尝试运用形成性评估的方法在写作教学中培养学生的自主学习能力，取得了很好的效果。这使她第一次切身感受到了形成性评估在语言教育与技能教学上的重要作用和研究价值。通过对形成性评估理论的不懈探究，她最终在博士学习期间形成了对形成性评估更加完整、系统和独到的认识，积累了大量的科研经验和理论实践经验。

    这本书通过控制论的视角从理论上论证了形成性评估在学习的复杂系统中所发挥的调控作用。但是对于广大教师读者而言，从作者对形成性评估的概念重构中体味本研究的实践意义似乎更能够体现它的价值。完善后的形成性评估系统可以实现学习及课业的时空延展、评估内容、方法和手段的多维架构、学习者个体及

师生共同发展的综合目标。

正确理解形成性评估对学习行为和效果的调控作用，选择适当的形成性评估方式和适度的评估范围及标准，是教师专业能力提升的一项重要任内容，也是我们教师教育者所面临的又一个新的课题。

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2012 年 3 月

# Foreword

Modern educational assessment is derived from early external evaluation for curriculum development. From early curriculum evaluation to current globalized large scale standardized proficiency testing, assessment has played an indispensable evaluative role in traditional curriculum and pedagogy. Summative assessment (SA), characterized by evaluative, judgmental and discriminative purposes, has been dominant in the research and practice in educational assessment. Since 1960s, however, negative backwash from summative assessment on teaching and learning has drawn more and more attention. In the meanwhile, the formative concept was formed in curriculum evaluation along with its broadened functions for tests. Formative assessment (FA), which signifies a counter-measure against SA, has become a research focus in educational assessment research. FA has been widely recommended and promoted as an alternative assessment against SA.

However, research has also revealed difficulties in FA implementation. Due to limited research on theorization and conceptualization of FA, researchers and practitioners have been puzzled by the theoretical and practical problems arising from FA implementation. For example, why can't FA practice sometimes bring about the desired effect on learning and teaching? How do we deal with the conflict between FA and traditional SA in classrooms? How is the role of FA in learning defined? Is FA reducible to AfL? These questions eventually lead to a request of theorization of assessment and learning relationship. Seemingly, the difficulties in determining the mechanism of assessment in relation to learning derive from practices which always involve multiple variables, some of which are not entirely predictable. However, many researchers (e. g. Gardner 2006, Black & Wiliam 2006) have realized that theoretical inadequacy is a major hindrance to the development of FA.

This research aims at building a conceptual model of assessment in support of areconceptualization of FA in a cybernetic approach. It is argued that assessment is a complex cybernetic system, and in the meanwhile, it is a controlling sub-system in learning. Accordingly, assessment is an important component in the

learning system. More specifically, assessment should be an important means and mode in learning, and it has a formative function in learning. However, this proposition suggests that the connotation of the "formative" concept in this research is significantly different from the commonly held, yet problematic, understanding of "formative assessment."

The proposed assessment model is used for explaining the relationship between assessment and learning as well as the formative mechanism of assessment. As a complex cybernetic system in learning, assessment is open, probabilistic and self-regulatory. Control as an attribute of all cybernetic systems suggests that assessment is a constructive component as a controlling subsystem. The control is realized through information feedback. In order words, as important means and mode, assessment is formative in learning. This argument is a major proposition of the model. In the meanwhile, the features of openness, probability and self-regulation of the assessment system have determined its social aspect and the two-sided effect on learning. The inferences and explanations based on the cybernetic thinking about assessment are significantly different from current conceptualizations of FA in the mainstream literature, and hence constitute the major theoretical support for the reconceptualization of FA.

Furthermore, the research makes use of authentic data for evaluation of the model. Multiple cases are employed for illustration of the formative nature of assessment. The empirical analyses are organized around three major issues: the feedback mechanism, the social aspect of feedback, and the double-edged nature of feedback. The empirical research analysis has well supported the proposed model of assessment.

The major theoretical contributions of this research are the following:

First, the current concept of FA is reconceptualized, which contributes to the theorization of formative assessment. The significance of reconceptualizing FA lies in: a. it has redefined the meaning and scope of formative assessment; b. it has downplayed the conflict between formative and summative assessment by viewing them as two sides of the same coin; c. it has pointed out that all assessment is formative; d. it has emphasized the double-edged sword nature of assessment and the self-regulatory feature of assessment; e. it has pointed out the necessity and feasibility of recognizing assessment as a complex control system and hence a management system.

Second, the adoption of the complex system concept has revised the traditional linear relationship among the components in curriculum development

(e. g. represented in the Tyler model), especially by redefining the static position of assessment which is traditionally put at the end of curriculum development. Third, viewing assessment as a control system has helped re-define the assessment-learning relationship and clarify the relationships between assessment and other subsystems in learning, highlighting the constructive role of assessment in learning.

deeply indebted to my friend Dr. Chen Yaping, who gave me her timely support during the critical period of my writing. To Prof. Shi Baohui and other colleagues at BFU, who firmly and patiently supported me in my work, I am thankful.

My special gratitude goes to my dear and respectable friend, Ms. Li Ying at Peking University Press for her precious advice on the publication of this book. Thanks to Ms. Li for her laborious editing work throughout the process of polishing of the language mechanics and format.

While I am grateful for contributions from all the above mentioned friends, colleagues and professors, I am also fully aware that I myself am responsible for possible errors and mistakes in this work.

<div align="right">Evelyn Rongping Cao</div>

# List of Abbreviations and Acronyms

| AERA | American Educational Research Association |
|---|---|
| AfL | Assessment for Learning |
| AoL | Assessment of Learning |
| ARG | Assessment Reform Group, UK |
| BERA | British Educational Research Association |
| BFSU | Beijing Foreign Studies University |
| BFU | Beijing Forestry University |
| CET 4 & 6 | College English Test, Band 4 and Band 6 |
| CPA | School of Curriculum, Pedagogy and Assessment |
| CRA | Criterion Referenced Assessment |
| DES/WO | Department of Education and Science/Welsh Office, UK |
| EFL/ESL | English as a Foreign/Second Language |
| FA | Formative Assessment |
| GCSE | The General Certificate of Secondary Education, UK |
| IOE | Institute of Education |
| NRA | Norm Referenced Assessment |
| PcA | Process Assessment |
| PdA | Product Assessment |
| QCA: | Qualifications and Curriculum Authority |
| SA | Summative Assessment |
| SCAA | Schools Curriculum and Assessment Authority, UK |
| TEM | Test of English for Majors |

| TGAT | Task Group on Assessment and Testing, UK |
|------|-------------------------------------------|
| TIMSS | Trends in Mathematics and Science Study |
| TJFSU | Tianjin Foreign Studies University |
| THU | Tsinghua University |

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