



## RESEARCH REVIEW

Elizabeth Foster

# RESEARCHERS OFFER EVIDENCE OF LESSON STUDY'S BENEFITS

## THE STUDY

**Vermunt, J.D., Vrikki, M., van Halem, N., Warwick, P., & Mercer, N. (2019).** The impact of Lesson Study professional development on the quality of teacher learning. *Teaching and Teacher Education: An International Journal of Research and Studies*, 81(1), 61-73. Elsevier Ltd. <https://www.learntechlib.org/p/208204/>

**L**esson study is a time-tested approach to professional learning that exemplifies the Standards for Professional Learning: It is ongoing and sustained, embedded in classroom practice, focused on student outcomes, and occurs in professional learning communities. In this approach, teachers collaboratively observe and discuss classroom lessons by analyzing data they collect related to teaching and learning. Developed and initially practiced in Japan, lesson study has been used for decades.

This recent study from researchers in the United Kingdom and the Netherlands adds to a growing research base that suggests a positive impact of lesson study and contributes to an international body of evidence that professional learning improves teacher practice.

## A LEARNING PATTERNS PERSPECTIVE

In lesson study, a team of teachers collaboratively decide on a focal lesson. One teacher teaches the lesson while the others observe and take notes about how students are learning — what understanding they demonstrate, what challenges emerge, what misconceptions are surfaced in the classroom discussions and interactions.

In the model followed by teachers in this study, the lesson study took place in teams of three to four teachers and included teachers interviewing selected pupils about their learning experiences, positives and negatives, and suggestions for changes. (This step, according to the researchers, does not occur as frequently in U.S. lesson study.)

The teachers then met to discuss the classroom observations and interviews to understand the impact of the teaching on student outcomes and plan for the next cycle to observe any additional changes.

The researchers aimed to understand the influence of lesson study on teacher learning and identify which components of the teacher discussions foster the most teacher learning. Their hypothesis was that lesson study works because it “improves the quality of teachers’ learning processes and patterns,” which improves their practice and student outcomes.

The study applies what the researchers call “a learning patterns perspective” — that is, it examines the impact of lesson study on the cluster of factors that impact teacher learning, including usual actions, activities, motivations, and beliefs about learning. According to this perspective, although teachers appreciate practical advice, professional learning also needs to address teacher beliefs about teaching and learning factors to impact what can become ritualized classroom practices.

Vermunt and colleagues examined three teacher learning patterns:

- **A meaning-oriented** learning pattern, in which teachers focus on analysis of students’ understanding as well as analysis of one’s own teaching methods and how lessons relate to each other;
- **An application-oriented** learning pattern, in which teachers apply new ideas and methods in their teaching and learn from that application; and
- **A problematic** learning pattern, encompassing negative or less desirable approaches

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than those above, such as when a teacher relies only on one strategy, struggles with new ways of teaching, or feels discontented with his or her work.

The first two patterns are considered high-quality, while the third is considered low-quality. The researchers hypothesized that teachers' learning patterns would improve in quality when they participated in lesson study and would improve more the longer teachers participated. They also hypothesized that the development of learning patterns would differ among teachers with different levels of teaching experience.

They hypothesized that teachers' perceptions of the value of lesson study would be positively related to an increase in learning pattern quality, but that even controlling for such perceptions, a positive relationship would still exist between participation and learning quality.

## STUDY SAMPLE

This research study was part of the Camden lesson study project, a two-year research and development project focused on improving the content and pedagogical knowledge of mathematics teachers implementing a new math curriculum. The Camden project's overall aim was to improve mathematics teaching in 59 primary, secondary, and special schools across London, England, by creating a self-sustaining lesson study community of educators across a network of schools.

The current research study followed two cohorts of mathematics teachers over the second year of the project. The first cohort of teachers had already participated for a year and therefore had a year of lesson study experience under their belts. The second cohort of teachers was beginning lesson study for the first time. Each cohort completed



three iterative lesson study cycles that the research team videotaped for analysis.

