School Features and Student Opportunities for Deeper Learning
What Makes a Difference?

Mette Huberman, Helen Duffy, Jessica Mason, Kristina L. Zeiser, and Jennifer O'Day
American Institutes for Research

October 2016

Introduction

For more than a decade, the debate has raged over how to best prepare students for college, career, and civic life in the 21st century. Increasingly, the approach has been to engage students in "deeper learning," defined by the National Research Council (NRC, 2012) as "the process through which an individual becomes capable of taking what was learned in one situation and applying it to new situations." The NRC identifies competencies in three domains—academic, interpersonal, and intrapersonal skills—that result from deeper learning and theoretically enable adult success.

In 2010, our research team—from American Institutes for Research and the Research Alliance for New York City Schools—set out to test whether the concept of deeper learning was worth pursuing to improve student success. *The Study of Deeper Learning: Opportunities and Outcomes*—funded by the William and Flora Hewlett Foundation— found that **students attending network high schools**[1] **with a mature (i.e., in existence for at least four years) and at least moderately well-implemented approach to promoting deeper learning experienced different instructional strategies, greater opportunities, and better results on a range of outcomes than did their matched counterparts in comparison sites** (Bitter, Taylor, Zeiser, & Rickles, 2014; Huberman, Bitter, Anthony, & O'Day, 2014; Zeiser, Taylor, Rickles, Garet, & Segeritz, 2014).
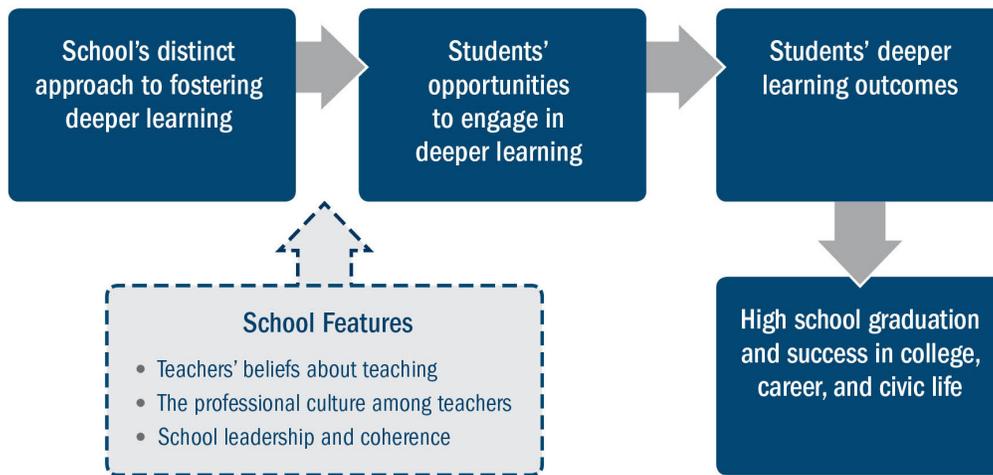
Our next step was to determine whether there were certain school features that facilitated a school's ability to provide deeper learning opportunities. Using data from the original study, this brief (based on a larger report) examines how teachers' *own beliefs about teaching*, their assessment of their *peers' professional culture*, and their assessment of the success of the principal in providing *instructional leadership and program coherence* are related to students' reports of deeper learning opportunities in their classes. Exhibit 1 shows the hypothesized influence of school features on students' opportunities to engage in deeper learning.

Study Design

We conducted site visits at 19 high schools drawn from 10 deeper learning networks. Teacher and student surveys were administered during the 2012–13 academic year at a subset of 12 network schools.

---

[1] "Network high schools" are schools that are part of 10 networks with an explicit focus on deeper learning that were members of the William and Flora Hewlett Foundation's Deeper Learning Community of Practice.

