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**Sustainability of Teacher Professional Development:
The Perspective of Teacher Leaders in Lesson Study Groups**

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Abstract

This case study focuses on the perspectives of teacher leaders to document and explore how and why two groups of teachers in Coast County, Florida, have sustained their practice of lesson study in the absence of an official mandate to do so and stable administrative support. While a growing body of research supports the effectiveness of collaborative professional developments (PD) such as lesson study, none have examined how the existing practices of teachers may inform the sustainability of such PDs. We find that the teachers in the study were motivated by a belief in collaboration and the benefits of lesson study to seek out the resources needed to sustain their practice.

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As education reforms increasingly center around instructional improvement and accountability, teachers face mounting pressures to effectively implement challenging and changing curriculum and respond to the needs of diverse learners (Kennedy, 2005). Meeting these demands requires continual professional learning responsive to the fluctuating and contextualized realities of teachers (Elmore, 2002; 2007; Little, 1993). While an expanding body of research has identified the components of effective professional development, the question of how to sustain high-quality professional development is of growing but still an understudied topic in education (Garet, Desimone, & Birman, 2001). In an education context often characterized by instability in funding, administration, and the focus of reform initiatives, investigating how teachers sustain effective professional development practices is important for expanding our understanding of the conditions that support teachers' sustained engagement in professional learning.

To explore such conditions, this case study looked at how two teachers in Florida sustained their practice of *lesson study*, a collaborative professional development with roots in Japan, despite the absence of an official mandate or district and school support. Recognizing that an understanding of *how* is incomplete without also considering *why*, the study also explores the meanings and motivations behind teachers' decisions to practice lesson study. Specifically, this study addressed the following two research questions:

- How did two teacher leaders sustain their teams' lesson study practice over the years in the absence of an official mandate and stable administrative support?
- What motivated these teacher leaders to sustain lesson study practice over the years?

This paper describes our findings to date, although data for the study is still being collected and analyzed. In the first section, we briefly describe lesson study before outlining the context of the research and participants. Data collection and analysis are the focus of the next section, with a description of the preliminary results and discussion in the final two sections.

Literature Review

Lesson study is a form of collaborative professional development practiced in cycles consisting of four steps (Fernandez & Yoshida, 2004; Hart, Alston, & Murata, 2011; Lewis & Hurd, 2011). In the first step, a team of teachers meets to study curriculum, identify long-term goals for student learning and development, and select a topic of interest. In the second step, teachers collaborate to plan a research lesson that will be taught by one of the participating teachers while the others observe. In the third step in the cycle, teachers reflect and debrief about the research lesson. In this step, teachers use data gathered during the research lesson to identify areas of improvement that may be addressed in future cycles of lesson study. Throughout the process, an emphasis on student thinking around content knowledge drives the collective inquiry. To maintain this focus, teams sometimes employ the aid of knowledgeable others, usually content area experts that provide feedback and answer questions that arise throughout the cycle. Teams are usually led by a facilitator who keeps discussions focused and ensures meetings run smoothly.

Lesson study embodies content-focused, coherent, continuous, and collaborative teacher learning activities (Perry & Lewis, 2009)—the characteristics of professional development empirically shown to be associated with improved instruction and student learning in the United States (Desimone, 2009; Hawley & Valli, 1999; Loucks-Horsley, Hewson, Love, & Stiles, 1998; Wilson & Berne, 1999). It is also a powerful model for scaling up teaching aligned with the

Common Core State Standards because lesson study facilitates teacher enactment of ambitious instruction (Hiebert, Gallimore, & Stigler, 2002; Lewis, Perry, & Murata, 2006). Teachers participating in lesson study collectively engage in an in-depth study of curriculum and instructional materials and students' thinking, and experiment with problem solving approaches that promote students' conceptual understanding in a research lesson (Fernandez & Yoshida, 2004).

