



# NEPC

NATIONAL EDUCATION  
POLICY CENTER

## REVIEW OF *LEARNING ABOUT LEARNING: WHAT EVERY NEW TEACHER NEEDS TO KNOW*

Reviewed By

P.L. Thomas, *Furman University*  
Christian Z. Goering, *University of Arkansas*

March 2016

### Summary of Review

As part of an ongoing series of reports by the National Council on Teacher Quality (NCTQ), *Learning About Learning: What Every New Teacher Needs to Know* makes broad claims about teacher education based on a limited analysis of textbooks and syllabi. The report argues that teacher education materials, specifically educational psychology and methods textbooks, are a waste of funds and do not adequately focus on what the report identifies as six essential strategies. These inadequacies, the report contends, result in ill-prepared teacher candidates lacking in “research-proven instructional strategies” (p. vi). The report offers recommendations for textbook publishers, teacher education programs, and state departments of education. However, it is not grounded in a comprehensive examination of the literature on teaching methods, and it fails to validate the evaluative criteria it employs in selecting programs, textbooks, and syllabi. The single source it relies on to justify its “six essential strategies” provides limited support for NCTQ’s claims. This primary source concludes, with only one exception, that the evidence supporting each of the six strategies is only moderate or weak. Limiting the analysis to one source that provides only tepid support renders the report of little value for improving teacher preparation, selecting textbooks, or guiding educational policy.



**Kevin Welner**  
Project Director

**William Mathis**  
Managing Director

**Alex Molnar**  
Publishing Director

---

## National Education Policy Center

School of Education, University of Colorado  
Boulder, CO 80309-0249  
Telephone: (802) 383-0058

Email: [NEPC@colorado.edu](mailto:NEPC@colorado.edu)  
<http://nepc.colorado.edu>

This material is provided free of cost to NEPC's readers, who may make non-commercial use of the material as long as NEPC and its author(s) are credited as the source. For inquiries about commercial use, please contact NEPC at [nepc@colorado.edu](mailto:nepc@colorado.edu).

This review is one of a series made possible in part by funding from the Great Lakes Center for Education Research and Practice.



<http://www.greatlakescenter.org>  
[GreatLakesCenter@greatlakescenter.org](mailto:GreatLakesCenter@greatlakescenter.org)

# REVIEW OF *LEARNING ABOUT LEARNING*: *WHAT EVERY NEW TEACHER NEEDS TO KNOW*

*P.L. Thomas, Furman University*  
*Christian Z. Goering, University of Arkansas*

---

## I. Introduction

As part of an ongoing series of reports by the National Council on Teacher Quality (NCTQ), *Learning About Learning: What Every New Teacher Needs to Know*<sup>1</sup> makes broad claims about teacher education based on a limited analysis of textbooks and syllabi. The past decade of high-stakes accountability has brought a new focus on and heightened media and political attention to teacher quality.

The report bases its compilation of teacher education strategies that “work” on this single document from the “What Works Clearinghouse.” The six strategies adapted by NCTQ are: (1) pairing graphics with words, (2) linking abstract concepts with concrete representations, (3) posing probing questions, (4) repeating alternating problems with their solutions provided and problems that students must solve, (5) distributing practice, and (6) assessing to boost retention. The NCTQ report says, “There is little debate among scholars about the effectiveness of these six strategies,” yet only one of these has “strong” evidence as evaluated by IES, their own source (see Table 1).<sup>2</sup>

<b>NCTQ Six Strategies that Work</b>	<b>IES Levels of Effectiveness</b>
pairing graphics with words	moderate
linking abstract concepts with concrete representations	moderate
posing probing questions	strong
repeating alternating problems with their solutions provided and problems that students must solve	moderate
distributing practice	moderate
assessing to boost retention	minimal

Table 1: NCTQ Six Strategies that Work and IES Levels of Effectiveness  
Source: Organizing instruction and study to improve student learning<sup>3</sup>

In fact, IES lists seven categories, ranging from strong to moderate to minimal in effectiveness, and the topics listed in the source vary somewhat from the NCTQ report's strategies. Further, the summary of *Organizing Instruction and Study to Improve Student Learning* specifically states, "This guide includes a set of concrete actions relating to the use of instructional and study time that are applicable to subjects that demand a great deal of content learning, including social studies, science, and mathematics." The discrepancies between the NCTQ and IES lists are not explained, and the NCTQ report never justifies their claim that the strategies accurately represent a consensus among scholars on teaching methods for all grade levels and content areas.

