Collaborative Lesson Planning in Physical Education: A Case Study

by David Cluphf and E. William Vogler

Abstract

The purpose of this case study was to analyze the nature and effectiveness of a collaborative lesson planning experience by four elementary physical education teachers. Teachers met four times to plan then have one colleague teach a lesson in fitness to a third grade class. Qualitative and quantitative analysis was performed on statements made in four planning, one teaching, and two debriefing sessions. Further, there was a systematic observation of student and teacher behaviors during the actual lesson taught to determine class/teacher effectiveness. It was indicated in the results that the collaborative effort produced: (a) an effective lesson in which proper attention was paid by teachers to task presentation, content development, teaching functions, and student compliance (b) an experience that elicited enthusiasm, a greater sense of professionalism, and was more motivating than traditional professional development experiences such as workshops and in service training, and (c) subsequently taught lessons that resulted from deeper and more reflective planning noteworthy of mature teachers.

Lesson Plan Study in Physical Education: A Case Study

Research on the professional development of teaching is theoretically imbedded broadly in the literature on social development (Lortie, 1975; Waller, 1932). That is, changes in teaching behavior or thinking are largely a sociological process whose developmental outcomes are systematic and predictable proven by research. Katz (1972) provided a specific model for the development of teaching which described it as a gradual socialization toward maturity highlighted by survival, consolidation, and renewal stages. Embedded in Katz’s notion of renewal and maturity is the idea that teachers create strong networks through formal conversation with peers. In order to reach more mature levels of teaching, teachers need to “share their concerns with others at the same stage of development” (Stroot & Whipple, 2003). In effect, a case can be made on the basis of Katz’s assumptions, that the professional development of teachers can be enhanced by the regular and systematic communication of teachers on all matters regarding instruction.

Traditional professional development activities for teachers usually involve conferences, workshops, in service training activities, university classes, and professional journal articles (Taylor & Puchner, 2002). What is common to these development activities is that they are all “external” to the immediate classroom, that is, outside their contextual setting. When professional development is “talked about” rather than implemented on site, the belief is there is less potential for success (Fitchman-Dana & Yendol-Silva, 2003).

Increasingly a number of more “internal” professional development initiatives have begun to focus on teachers carefully examining their practice either directly (e.g., systematic observation) or through the use of artifacts of teaching and samples of student work (Fernandez, Cannon, & Choksi, 2002; Rowley & Hart, 2000). These initiatives focus on teachers doing their own research on their own students on site (Fitchman-Dana & Yendol-Silva, 2003; Masami & Reza, 2005). The focal point of these initiatives is that many believe that embedding teacher scholarship in their everyday work allows for richer and more meaningful learning and professional development to take place.

Stigler and Hiebert (1999) introduced an imbedded professional development model of Japanese Lesson Study in which teachers collaboratively plan, examine, and evaluate actual lessons. Since then, teachers particularly in the areas of mathematics and science education have utilized Lesson Study as an effective means of professional development (Lesson Study in Japan- U.S. Science Education, 2002; Lesson study research group, 2001; National Research Council, 2002).

The benefits of this model of include professional development that is set within the actual context of the teachers' schools, districts, and curriculum. Teachers can focus their attempts to improve instruction on just one lesson at a time, which is more manageable and, therefore, more motivational. Improvement in teaching is viewed as a process that occurs over time as teachers inquire and think collaboratively about their instructional practices. The model is a comparatively low-cost, teacher-directed form of professional development that many districts have found to help teachers increase their knowledge of subject matter and instruction, make a stronger connection of daily practice to long-term goals, and increase motivation and self-efficacy.

A study of this model by Taylor and Puchner (2002) described the impact of a math education collaborative Lesson Study on 26 elementary teachers who combined into 7 groups to plan and conduct classes over a 15 month period. They found that after Lesson Study the teachers became more: (a) motivated towards teaching and planning, (b) self realized i.e., taking training into their own hands, (c) reflective i.e., shifted their thinking from scattered, fragmented, and frenetic to deeper, more reasoned planning, (d) communicative i.e., talked more about teaching and learning with peers, and (e) professional i.e., the seriousness with which they took their work.