Previous research on lesson study in the U.S. has focused on its adaptation to the U.S. context (Akiba, In Press; Perry, 2009; Chokshi & Fernandez, 2004; 2005; Fernandez, 2002; Lewis, Perry, Hurd, & O'Connell, 2006) and ways in which it may improve instruction (Klein & Hendrickson, 2011; Lewis, Perry, & Hurd, 2004; Murata, Bofferding, Pothen, Taylor, & Wischnia, 2012; Rock & Wilson, 2005; Stigler & Hiebert, 1999; 2009). A review of such studies suggest that lesson study is a form of professional development highly aligned with recent national reform initiatives. In fact, in 2010, Florida became the first state to adopt a statewide policy on lesson study through its Race to The Top Funding. However, despite lesson study's potential to prepare teachers to implement ambitious instruction aligned with reform, no empirical studies have gathered data from lesson study teams to learn about lesson study sustainability in the U.S. This may be reflective of a general trend in the literature on the sustainability of educational initiatives that favors exploration of how to sustain policies formulated at the school, district, state, or federal level or programs developed by researchers (Boardman & Woodruff, 2004; Coburn, Russell, Kaufman, Stein, 2012; Galluci, 2008). While some studies have used innovative schools as the unit of analysis (Fink, 2000; Giles & Hargreaves, 2006; Giles, 2008; Kesson & Henderson, 2010), none, to our knowledge, have used a teacher-driven process of professional development to inform the debate on sustainability. By

examining how and why teachers have sustained their self-initiated practice of lesson study, we gain information on ways that effective professional developments can be sustained in times of rapid educational change.

Context and Participants

This study focuses on the case of two teachers in Coast County School District—a mid-size school district (61,000 students) with average poverty and diversity levels (39% of student receiving free or reduced price lunch and 39% ethnic minority) in the state of Florida. Florida began promoting lesson study as a statewide professional development model in 2010 using Race to the Top Funding (Akiba & Wilkinson, 2015). However, one of the teachers (Betty) started practicing lesson study in 2003 and the other (Jan) in 2008, before the state promoted lesson study and outside of a school or district mandate to do so. Thus, their case presents a unique context for studying the sustainability of reform-aligned professional development initiated by teacher leaders. The grass roots nature of their practice allows us to explore what aspects of lesson study appealed to the teachers and why, and how they initiated and sustained this practice. Thus, this context offers a bottom-up perspective that can inform efforts to sustain professional development programs promoted at higher levels.

Betty is the facilitator of lesson study at Riverside Elementary School, where she has been teaching since 2014. Before transferring to Riverside, Betty taught at Trailways Elementary School, located less than two miles from Riverside and the school where Betty taught when she formed the first lesson study team. As suggested by their geographical proximity, Riverside and Trailways have similar student demographics. At Riverside, 43% of students receive free and reduced lunch, and 23% are ethnic minorities, while 46% of students at Trailways receive free and reduced lunch, and 19% are ethnic minorities (see Table 1). Betty has 26 years of teaching

experience in grades 3-5 and currently teaches gifted and non-gifted mathematics to third, fourth, and fifth graders. Betty holds a master's degree, and is certified in elementary education, with a gifted endorsement.

Jan is the facilitator at Warrior Elementary, where she teaches fourth grade. Warrior is in the same town as Riverside and Trailways, but is located in a more metropolitan part of the city about five miles away from Riverside and Trailways. At Warrior, 49% of students receive free and reduced lunch, and 31% are considered ethnic minorities. Jan has taught at Warrior Elementary for all 28 years of her teaching experience. She currently teaches 4th grade, but has previously taught grades K-5, and spent many years as a physical education teacher. In fact, Jan has a Ph.D. in Exercise Science, but is certified in elementary education and physical education., with an ESOL endorsement.

Data Collection

Data for this study was collected from fall 2014 to summer 2015 and comes from facilitator interviews, observations of over thirty hours of lesson study planning meetings as well as the research lesson, documents related to lesson study practice, a teacher background survey, and observation of a lesson study leadership summer institute sponsored by the district.