Specifically, the NCTQ report is based on an analysis of 48 textbooks obtained from the course syllabi of 48 elementary and secondary teacher preparation programs at 28 institutions "randomly selected from approximately 490 institutions for which NCTQ had obtained full sets of syllabi for professional coursework and student teaching."<sup>4</sup> They evaluate the texts in terms of how well they address the six strategies and also base conclusions on analyses of the syllabi gathered. Conclusions and recommendations are drawn in order to inform textbook publishers, teacher education programs, and state departments of education.

## II. Findings and Conclusions of the Report

"Looking for the six strategies in these textbooks is akin to looking for six needles in a haystack," the report concludes. The primary conclusion of the report is that educational psychology and methods textbooks in teacher education programs are lacking adequate focus on the six strategies identified, and by implication, failing to provide teacher candidates with scientifically-based methods: (1) 13% address pairing graphics with words, (2) 25% address linking abstract concepts with concrete representations, (3) 41% address posing probing questions, (4) 0% address repeating alternating problems with their solutions provided and problems that students must solve, (5) 22% address distributing practice, and (6) 0% address assessing to boost retention. Unacknowledged in the NCTQ study is that the narrow limits of the IES report significantly skew the analysis of textbooks and syllabi.

Further, the report acknowledges that textbooks do cover organization of teaching and learning, student engagement, cooperative learning, homework, and the importance of prior knowledge; however, "many of the topics featured prominently have little research support or have been found to have little effect."<sup>5</sup> The lack of "research-based strategies"<sup>6</sup> in textbooks, the report suggests, is again linked to the weak attention given to the six strategies adapted from *Organizing Instruction and Study to Improve Student Learning*.

Included in the report is a related analysis of coursework for teacher candidates, based on NCTQ's examination of course syllabi. From that analysis, the report argues textbooks are central to coursework, and thus, that coursework is also inadequate by not addressing the six strategies that work. This analysis of syllabi concludes: "Simply reading about the strategies and discussing them was not sufficient for teachers to understand and use them."<sup>7</sup>

Late in the report, a case is made for the importance of the six strategies that work before offering the recommendations and conclusion targeting textbooks authors/publishers, teacher prep programs, and state departments of education.

Broadly, the report asserts teacher education “tolerates small-scale studies” (echoing the federal definition of “scientific” in *No Child Left Behind*<sup>8</sup>), and “educators are encouraged to practice and preach their own preferred instructional approaches,” the report concludes, adding these recommendations<sup>9</sup>:

- For textbook authors and publishers: “Make textbooks a ‘how to’ guide for teachers, presenting what teachers need to know about effectively implementing the fundamental instructional strategies in the classroom.”<sup>10</sup>
- For teacher prep programs: “Teach how to implement the fundamental strategies and why cognitive science finds them so important and universal.” And, “[r]equire teacher candidates to practice instructional strategies to the point of mastery.”<sup>11</sup>
- For state departments of education: “Revise licensing tests to address all six fundamental strategies and remove references to practices for which there is no research basis.”<sup>12</sup>

### III. The Report’s Rationale for Its Findings and Conclusions

Although explicitly expressed as fact (and without justifying their claims), the report’s rationale rests on the assertion that teacher education is inadequate, that textbooks are central to methods coursework, and that the six strategies provide a credible basis for evaluation of all teacher education programs and learning materials. Further, this generalization applies uniformly regardless of level of certification (elementary or secondary) or content being taught.

### IV. The Report’s Use of Research Literature

The Report’s Appendix G presents a 13-page list of references, primarily reflecting the sources in the IES study used to anchor NCTQ’s analysis of textbooks and syllabi. The IES study itself is useful but limited<sup>13</sup>, as are the sources cited. NCTQ makes no compelling case that this one study or the added references are comprehensive or reflective of the current scholarship on “what every teacher needs to know.” Also, the citations are restricted to a very narrow view of what counts as research (experimental and quasi-experimental).

This singular focus on the adapted IES six strategies is not adequately justified. NCTQ’s analysis fails to review a wide range and long history of educational research on methods. The input and impact of specialized professional associations (SPAs) such as the National

Council of Teachers of English, the National Council of Teacher of Math, etc., is notably absent. The report ignores a solid consensus on best practice.<sup>14</sup>

## V. Review of Report's Methods

The report's methods are not adequately explained or validated and do not, for example, meet the standards for high quality research set forth in their major source document, the 2007 IES report. Rather, the reader learns on page five that “[t]wo analysts independently examined each textbook in the sample to determine if any mention of the six instructional strategies was made, even if only in a single sentence.”<sup>15</sup> A great deal of verbiage is spent elaborating on how they evaluated the materials but the problem is that this effort is wasted if they do not justify their taxonomy. It is unclear how the 48 textbooks represent the whole of teacher education course syllabi, much less the overall content of courses contributing to the preparation of teachers. While the report notes a random sampling of institutions, the initial pool is limited to institutions cooperating with NCTQ, and nowhere is there any explanation of how representative that initial pool is of teacher education.