While the importance of collaboration and collegiality in physical education has been documented, studies involving Lesson Study as a form of professional development have not occurred (Doutis & Ward, 1999; Rovegno & Bandhauer, 1998; Sharpe, et al, 1999; Stroot, 1994). Therefore, the purpose of our project was to determine the nature (dynamics of teacher interaction) and effectiveness of a Lesson Study collaborative effort in physical education. Better understanding of such dynamics and efforts should ultimately help lead teachers more quickly and efficiently into the mature stage of development in teaching.

86 Journal of Research
Method

Case Study

The case selected for this study was a bounded process of lesson planning, teaching, and evaluation of a lesson by several teachers and their facilitator over a period of several weeks in order to determine an in depth understanding of this process (Merriam, 1998). Analysis included both quantitative (systematic observation of behavior; tallying scripted statements) and qualitative analyses (teacher interviews).

The systematic observation procedure involved time-interval sampling of student and teacher behaviors in a Lesson Study class to estimate, quantitatively, the percentage of time spent successfully engaged in a motor activity by students in the focus lesson (Siedentop, Tousignant, & Parker, 1982). This is sometimes portrayed as Academic Learning Time in Physical Education (ALT-PE) and has been used to evaluate “effectiveness” of a program. Specifically, effectiveness was evaluated in terms of how time was spent in the physical education class relative to class context (i.e., time taken in transition between activities, class management, background material, and fitness) and levels of learner involvement (i.e., whether a student was motor appropriate). Extensive use over three decades of research on effective teaching support the use of Academic Learning Time-Physical Education as a valuable method of determining teacher effectiveness (e.g., see Silverman & Ennis, 2003).

In order to more clearly understand the group dynamics of lesson plan study, planning statements were coded by Teaching Function and Lesson Plan Components. Rink (2006) implied that Teaching Functions are activities a teacher does before, during, and after a lesson to ensure student learning. These include: (a) Identifying Outcomes, (b) Planning, (c) Presenting Tasks, (d) Organizing and Managing the Learning Environment, (e) Monitoring the Learning Environment, (f) Developing the Content, and (g) Evaluating. We hoped to determine the appropriateness of the planning process by studying the emphasis placed on these various teaching functions during lesson plan study.

To further determine insight into the process, planning statements were coded as a function of a standard lesson plan consisting of various parts of a lesson such as: (a) Objectives, (b) Introductory Set, (d) Warm Up, (e) Transitions, (f) Content Development, (g) Management/Formations, (h) Timeline, and (i) Closure.

The reliability of coding statements was determined by calculating the percentage of line by line agreement between two researchers and dividing the # of agreements by the sum of agreements and disagreements times 100. A criterion of 80% agreement was deemed the minimal acceptable percentage which is fairly standard in the systematic observation literature (Cooper, Heron, & Heward, 2007). An agreement of 87% was reached and thus the data was determined as reliable. A form of validity was determined by subjectively agreeing upon definitions of the various teaching functions and lesson plan components prior to coding. At the conclusion of actual coding, any disagreements were discussed line by line until agreement was reached.

Finally, to further assess the dynamics and any other benefits of Lesson Study, a qualitative analysis was performed in which formal and informal interviews were conducted at various points during the project following procedures outlined by Merriam (1998) These have been previously used in case study physical education research (Vogler, Koranda, & Romance, 2000). We both recorded interactions between teachers during planning sessions and interviewed teachers at debriefing sessions to determine teachers’ feelings and interpretations of the Lesson Study to gain a more in depth understanding about the process. We also audio-taped and took some field notes of all their meetings and the focus lesson as well as collecting all Lesson Study artifacts produced during the collaboration which included lesson plans, observation tools, and field notes (Fernandez, Cannon, & Chokshi, 2003). These were used to help confirm certain notions of themes which may have developed during these activities.