Individual facilitator interviews were conducted during and after the lesson study cycle that started in December 2014 and ended in March, 2015. Additional data about the history and sustainability of lesson study was obtained at the lesson study leadership summer institute that occurred in June, 2015 after the lesson study cycles. Both interviews and planning meetings were transcribed verbatim for coding purposes.

Data Analysis

In keeping with our theoretical orientation, our data analysis has thus far been marked by two parallel foci. To answer the first question about how the teachers have sustained their practice, we focused on their perceptions on organizational contexts and resources that allowed them to sustain lesson study practice. To develop an overview of the teams' lesson study history, we used document analysis and review of our transcripts to develop a timeline of events relevant to the two teams' practice of lesson study. These include lesson study cycles, as well as conferences and meetings at which lesson study was a theme or lesson study recruitment was a goal. For each event identified, we charted information about the nature of the event, who attended, and how the event was funded when such information was available and appropriate. To gain a more in-depth understanding of how the teachers acquired resources needed to sustain their practice, we first coded for any instance in which Betty or Jan mentioned a source of funding, supplies, knowledge, or other support for their lesson study practice. We then disaggregated those sources according to type (e.g. principal, fellow teacher, university research collaboration), then conducted another round of coding to identify the particular resources gained via each source type. Findings from our coding were next compared to our charting of the team's lesson study history to ensure consistency between sources and identify instances of missing information to be filled via future data collection.

The second focus of our analysis addresses the second research question about what motivated these teacher leaders to sustain lesson study. In this round of coding, we identified any instances in which the teachers either described or implied a belief about teaching, learning, lesson study, or professional development in general. We then disaggregated those codes into five categories related to meanings and motivations, which we used for axial coding aimed identifying patterns or relationships.

To describe the findings of our analysis to date, the following section will narrate the history of Betty and Jan's lesson study teams with relevant descriptions of Betty and Jan woven throughout. Although they are alluded to in the history, the next section will focus more explicitly on the ways Betty and Jan accessed resources to sustain their practice. The final "results" section will describe the findings regarding the meanings and motivations Betty and Jan described in relation to their lesson study practice.

Results

Lesson Study in Coast County 2003-2015

Betty's Teams. Lesson study was brought to Coast County by Betty, the facilitator at Riverside Elementary. Despite being a new arrival at the school, Betty is obviously respected by the members of her team. As a teacher and facilitator, she displays an expert ability to cultivate relationships while maintaining professional boundaries. Professionalism in general seems to be something she highly values as she repeatedly describes lesson study as professional development that respects the professional knowledge of teachers. Betty was introduced to lesson study in 2003 when she attended a conference in Washington, D.C., and overheard teachers discussing a form of professional development that "empowers teachers through collaboration" (Betty, Facilitator Training Session). She approached one of the teachers to learn more and was told about lesson study. Of this encounter, she recalls thinking, "this is what we need to take hold of our profession again, so that teachers have a stronger voice."

Shortly after the conference, that teacher, who worked for a large teacher's union, visited Coast County at Betty's invitation and described lesson study to 25 national board certified teachers, eight of whom agreed afterward to form a team. Their first cycle included teachers from two schools, Trailways, where Betty taught at the time, and Beach View, a school in a

nearby city. The union representative offered her support in this first cycle, in which she served as a knowledgeable other, a role she has maintained and continues to play for Betty's lesson study teams. For several years, this group of teachers practiced lesson study informally, often meeting on weekends and in cafes and with little administrative backing, until Betty convinced her principal to provide scheduling accommodations that allowed them to embed lesson study into their formal work lives. Even with the support of an administrator, there was uncertainty about the funding of lesson study, which is needed to pay subs while teachers attend the research lesson and to purchase materials and supplies. Betty describes sitting with her principal year after year to discuss grant sources and alternative ways to financially support the next year's lesson study.