Also troubling, included in the report is one direct refutation by a reviewed textbook's author (Harry Wong) of classifying his textbook as a methods textbook, raising concerns about the validity of the textbook analysis. Providing publishers and authors an opportunity to interact was the single element of this research where external people were involved.

## VI. Review of Validity of the Findings and Conclusions

Overall, the NCTQ report fails to justify the validity of its one foundational study and does not offer sufficient evidence of its methods for choosing and analyzing textbooks or course syllabi in order to reach its conclusions and recommendations. Starting with a different (and defensible) set of what teaching strategies work and then analyzing different programs and textbooks would likely produce different conclusions and recommendations. Failing its own criteria of grounding teacher preparation in research, the NCTQ guide is not an appropriate framework for analyzing the complex nature of how people learn or how teachers should teach, especially across all grade levels and content areas. From our perspective as English teachers and English educators, for example, we would not engage students in repeating alternating problems with their solutions provided and problems that students must solve.

## VII. Usefulness of the Report for Guidance of Policy and Practice

Teacher education programs, textbooks assigned in educational psychology and methods

coursework, and candidate preparedness are all areas worthy of further attention, rigorous investigation, and deep analysis. But this report does not substantially contribute to sound policy or practice. On the contrary, its narrowness is misleading.

A valid analysis of teacher education programs as well as the quality of textbooks is certainly needed. That undertaking would require a far more comprehensive consideration of best practices across all grade levels and content areas. And the analysis of programs and textbooks would need to meet a much higher bar of validity and generalizability than presented in the NCTQ report.

Ultimately, the report fails to meet the criteria for “scientifically based” it endorses. Despite a separate reference section, it does not provide an acceptable or comprehensive research base or a thorough explanation of its program evaluation criteria. Significantly, it relies on only one, very limited foundational study to the exclusion of a representative and comprehensive study of essential methods—and then makes sweeping key claims without justification. In that sense, the report is akin to taking a limited definition of what a needle is or isn’t and then looking for that needle—not in a haystack as the report erroneously states, but instead in a hay farmer’s records of where the hay was stacked, to draw conclusions about needles and hay.