Participants

Participants were selected using purposive or criterion-based sampling, which is recommended for case study research (Patton, 1996; Vogler et al., 2000). The case of interest was a Lesson Study process, with teachers selected from a local school district in an outlying metropolitan Midwestern town on the basis of the following criteria:

1. Willingness to engage in the Lesson Study form of professional development.
2. Certified to teach physical education in the state.
3. Teaching at elementary physical education level 3rd grade (arbitrarily picked).
4. Ability to meet on a regular basis to plan and discuss the focus lesson.
5. Have access to a randomly selected physical education class in which to deliver the focus lesson.

Participants in this study were four elementary physical education teachers who met the previously described criteria and one university level teacher trainer acting as facilitator. They were certified to teach physical education in the state and demonstrated varying levels of teaching experience (27 years, 13 years, 5 years and first year). Three teachers had or were completing a masters’ degree in physical education (two with an emphasis in adapted physical education). One had just finished a bachelors degree in physical education teaching.

All four teachers knew each other, but had been limited in their ability to work together because they were in four different buildings. This was the first participation in Lesson Study for the teachers although all but one of them had worked as student teaching supervisors with the facilitator in the past.

The facilitator was a university professor at a local institution with Ph.D. credentials and extensive experience (6 years) in physical education teacher education.

Procedure

Teachers contacted to participate in the study were presented with a typical Lesson Study model which was described in the following way (Stigler & Hiebert, 1999):

1. A topic to teach is chosen that is linked to larger national, district, or school goals.
2. The teachers then meet regularly to jointly produce a detailed lesson plan (research lesson) which one of the teachers uses to teach in a real classroom while the other teachers observe the lesson and take notes.
3. Immediately following the lesson, the teachers meet together to share observations and feedback.

4. Their next step is to revise the lesson (with the possibility of another teacher teaching implementing the revised plan).

5. Then a report is produced by the teachers to share results and what the Lesson Study has taught them with particular attention to their research question.

The project consisted of seven meetings and a 7 mo follow-up during which various components of the Lesson Study were accomplished (see Table 1). The first meeting was an orientation of the entire process including a discussion of the dynamics of Lesson Study, participant roles, time frame and other logistical issues. The lead teacher (teacher of lesson) was selected at this session.

<table>
<thead>
<tr>
<th>Meeting #</th>
<th>Data Collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Orientation</td>
<td>Field Notes (FN) Only</td>
</tr>
<tr>
<td>2. Explanation of Format and Selection of Content</td>
<td>Audio Recorded (AR); FN</td>
</tr>
<tr>
<td>3. Content Planning</td>
<td>AR</td>
</tr>
<tr>
<td>4. Logistics and Explanation of Research Process</td>
<td>FN</td>
</tr>
<tr>
<td>5. Lesson</td>
<td>Videotaping; FN</td>
</tr>
<tr>
<td>6. Immediate Debrief</td>
<td>AR</td>
</tr>
<tr>
<td>7. One Week Follow Up</td>
<td>AR; FN</td>
</tr>
<tr>
<td>8. No Meeting – 7 mo email follow up</td>
<td>Email – response to questions</td>
</tr>
</tbody>
</table>

The purpose of the second meeting was to remind teachers of the components of a traditional lesson plan (e.g., introductory set, content development, closure, etc.) and to begin the first step of the Lesson Study. During this time, the teachers determined the content of the focus lesson and began considering objectives. Teachers selected a fitness theme for the lesson as there was a perceived student need in this area. This meeting was audio-recorded and the facilitator was present.

For the third meeting, the teachers met without the facilitator and continued to plan the focus lesson. This was an audio recorded session in which teachers planned the scope and sequence of the lesson, discussed potential student responses, and considered what teaching style they would utilize.

During the fourth meeting, the facilitator discussed lesson observation techniques, the de-briefing process, and protocols for observer behaviors during the focus lesson. This session was not audio recorded but field notes were taken by the facilitator.