From 2003-2011, Betty facilitated seven cycles of lesson study at Trailways, six in mathematics and one in science. Although the composition of her teams varied from cycle to cycle, she slowly accumulated a core group of four teachers who have continued practicing with her, even as two of them (including Betty) transferred to another school and one retired. In 2014,, district restructuring placed Betty at Riverside Elementary. In her first year there, she formed a lesson study team funded via a collaboration with our research team. Two of the members from her Trailways team commuted to Riverside to participate in the cycle, as well as a retired former member of the 2003 Trailways team. Another member of this team was also a former Trailways teacher turned Riverside teacher, who first participated in lesson study in 2007. The other three members of the Riverside team are teachers who responded to Betty's invitation during a faculty meeting to participate in lesson study.

Jan's Team. Jan, the facilitator of Warrior Elementary's team, was introduced to lesson study via her friendship with Betty. When the teacher's union representative returned to Coast

County in 2008 to sponsor a conference highlighting the success of Betty's team, Jan attended along with three of her colleagues and immediately began practicing lesson study in her school. From the beginning, Jan enjoyed the support of her principal, whom Jan often credits for the sustainability of lesson study at Warrior Elementary. Since 2009, Jan's team has completed six cycles of lesson study, all in mathematics. Her first team was composed of seven members, five of whom have continued with Jan throughout all six cycles. Like Betty, Jan has also received funding support from university-based research collaborations.

Although they are friends, Betty and Jan have distinct approaches and personalities. Jan's demeanor is more straightforward and casual, and her dress is considerably sporty. She regularly wears shorts and flip-flops or tennis shoes to teach. Reflective of her almost 20 years of teaching physical education, she makes frequent reference to physical activity, and indeed seems full of energy. She too is respected by her team members with whom she has a jocular relationship and who characterize her as organized and efficient.

Accessing Resources

While the above history narrates a summary of how Betty and Jan began and sustained their lesson study, this section describes in more detail the resources the teachers used to sustain their practice and the connections they employed to access those resources. We found that in order to sustain an effective lesson study practice, the teacher leaders pursued access to 1) knowledge about pedagogy or content, 2) knowledge about lesson study, and 3) funding, materials, and time. In order to access these resources, they relied on 1) teachers' unions, 2) university partnerships, and 3) district and school-level administration.

Relationships with Professional Organizations and University Partnerships. Professional organizations and university partnerships were most often used by Betty and Jan to access

funding, knowledge about pedagogy or content, or knowledge about lesson study. For example, a university partnership may provide funding for substitutes as well as access to a “knowledgeable other.” Similarly, professional organizations provided Betty with access to knowledge about lesson study and enabled her connection to university partnerships that led to funding.

Relationships with School and District Administration. School and district-level administration were almost entirely referenced as a source of funding, materials, and time, suggesting that teachers in the study did not see these officials as sources of knowledge about lesson study, content, or pedagogy. However, both teachers referred to the role that school and district-level administration could play in recruiting other teams and members to practice lesson study.

Principals. Betty and Jan both explicitly attribute the sustainability of their lesson study practice to a supportive principal, although Betty’s access to principal support varied across different administrators she had in Riverside and Trailways over the years. In both cases, principals helped teachers locate funding sources and provided time in the regular work week to practice lesson study. Both teachers praised principals for being open to the possibility of lesson study and describe supportive principals as those that understand and value the learning process of teachers.

District. Although never expressly stated as such, it seems that in addition to funding, time and materials, the teachers believe that administration adds legitimacy to their lesson study practice. For example, both teachers attribute lack of support by principals or other teachers as being due to competing pressures from the district, which suggests that if the district also valued lesson study, the teachers would have a much easier time recruiting members. Notably, although Jan expressed that she would enjoy funding from the district, she worries that she would lose the

autonomy and flexibility that allows her team to meet at mutually convenient times and select topics that align with the team's priorities. Both Betty and Jan view their relationship with the district as a potential way to grow their lesson practice, but they are hesitant to allow the district too much control over their practice.