Exhibit 1. Hypothesized Influence of School Features on Student Opportunities

```
┌─────────────────────┐      ┌─────────────────────┐      ┌─────────────────────┐
│   School's distinct  │ ───▶ │      Students'      │ ───▶ │  Students' deeper   │
│ approach to fostering│      │    opportunities    │      │  learning outcomes  │
│    deeper learning   │      │    to engage in     │      │                     │
│                      │      │   deeper learning   │      │                     │
└─────────────────────┘      └─────────────────────┘      └─────────────────────┘
                                       ▲                              │
                                       ┆                              ▼
        ┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐              ┌─────────────────────┐
        │        School Features       │              │  High school graduation │
        │                              │              │  and success in college,│
        │  • Teachers' beliefs about teaching │        │   career, and civic life│
        │  • The professional culture among teachers │ └─────────────────────┘
        │  • School leadership and coherence │
        └ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘
```

We created six measures of school features based on survey responses from core academic subject teachers in the sampled schools (see Exhibit 2). Students' opportunities to engage in deeper learning were measured using survey responses from a sample of 11th- and 12th-grade students in the same schools, and we organized the measures into four opportunity categories. (Detailed information about each survey measure can be found in the full report.)

To understand the relationships between school features and student deeper learning opportunities, we examined the correlations between each school feature category and each student opportunity category. We also supplemented our analysis with qualitative data from the network school site visits and network leader interviews.

Findings

Overall, we found that:

- **Across the network schools, *student-centered beliefs about teaching* and *teachers' self-efficacy for teaching* were the features most strongly and consistently related to student deeper learning opportunities. By contrast, *teacher-centered beliefs about teaching* were negatively related to student opportunities.**

- **Other school features were inconsistently related to student opportunities based on the survey data. However, case study data suggested that these features (*teachers' professional culture* and *school leadership*) might indirectly affect opportunities.**

Student-Centered Beliefs About Teaching

The measure *student-centered beliefs about teaching* is the degree to which teachers believe that instruction should focus on higher order thinking skills and allow opportunities for student-directed learning. We asked teachers the extent to which they agreed or disagreed with statements about student-centered learning (e.g., "My role as a teacher is to facilitate students' own inquiry" and "Students should be allowed to think of solutions to practical problems themselves before the teacher shows them how they are solved"). This measure had a strong positive relationship to students' opportunities to engage in deeper learning, including academic, interpersonal, intrapersonal, and assessment opportunities (see Exhibit 2). Thus, the stronger the beliefs of teachers in a student-centered approach to instruction, the higher the student reports of opportunities for deeper learning.

Although we did not probe teachers and school leaders specifically about their beliefs about teaching and learning during our site visits, schools where the survey responses indicated stronger student-centered beliefs differed from other schools in the ways teachers described their approaches to instruction and curriculum development. For

example, teachers in one school reported giving students a high level of "agency" in their own learning. The principal noted that their approach to teaching and learning provides for differentiated instruction, which means that "students have choices in what they're doing." Teaching at this school has been heavily influenced by a "layered curriculum" approach in which students of all skill levels are given opportunities for success in a base layer of instruction and increasing opportunities for application and individual choice as their skills advance. Student respondents in this school also reported that they were prompted to think about what they were doing, as demonstrated by one student saying,

> [The teachers] give us time to think about how something works. You have to think and figure out why…how it works, and figure out the answer by yourself [in] different ways as much as you can. Our teachers give us time to think in science and all the subjects. We have groups of students— sometimes you figure it out by yourself and sometimes with other students. Once you figure it out, it's kind of exciting.

Teacher Self-Efficacy for Teaching

Teacher self-efficacy for teaching is the extent to which teachers view themselves as capable of meeting the demands of teaching. For example, we asked teachers the extent to which they could get through to the most difficult students, get students to work together, and get students to do their homework. Similar to *student-centered beliefs about teaching*, our measure of *teacher self-efficacy for teaching* was positively related to students' reports of opportunities to engage in deeper learning in all four opportunity categories.

According to the site visit data, schools where teachers reported higher levels of self-efficacy were places where teachers characterized themselves as highly committed, motivated, innovative, and collaborative. For example, a teacher at one school who had taught previously at a more traditional school said, "Here I feel like I can make a difference with every student." These schools were also places where teachers knew their students well and had come to understand what might motivate or engage individual students. For example, students in one focus group agreed,

> What's great about this school is that we're not just a face in a sea of people, we are individuals—and teachers recognize that and they will [spend] time to help us…. You're not just a number. People here actually care about you.