The fifth meeting was the day of the actual focus lesson. The lead teacher (group determined) taught the lesson while the facilitator and other teachers observed. There were two video-cameras utilized; one to record students and one to record the teacher behavior.

Following the lesson an audio recorded de-briefing (sixth meeting) took place in which the teachers discussed the lesson and lesson plan. The seventh and final meeting was an audio recorded follow-up interview one week after the focus lesson.

There was a seven month email follow up with teachers asking them to reflect on the experience as a professional development activity.

Systematic observation. Two video cameras were utilized to record teacher and student behaviors during the focus lesson. The “teacher” labeled camera focused on the teacher as she went through the process of teaching the lesson. The “student” labeled camera focused on (4) randomly selected students (2 boys, 2 girls) to be assessed for analysis of student ALT-PE behaviors and were kept in view at all times. The teacher wore a wireless microphone to capture her verbal interactions and directions.

Researchers had completed the tutorial in the ALT-PE coding manual and had practiced coding behavioral data previously so that reliability and validity could be achieved before formally coding the videotapes. Inter observer reliability was calculated by dividing the agreements by the agreements plus disagreement multiplied by 100 (Cooper, Heron, & Heward, 2006). Inter observer reliability between the two researchers trained to collect the ALT-PE data was 80% or greater for both videotapes.

Lesson planning, debriefing, and reflection sessions. For each of the planning, debriefing, and reflection interview sessions, verbatim transcripts of audiocassette tape recordings were completed. Verbatim transcripts were transcribed into case records so that the investigators could analyze spoken comments for emerging themes of importance. A semi-structured interview was conducted one week following the lesson and focused on general questions about how the teachers felt about the process as well as specific questions about professional development. Qualitative analysis procedures presented by Merriam (1998) were followed once verbatim transcripts were completed. The case records were read several times to determine the most important and prominent statements from the teachers. Statements were then categorized and placed into outline form. These themes then were presented to the teachers at the end of the school year via email and phone, some 7 months after all other meetings and lesson, for verification (triangulation) and further analysis.

Results

Quantitative Evaluation of Teacher Scripts from a Teaching Function Focus

It can be seen in Table 2 that, from a Teaching Function perspective, when teachers first began to plan a lesson (after the first orientation meeting), most of the emphasis in their discussion

<table>
<thead>
<tr>
<th>Teaching Functions</th>
<th>% of Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifying Outcomes</td>
<td>58.7</td>
</tr>
<tr>
<td>Task Presentation</td>
<td>00.0</td>
</tr>
<tr>
<td>Organizing and Managing</td>
<td>33.5</td>
</tr>
<tr>
<td>Monitoring the Environment</td>
<td>03.0</td>
</tr>
<tr>
<td>Developing the Content</td>
<td>04.8</td>
</tr>
<tr>
<td>Evaluating</td>
<td>00.0</td>
</tr>
</tbody>
</table>

Table 2. Percentage of Teacher Planning Statements Coded By Teaching Function
was placed on identifying objectives and organizing/managing as might be expected. This is logical to assume since all good lessons are planned “after” the establishment of class objectives. It wasn’t until their next Lesson Study that the class content was developed and some attention was paid to presenting the tasks (see also Table 2). It’s interesting to note that teachers did not place any emphasis on evaluating the effectiveness of the instructional process in either planning session.

Quantitative Evaluation of Teacher Scripts from a Lesson Plan Component Focus

The analysis of emphases placed on lesson plan components revealed much the same thing except that it was interesting to note that little or no emphasis was placed on transitions between lesson tasks, the timeline of the lesson, and closure of the lesson (see Table 3). As it turned out, these were discussed by the teachers in the follow up interviews as being weaknesses of the lesson i.e., the lesson ran too long and there was no closure. It can be said that, for the most part, however, emphasis placed on both Teaching Function and Lesson Plan Components seemed appropriate.