Motivations behind Lesson Study Practice

The second research question asked about the meanings and motivations behind the teachers' practice of lesson study. As mentioned above, statements that revealed a belief about lesson study, teaching, or professional learning were considered as likely motivations behind lesson study practice. However, in many cases these beliefs overlap with elements of the teachers' personalities, and will be described accordingly when applicable. The analysis revealed five interrelated motivations: 1) a strong belief in the benefits of collaboration, 2) evidence that lesson study has changed their teaching practice, 3) a belief in the professional knowledge of teachers, 4) a belief that teachers should be given autonomy and flexibility in PD practice, and 5) a desire to take risks and work outside the comfort zone

Strong Belief in the Benefits of Collaboration. The most frequently expressed belief about lesson study was that collaboration with other teachers is beneficial to teachers' practice. More specifically, Betty and Jan expressed the value of hearing from diverse perspectives, be it from teachers from different grade levels, different content areas, different specializations (such as gifted or students with disabilities), or different approaches to teaching. For Betty, collaboration is a process that "empowers" teachers and respects their professional knowledge. She speaks positively of the high-level of content knowledge of her team members. In the quote below, she describes how lesson study connects her to the professional and personal knowledge of other teachers:

Pam mentioned that one of the things she appreciated about lesson study was hearing the different minds, hearing the different perspectives, and I think that is very true. Each person's brain is a stream of knowledge, as well as just how they view teaching and view ideas. And when you can share that, I think the end result is going to be more powerful.

Jan focuses on ways that collaboration helps her to see things in ways she hasn't thought of before, particularly when it comes to anticipating student responses. For example, because a member of her team teaches students with disabilities, she describes how that teacher helps her use vocabulary that all students can understand. In both cases, teachers credit collaboration with having changed their teaching practice for the better. In general, comments of this nature seem to show their belief that collaboration increases knowledge of teaching strategies and helps teachers to make sense of reforms, particularly curricular changes to align with Common Core.

Evidence that Lesson Study Has Changed Teaching Practice. Related to a belief in collaboration, another frequently cited belief about lesson study is that it has changed teachers' practice for the better. As mentioned above, collaboration with other teachers is one way in which lesson study improves practice, but teachers also mention the role of knowledgeable others and research articles. For example, Jan credits a knowledgeable other with influencing her to be very precise with the language she uses when teaching mathematics and mentions the content expertise that knowledgeable others contribute. In another instance, Jan explains how lesson study's focus on student thinking has influenced her teaching:

And what I've learned a lot from lesson study, that's really so important, is to listen to kids, how they speak. Because they have taught me so much about the way I teach, by listening to them talk.

Betty also describes a shift to anticipating student thinking about content as a major way that lesson study has changed her practice, and both Betty and Jan claim that the knowledge they have developed via lesson study impacts the way they teach on a daily basis.

Belief in the Professional Knowledge of Teachers. Although sometimes alluded to by Jan, a belief in the professional knowledge of teachers is a motivation most strongly expressed by Betty. She describes this as the specific reason she was drawn to learn about lesson study in the first place, and in the quote below, she tells a group of fellow teachers that this belief motivates her decision to sustain her lesson study practice:

I think the message of this history is that lesson study needs teachers who deeply care about their profession, who deeply care about children, who deeply believe that teachers are smart, that they know what they need, and that teachers need to have a voice in what they learn next. If you believe those things, you do whatever it takes to make lesson study happen.

In fact, Betty regularly describes teachers as smart, saying they already know what they need to know, they just need the time and peer support to figure it out. Her support of teachers' unions frequently emerges in conversations and it is through her relationship with the American Federation of Teachers that she learned of lesson study. Thus, for Betty, her practice of lesson study is strongly tied to her view of teachers as professionals, and she sees lesson study as a way to value the work and knowledge of teachers and protect their autonomy, which is the topic of the next motivation described by teachers.

Belief that Teachers Should be Given Autonomy and Flexibility. In her interview, Betty well summarizes the fifth motivation to sustain and practice lesson study shared by all teachers:

I believe that lesson study allows teachers to identify what they need to know, and then gives them the time and the peer support to go and find that out, which is far more effective professional development than someone who does not know the teacher, or their children, or their situation coming to tell them what they should know. So, I believe that lesson study helps make teaching a true profession in that the teacher can decide what they need to know and then pursue it.