EXHIBIT 2: SURVEY MEASURES

Teacher Survey

For this analysis, we consolidated information from the teacher survey to create six measures of school features.

Teachers' Own Beliefs About Teaching

1. Student-Centered Beliefs About Teaching
2. Teacher Self-Efficacy for Teaching
3. Teacher-Centered Beliefs About Teaching

Professional Culture

4. Teachers' Collective Responsibility and Expectations
   - Academic press
   - Instructional improvement culture
   - Collective responsibility for student learning
   - Commitment to every individual student
5. Teacher Professional Community
   - Teacher collaboration
   - Relational trust
   - High-quality professional development

School Leadership

6. Leadership and Coherence
   - Instructional leadership
   - Program coherence
   - Focus on student learning

Student Survey

We consolidated information from the student survey to create four measures of student opportunities for deeper learning.

1. Academic Opportunities
   - Opportunities for complex problem solving
   - Opportunities for creative thinking
   - Opportunities for interdisciplinary learning
   - Opportunities for real-world connections
2. Interpersonal Opportunities
   - Opportunities to collaborate
   - Opportunities to communicate
3. Intrapersonal Opportunities
   - Opportunities for learning how to learn
4. Assessment Opportunities
   - Assessments aligned with deeper learning
   - Opportunities to receive feedback

Facilitators and Barriers

To further explore the role of organizational context, we analyzed data from site visits and interviews. In particular, we examined what school personnel had to say about the organizational features and policies that facilitated or hindered their ability to implement and sustain their approach to deeper learning. Three factors emerged as key facilitators, both for implementation and for sustainability: *collaboration and professional community, school leadership* (including distributed models of leadership), and *support from the network*. Barriers included such factors as limited resources and time, as well as district personnel or accountability policies that interfered with schools' ability to attract and retain appropriate staff or to assess students in ways conducive to deeper learning.

Conclusion

The findings of this study suggest that the conclusions from the different research approaches (surveys and interviews) are quite compatible. While teachers' own beliefs seem to have the most consistent and strongest association with the opportunities they provide their students in the classroom, the case study data suggest that other school features and external policies can influence teachers' beliefs about teaching and about themselves. For example, the interview data reveal that the schools where teachers have a high level of self-efficacy are also schools with high levels of collaboration and professional community, where teachers and leaders say they trust each other and work collectively to improve instruction and student learning. The shared commitment and problem solving may help to build the self-efficacy of the individual teachers by giving them confidence that if they encounter difficulties, they can turn to their colleagues for help. Similarly, leaders can influence beliefs through the approach to hiring and socializing new staff, by providing professional learning opportunities, and by creating a culture of trust and collaboration.

Nonetheless, given the exploratory nature of this study, many questions remain as to how these school features make a difference in creating opportunities for students to engage in deeper learning. For example, we need to further study how schools can develop these teacher beliefs, how school features interact, and whether schools that score high on both school features and student opportunities also provide students with better deeper learning outcomes.

More Information

If you would like a copy of the full report or would like to explore other reports or briefs from the larger study, see http://www.air.org/project/study-deeper-learning-opportunities-and-outcomes.

References

Bitter, C., Taylor, J., Zeiser, K. L., & Rickles, J. (2014). *Providing opportunities for deeper learning.* Washington, DC: American Institutes for Research.

Huberman, M., Bitter, C., Anthony, J., & O'Day, J. (2014). *The shape of deeper learning: Strategies, structures, and cultures in deeper learning network high schools.* Washington, DC: American Institutes for Research.

National Research Council. (2012). *Education for life and work: Developing transferable knowledge and skills in the 21st century.* Washington, DC: The National Academies Press.

Zeiser, K., Taylor, J., Rickles, J., Garet, M. S., & Segeritz, M. (2014). *Evidence of deeper learning outcomes.* Washington, DC: American Institutes for Research.