Table 3. Percentage of Teacher Planning Statements Coded By Lesson Plan Components

<table>
<thead>
<tr>
<th>Components</th>
<th>Lesson Study #1</th>
<th>Lesson Study #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objectives</td>
<td>50.0</td>
<td>01.7</td>
</tr>
<tr>
<td>Introductory Set</td>
<td>00.0</td>
<td>16.6</td>
</tr>
<tr>
<td>Warm Up</td>
<td>16.2</td>
<td>00.0</td>
</tr>
<tr>
<td>Transitions</td>
<td>01.3</td>
<td>01.0</td>
</tr>
<tr>
<td>Content Development</td>
<td>05.4</td>
<td>67.6</td>
</tr>
<tr>
<td>Management/Formations</td>
<td>24.3</td>
<td>12.8</td>
</tr>
<tr>
<td>Timeline</td>
<td>02.7</td>
<td>01.0</td>
</tr>
<tr>
<td>Closure</td>
<td>00.0</td>
<td>00.0</td>
</tr>
</tbody>
</table>

Quantitative Evaluation of Teacher and Student Behaviors in the Focus Lesson

Table 4 is a display of how time was allocated in the focus lesson and its four major subdivisions: (a) Management, when students were not involved in physical education activities but were engaged in managerial functions that were considered on task; (b) Transition, when students were not involved in physical education activities, but were in transition between stations and were considered on task; (c) Subject Matter Knowledge, when the primary focus of the class was on the knowledge of rules and techniques; and (d) Subject Matter Motor, when the primary focus of class was on motor involvement in physical education activities.

It is demonstrated in Table 4 that the largest portion of class time (52.7%) was dedicated to Subject Matter Motor activity, specifically engagement in the fitness stations. A smaller, but still large, portion of class time (22.7%) was allocated to Subject Matter Knowledge, specifically, instruction concerning what to do at each station and how to rotate from one to the next. Together, these segments added up to 75.4% of class time allocated to physical education in general. Conversely, Management and Transition activities only accounted for 23.7% of the total class time.

Table 5 is a display of the Learner Involvement Level in the class context. The four major segments of Learner Involvement Level are (a) Motor Appropriate, when students were successfully engaged in a motor activity; (b) Motor Inappropriate, when students were engaged in a motor activity, but the activity was either too easy or too difficult for the student; (c) On-task, where students were not engaged in motor activity but were on-task in the context of the lesson. Specifically, students were engaged in receiving Subject Matter Knowledge, transitioning from one activity or station to the next, or Management; and, (d) Off-task, where students were not doing what they were supposed to be doing. Off-task behavior (2.4%) was negligible and not included in the table. It can be seen in this table that the largest portion of class time (60.2%) was spent in On-task behaviors that were not motor activities. The students were engaged in a Motor Appropriate fashion for 32.8% of the class and Motor inappropriate (not reported in table) for 4.6% of the time. It can further be seen in Table 5 that when students were not engaged in physical activity, they were appropriately attentive to other aspects of the class. When students were not engaged in a physical activity, they were listening, watching, or transitioning appropriately.

Table 4. Teacher Context Behaviors (% of time allocated, M, SD)

<table>
<thead>
<tr>
<th></th>
<th>General Content</th>
<th>Subject Matter Knowledge</th>
<th>Subject Matter Motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transition</td>
<td>13.6 (0.8)</td>
<td>10.7 (0.0)</td>
<td>22.9 (0.0)</td>
</tr>
<tr>
<td>Management</td>
<td></td>
<td></td>
<td>52.8 (0.3)</td>
</tr>
<tr>
<td>Background Knowledge</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fitness</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5. Learner Involvement Behaviors (% of time engaged or on-task, M, SD)

<table>
<thead>
<tr>
<th></th>
<th>% Motor Engaged - Motor Appropriate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students (S1-4)</td>
<td>avg. 32.8 (6.2)</td>
</tr>
<tr>
<td>S1</td>
<td>27.0</td>
</tr>
<tr>
<td>S2</td>
<td>43.0</td>
</tr>
<tr>
<td>S3</td>
<td>28.4</td>
</tr>
<tr>
<td>S4</td>
<td>avg. 32.8 (6.2)</td>
</tr>
</tbody>
</table>

Qualitative Evaluation of Lesson Study

Themes gleaned from qualitative analysis came from meeting #’s 2, 3, 6, and 7. Meetings left out were largely organizational in nature and not deemed as significant in terms of the dynamics of the process. Researchers agreed that the following themes emerged which were determined by comments that Lesson Study teachers most wanted to emphasize.