Betty's description of this motivation reflects her belief in the professionalism of teachers. Jan expresses her value of autonomy and flexibility when she worries that district involvement in lesson study would lead to restrictions on their practice that would limit flexibility in scheduling and content:

We want to keep our autonomy. We don't want them to dictate, 'You're going to have these many meetings, and do it this way.' I wouldn't like that at all, personally.

In fact, Jan goes on to say that she likely would stop participating in lesson study if the district imposed too many restrictions.

Desire to Take Risks and Work Outside Your Comfort Zone. Betty describes being pushed out of her comfort zone as a benefit to lesson study. According to her, this happens by pushing the boundaries of her knowledge about content and student learning. Such references usually appear in relation to reading research articles or consulting knowledgeable others. For example, when describing the role of knowledgeable others to other teachers interested in practicing lesson study, Betty explained that they "forced" teachers out of their comfort zone to think about things in new ways, which she says, "ignited our spirits." She describes their insights as puzzling and intriguing in a way that motivated the teachers to meet again and talk about what they had said.

Once again, Betty's expression of this motivation seems rooted in her vision of teaching as a serious profession, where teachers are self-motivate to improve.

Discussion

These findings support the idea that teachers will actively work to improve and sustain professional development practices when they believe in their effectiveness (Guskey, 2002). They further suggest that teachers may be particularly motivated by professional developments that respect teachers' knowledge and learning process and provide flexibility and autonomy. They also suggest that lesson study may be a professional development particularly well-suited for sustainability because it appeals to teachers with diverse approaches to professional learning and provides a way for teachers to link PD practices to classroom outcomes. In further alignment with prior research, this study also points to the importance of administrators as actors integral to PD sustainability. However, in this study principals were not sought out for knowledge advice, but for funding, time, and to lend legitimacy to lesson study practice.

Implications for Research, Policy, and Practice

Teachers in this study were particularly motivated to sustain their lesson study practice by a belief in the benefits of lesson study and collaboration and an appreciation for the flexibility and autonomy provided by lesson study. Their practice was dependent on resources accessed through a variety of sources. This suggests that to encourage sustainable PD practices aligned with reform, teachers need access to professional knowledge, time, funding, and, perhaps most importantly, other teachers. Policy can support such access by allowing for flexibility—particularly in scheduling and PD content--and responsiveness to context in professional development and providing ways and means to build capacity to access needed resources. However, the effectiveness of such flexibility depends on information that directs teachers

towards the types of resources that improve practice. This is where research can play a role in uncovering the precise mechanisms that lead teachers to perceive a professional development as effective and to evaluate if/how those mechanisms influence student achievement outcomes over time. Further research could also explore how administrators can support sustainable professional development that responds to teachers needs while aligning with district requirements.

Conclusion

The teachers in this study are highly dedicated to their continued professional learning, but they cannot do it alone. Motivated by a belief that lesson study and collaboration can improve their teaching, they actively seek out resources to improve and sustain their practice. If teachers are to successfully fulfill the reform objectives to which they are increasingly held accountable, they need access to professional development that effectively responds to their contextualized needs and the time and flexibility to practice that professional development in meaningful ways. Given such an arrangement, sustainability may emerge as a byproduct of successful professional development, particularly when teachers have access to the resources that enable its functioning and continuation.

Table 1. School Characteristics

School Name	Enrollment	% FRL	% ESE excl. Gifted	% Black	% Latino	% Other	% Minority	2014 Grade
Riverside	721	42.6	15.6	9.2	5	9	23.2	B
Trailway	694	46	10.7	6.5	5.2	7.6	19.3	A
Warrior	741	48.7	15.2	13.9	5.7	10.9	30.5	A

Table 2: Participants

Name	School	Teaching experience (years)	Current grade level	Prior levels taught	Certifications	Years participating in lesson study
Betty	Trailways	26	3--5	3--5	Elementary 1- 6 / Gifted Endorsement	12
Jan	Warrior	29	4	K--5	P.E. K 8 / P.E. 6-12 / Elementary Education / Adapted P.E. / ESOL endorsed	9

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