## Notes and References

---

- 1 Pomerance, L., Greenberg, J., & Walsh, K. (2016, January). *Learning about learning: What every new teacher needs to know*. Washington, DC: The National Council of Teacher Quality. Retrieved February 15, 2016, from [http://www.nctq.org/dmsStage/Learning\\_About\\_Learning\\_Report](http://www.nctq.org/dmsStage/Learning_About_Learning_Report)
- 2 Pomerance, L., Greenberg, J., & Walsh, K. (2016, January). *Learning about learning: What every new teacher needs to know*. Washington, DC: The National Council of Teacher Quality, pp. 35-42. Retrieved February 15, 2016, from [http://www.nctq.org/dmsStage/Learning\\_About\\_Learning\\_Report](http://www.nctq.org/dmsStage/Learning_About_Learning_Report)
- 3 Pashler, H., Bain, P.M., Bottge, B.A., Grasser, A., Koedinger, K., McDaniel, M. & Metcalfe, J. (2007, September). *Organizing instruction and study to improve student learning. What Works Clearinghouse*. Institute of Education Sciences. Washington, DC: U.S. Department of Education. Retrieved February 16, 2016, from <http://ies.ed.gov/ncee/wwc/PracticeGuide.aspx?sid=1>
- 4 Pomerance, L., Greenberg, J., & Walsh, K. (2016, January). *Learning about learning: What every new teacher needs to know*. Washington, DC: The National Council of Teacher Quality, p. 31. Retrieved February 15, 2016, from [http://www.nctq.org/dmsStage/Learning\\_About\\_Learning\\_Report](http://www.nctq.org/dmsStage/Learning_About_Learning_Report)
- 5 Pomerance, L., Greenberg, J., & Walsh, K. (2016, January). *Learning about learning: What every new teacher needs to know*. Washington, DC: The National Council of Teacher Quality, p. 12. Retrieved February 15, 2016, from [http://www.nctq.org/dmsStage/Learning\\_About\\_Learning\\_Report](http://www.nctq.org/dmsStage/Learning_About_Learning_Report)
- 6 Pomerance, L., Greenberg, J., & Walsh, K. (2016, January). *Learning about learning: What every new teacher needs to know*. Washington, DC: The National Council of Teacher Quality. Retrieved February 15, 2016, from [http://www.nctq.org/dmsStage/Learning\\_About\\_Learning\\_Report](http://www.nctq.org/dmsStage/Learning_About_Learning_Report)
- 7 Pomerance, L., Greenberg, J., & Walsh, K. (2016, January). *Learning about learning: What every new teacher needs to know*. Washington, DC: The National Council of Teacher Quality, p. 16. Retrieved February 15, 2016, from [http://www.nctq.org/dmsStage/Learning\\_About\\_Learning\\_Report](http://www.nctq.org/dmsStage/Learning_About_Learning_Report)
- 8 Thomas, P. (2013, September 12). Whatever happened to scientifically based research in education policy? *AlterNet*. Retrieved February 22, 2016, from <http://www.alternet.org/education/whatever-happened-scientifically-based-research-education-policy>
- 9 Pomerance, L., Greenberg, J., & Walsh, K. (2016, January). *Learning about learning: What every new teacher needs to know*. Washington, DC: The National Council of Teacher Quality, p. 30. Retrieved February 15, 2016, from [http://www.nctq.org/dmsStage/Learning\\_About\\_Learning\\_Report](http://www.nctq.org/dmsStage/Learning_About_Learning_Report)
- 10 Pomerance, L., Greenberg, J., & Walsh, K. (2016, January). *Learning about learning: What every new teacher needs to know*. Washington, DC: The National Council of Teacher Quality, p. 27. Retrieved February 15, 2016, from [http://www.nctq.org/dmsStage/Learning\\_About\\_Learning\\_Report](http://www.nctq.org/dmsStage/Learning_About_Learning_Report)
- 11 Pomerance, L., Greenberg, J., & Walsh, K. (2016, January). *Learning about learning: What every new teacher needs to know*. Washington, DC: The National Council of Teacher Quality, p. 28. Retrieved February 15, 2016, from [http://www.nctq.org/dmsStage/Learning\\_About\\_Learning\\_Report](http://www.nctq.org/dmsStage/Learning_About_Learning_Report)
- 12 Pomerance, L., Greenberg, J., & Walsh, K. (2016, January). *Learning about learning: What every new teacher needs to know*. Washington, DC: The National Council of Teacher Quality, p. 29. Retrieved February

15, 2016, from [http://www.nctq.org/dmsStage/Learning\\_About\\_Learning\\_Report](http://www.nctq.org/dmsStage/Learning_About_Learning_Report)

- 13 Ginsburg, A., & Smith, M.S. (2016, March 15). *Do randomized controlled trials meet the 'gold standard'?* American Enterprise Institute. Retrieved March 18, 2016, from <http://www.aei.org/publication/do-randomized-controlled-trials-meet-the-gold-standard/>
- 14 For example, see: Zemelman, S., Daniels, H.S. & Hyde, A. (2012). *Best practice: Bringing standards to life in America's classrooms* (4<sup>th</sup> ed.). Portsmouth, NH: Heinemann.
- 15 Pashler, H., Bain, P.M., Bottge, B.A., Grasser, A., Koedinger, K., McDaniel, M. & Metcalfe, J., (2007, September). *Organizing instruction and study to improve student learning. What Works Clearinghouse.* Institute of Education Sciences. Washington, DC: U.S. Department of Education. Retrieved February 16, 2016, from <http://ies.ed.gov/ncee/wwc/PracticeGuide.aspx?sid=1>

DOCUMENT REVIEWED:

Learning about Learning: What Every New Teacher Needs to Know

AUTHORS:

Laura Pomerance, Julie Greenberg & Kate Walsh

PUBLISHER/THINK TANK:

National Council on Teacher Quality

DOCUMENT RELEASE DATE:

January, 2016

REVIEW DATE:

March 24, 2016

REVIEWERS:

P.L. Thomas, Furman University  
Christian Z. Goering, University of Arkansas

E-MAIL ADDRESSES:

paul.thomas@furman.edu  
cgoering@uark.edu

PHONE NUMBERS:

Thomas (864) 294-3386  
Goering (479) 575-4209

SUGGESTED CITATION:

Thomas, P.L. & Goering, C.Z. (2016). Review of "Learning about Learning: What Every New Teacher Needs to Know." Boulder, CO: National Education Policy Center. Retrieved [date] from <http://nepc.colorado.edu/thinktank/review-teacher-education>