Meeting Discussing Lesson Study with Facilitator (meeting #2)

After the orientation meeting (meeting #1), teachers met a second time to discuss among other things, the selection of lesson
content. The most frequently occurring higher order themes to emerge from the case records of the initial meeting were “project enthusiasm” and “identifying outcomes.” The “project enthusiasm” theme related to the teachers willingness and enthusiasm for and anticipation of the project. The “identifying outcomes” theme related to how the teachers established the teaching goals of the focus lesson and determined which objectives would be presented. Statements from the teachers are presented here to illustrate these themes:

**Project enthusiasm.** The teachers expressed great enthusiasm for the project in regard to how they could develop as professionals as well eagerness to work as a collaborative group. It is clear by statements from the teachers that, at this point, the notion of working in a collaborative nature with colleagues from other buildings in the district was important to them. The following statements reflect this theme:

“Being a first year teacher, I am excited to work with such professional teachers with so much experience”.

“I think this is good because it gives us an opportunity to work together on something, and that doesn’t happen very often”.

“If we weren’t doing this Lesson Study, I probably would not have met one of my district colleagues”.

“Two heads are better than one and four is fabulous”.

**Identifying outcomes.** The majority of the initial session was devoted to identifying the outcomes of the focus lesson. The teachers conversation centered on identifying gaps in desired performance and students’ actual performance, identifying a focus for the lesson and designing objectives to meet desired outcomes.

“I have seen a huge drop off in students’ upper body fitness in my 27 years in the district”.

“There is also a drop in love for physical activity”.

“Kids have less time to develop “natural” muscular strength and endurance”.

“I think a goal for this lesson can be to help students increase strength and provide them a “toolbox” for outside of school activities”.

“It would also be nice to show them how to recognize improvement at a personal, non-competitive level”.

**Teacher Lesson Planning Meeting (Meeting #3)**

The higher order theme that occurred most commonly during the teacher planning meeting was labeled as “content development.” This theme relates to discussion of how the activities are performed including “critical elements” of the desired movements of students in class. The other theme that emerged, though not as frequently, was “task presentation” in which the teachers discussed how the tasks would be presented to the students.

**Content Development.** The majority of the planning session was devoted to detailed “nuts and bolts” discussion about how the activities for the day would be performed by the students. The teachers spent a great deal of time breaking skills down into critical elements to ensure that students were receiving accurate and important skill information. Sample comments illustrating teachings developing the lesson content are displayed here.

“Jumping jacks begin with feet together and arms at sides. Jump with feet apart and arms swing and extend out to the side of the body and overhead”.

“Have the kids pick up the medicine ball and hold at chest. Raise medicine ball high into the air until the arms are almost straight, not locked. Keep arms straight and lower ball in front of chest and repeat”.

“For push-ups, the hands are under the shoulders with fingers straight pointing away from the body. The legs are straight, parallel and slightly apart with toes supporting the feet”.

“Take time to make sure that they are doing the exercises properly”.

**Task Presentation.**

“For the anticipatory setting, let’s use posters of professional of different sports that demonstrate upper body strength. Maybe a picture of a rock climber and a gymnastics person”.

“So, basically you won’t need to explain all of this (lesson plan), but I am sure you will have to paraphrase it”.

“I would say just go into detail”.

“Straight arms just like a seal walk except they legs aren’t dragging. We referred to this as a “front lean rest position.”

**Other Themes**

It is important to note that this planning session was not bereft of other important themes such as safety, evaluation, and time management.