The total sample size for the project was 214 teachers (58 in cohort 1 and 156 in cohort 2), with 95% of cohort 2 teachers and 54% of cohort 1 teachers participating in the research study at the start of the second year of the project. Consistent with most longitudinal research studies, participation in the research decreased over time. Sample

sizes for each set of analyses varied, with 161 teachers completing surveys at the start of the study period, 65 teachers completing surveys at the beginning and midway, and 31 completing surveys at the beginning, middle, and end of the study period.

## MEASURES OF TEACHER LEARNING

Teachers completed Likert-scale surveys in September, March, and

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July. In September, they completed an inventory of teacher learning, consisting of 45 statements about teachers' learning that the researchers later categorized into the three learning patterns of interest in this study (meaning-oriented learning, application-oriented learning, and problematic learning), as well as a section that included 20 statements about teachers' perceptions or expectations about lesson study, such as, "Lesson study is an effective model of professional development for me" and "I have reduced feelings of isolation."

## FINDINGS

As hypothesized, the study found an association between lesson study participation and quality of teachers' learning patterns.

At the beginning of the study, teachers from schools that already had one year of lesson study experience showed higher-quality learning patterns (more meaning-oriented and application-oriented and less problematic) than those with no experience, with small to medium effect sizes.

In addition, across the school year studied, both cohorts 1 and 2 teachers increased in meaning-oriented learning patterns and decreased in problematic learning patterns over time. (Levels of application-oriented learning patterns did not change significantly, although there was a small upward trend, perhaps because the levels were already high at the beginning of the year.)

These findings about growth over time support previous research and point to the need for adequate and sustained investments of time in this type of professional learning to impact teacher outcomes, as called for by the **Resources standard** of Learning Forward's Standards for Professional Learning.

Vermunt and colleagues also found interesting patterns related to teacher experience. Less-experienced teachers (those with less than 10 years

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of experience) showed sharp gains in meaning-oriented learning in the first half of the school year, while teachers with more than a decade of experience did not show significant gains during this period. But after the midpoint of the year, the groups were at roughly equal levels, and their meaning-oriented learning grew from there at equal rates.

The findings about the differing approaches and learning outcomes for teachers of differing years of teaching experience is not surprising but have implications for how administrators or directors approach professional learning experiences. This suggests that surveying participants and taking into account the years of experience in teaching as well as the types of experiences (such as with lesson study) are important considerations in designing professional learning.

Teachers' perceptions of the value of lesson study started high, dropped by March, and then rose again in July. When teachers valued lesson study highly, lesson pattern quality was particularly high. However, the positive relationship between lesson study and learning pattern quality held regardless of teachers' perceptions of value.

## IMPLICATIONS

While the findings of this single study can be helpful in their detail, it is especially helpful to locate them in a body of evidence that provides additional context and offers a summary of the research to date. See, for instance, a 2017 U.S. study focused on improving teaching and learning as it related to writing achievement in high needs schools. That study, *Lesson Study in a Turnaround School: Local Knowledge as a Pressure-Balanced Valve*

*for Improved Instruction* (Collet, 2017), is a good complement to the Vermont paper in that it provides case examples and an intentional focus on how lesson study addresses teacher stress and anxiety among teachers in high-needs school settings.

It can also be useful to consider ways that a single study could inform other models and work. For example, there are some similarities between lesson study and improvement science cycles focused on classroom practices.

In one of Learning Forward's What Matters Now Network coalitions, teams of teachers and principals collaboratively discuss a student learning challenge (area of weakness) based on either student test scores or teacher analysis of student artifacts. Teachers then identify a particular instructional step to introduce into subsequent lessons to see if that change has a positive impact on the student outcomes.

The artifacts or scores are then collaboratively analyzed to determine whether that change in instruction had the intended impact. Although teachers don't collaboratively observe a lesson or interview pupils as in the Camden project, in some cases there are opportunities for limited observation of a peer's classroom.

In alignment with the **Learning Designs standard** of the Standards for Professional Learning, lesson study is a well-studied, broadly used, and generalizable professional learning design that encourages the kind of collaborative, classroom-focused teacher learning that aligns with the standards. Research like the study described here suggests it has potential to focus and energize professional learning communities and other collaborations among educators.

## REFERENCE

**Collet, V. (2017).** Lesson study in a turnaround school: Local knowledge as a pressure-balanced valve for improved instruction. *Teachers College Record*, 199(6), 1-58. ■