**Safety**

“I don’t let my kids ride scooters on their knees”.

“I get nervous about it because when they are riding on their knees, their bottoms come up”.

“You cannot lean forward. That is one thing I really have to stress”.

**Evaluation**

“While they’re doing the modified pull-up on the bar what are we looking for them to do”? 

“Evaluate by observing students using correct form and student will be actively engaged throughout the activity”.

**Time Management**

“Do you think we will be able to do this in 30 minutes”?  

“Do we want to eliminate some of the activities”?

“The last part is jogging for 2½ minutes”.

**Immediate Debrief of Focus Lesson (meeting #6)**

Immediately following the focus lesson, the teachers met to discuss how the lesson went. By far, the most common higher order themes that emerged from this session were student “behavior” and “compliance.” The “student behavior” theme related how students conducted themselves socially in relation to the lead teacher, peers, and equipment. The “student compliance” theme related to how closely students followed instructions for how they were to engage in the activities.

**Student Behavior.** Overall, the teachers felt that the students behaved in a socially appropriate manner during the lesson. The following statements reflect this sentiment:

“I felt as I walked around that most of them were on task doing what they were told to do with few exceptions”.

The teachers spent a great deal of time breaking skills down into critical elements to ensure that students were receiving accurate and important skill information. Sample comments illustrating teachings developing the lesson content are displayed here.
“I observed “Jimmy’s” name called four or five times”.
“Overall behavior of this class was good, better than normal”.
“I noticed a couple of students were elbowing. Those who were much faster, when someone tried to pass them, they would do an elbow”.
“Oh they did a fabulous job. They were so focused. There was very little talking between them except at the last station”.

Student Compliance. While the teachers were pleased with the overall behavior of the class, they expressed concerns about students modifying the activities and not performing the tasks in the requested manner. They felt that if an activity caused discomfort or fatigue, the students modified the activity to make it easier. They did, however, feel that the modifications were acceptable, if the students remained on-task.

“While I was watching the seal crawl, I noticed that the first time they were going “ouch,” the second time they used their knees, and the last time they just crawled down the mat”.
“Did I tell them five times to rotate stations”?  “The people using their knees on push-ups. I think they are still using their arms. “There is no way someone could have done that activity the whole time”.
“So even though they weren’t always using correct form, I really think they still got an upper-body workout”.
“Even though they weren’t using the exact correct form, they were really focused on what the objective was”.

Other Themes. Other themes that emerged during this conversation related to “time management,” “planning errors,” “professional reinforcement,” and “value.”

Time Management
“We went overboard”.
“It (initial explanation) took us longer than what we planned, but it was still good”.
“I think I would have done less than 2 ½ minutes per station”.

Planning Mistakes
“We kept going back to “do we have too many stations?”
“And the fatigue factor, if at six they started losing it, then maybe six is enough”.
“We forgot to plan a closure”.

Professional Reinforcement
“I thought you did wonderful”.
“I was really impressed by your teaching style”.
“I have never seen you teach before and, you go girl”.

Value
“Man, why can’t we have four sets of eyes for every lesson? We would be excellent teachers”.

One-Week Follow-Up Session
One week after the focus lesson, a follow-up de-brief session was held with the teachers to determine their overall frame of mind regarding the Lesson Study process. Overwhelmingly, the higher order theme that emerged was labeled as “professional development” and related to such issues as attitude, logistics, group dynamics, benefits, and drawbacks. A second theme that emerged was identified as “instructional effectiveness” and was associated with issues of task presentation and student learning.

Professional development. It is clear by statements made by the teachers that they found the Lesson Study process enjoyable, beneficial, and rewarding. The following statements reflect this attitude:

“I can’t think of anything bad or negative about it. I thought it was awesome.”
“This was definitely a better than a workshop we have attended. We were more involved in this instead of listening to someone lecture.”
“I feel that this Lesson Study has made me even more motivated than before. I realize that I CAN make a difference in some students’ lives by working hard at being a great teacher.”

“After doing this project, I am more aware of paying attention to observing individual students. By the end of the day you are tired and some things slip by. But after this, I am more aware of observing all students.”
“I learned that even when you think you have your eyes on everyone in class, there are still students who will slip past you. I learned a lot about observing students.”
“It goes back to ‘two heads are better than one.’”
“When we have four sets of hands it was fabulous.”
“It’s a shame we can’t get together more often to do things like this.”

Instructional Effectiveness. While they reflected that they thought the lesson went well, the teachers still saw several areas in which they could improve or modify the activities to increase student learning. They also discussed several matters that they would do again as a result of this project.

“I spent a lot longer talking to the class during this lesson than I usually do, but I was worried that they may not understand everything.”
“We went way overboard in the amount of activity that we thought the kids could do.”
“I think for a lot of the kids, showing the pictures at the beginning and then having them do the activities made them more motivated. They will remember that.”
“Yes, the anticipatory set is a big part of the whole lesson plan.”
“We really didn’t plan a good closure to the lesson.”

Discussion
The analysis of the Lesson Study “case” from multiple perspectives revealed many elements of value for the collaborative planning experience and the professional development of the participating teachers. These elements were revealed after careful analysis of: (a) planning sessions for teaching function and lesson planning components, (b) systematic observation of teaching/student behaviors during the target class; and (c) verbally spoken themes during planning and follow up sessions.

These positive results were consistent with those found in other Lesson Study literature in math education in both Japan (e.g., Fernandez, Cannon, & Choksi, 2003) and the United States (Taylor & Puchner, 2002), and may be used as evidence to support this approach as an alternative to more traditional forms of professional development in physical education. The result is valid internally.
to the extent that: (a) the “case” was viewed from a perspective of multiple sources of data (triangulation), (b) themes from interview data were checked by subjects for accuracy (plausibility checks), (c) there were long term follow ups to allow for reflection by subjects (repeated observations), and (d) two researchers developed research themes by consensus (peer examination). The result is valid externally to the extent that readers can relate to the analysis and is otherwise known as “User Generalizability” (Thomas, Nelson, & Silverman, 2005).

These results are more specifically discussed as follows: (a) quantitative evaluation of teacher scripts from a Teaching Function and Lesson Plan component focus, (b) qualitative evaluation of teacher and student behaviors in the focus lesson, and (c) qualitative evaluation of lesson study. It was hoped that the dynamic processes and outcomes of this Lesson Study “case” would be clearer from this multiple analysis perspective.

Quantitative evaluation of teacher scripts from a Teaching Function and Lesson Plan component focus

When analyzing Lesson Study from the perspective of Teaching Functions and Lesson Plan component focus, it was believed that the counting and categorizing of statements made during planning would reveal something of the interactive working dynamics between teachers. Further, it was believed that the order in which planning decisions were made would reveal something about its’ appropriateness. Effective teaching is somewhat sequential e.g., assessment should precede identification of objectives which should precede development of content which should precede a plan for task presentation.

The results revealed little about the dynamics of interaction since statements were mostly concrete about what to do and say rather than reflective about their mindsets, feelings, and thoughts during planning. Statements did, however, demonstrate a certain amount of appropriateness in planning related to “order” of planning decisions. For example, the teachers knew on the first day of planning to select an objective (fitness) which would guide the lesson. This was followed by discussion about management and organization. On the second day of planning, teachers were then concerned with how to develop the content and present activity tasks. This order is consistent with “effectiveness” as is commonly noted in the research on teaching literature (Rink, 2002).

In spite of the four “sets of eyes” the lesson, while effective, was less than perfect as there were some errors in planning that were revealed in the actual lesson. For example, during planning, our teachers forgot to attend to transitions between tasks, timelines, and a closure to the lesson. These were either “lacking” during or absent from the lesson much to the chagrin of our collaborators as follow up interviews revealed. Further, teachers did not relate the objective of “fitness” to any specific unit or school plan or district, state, or national professional outcome standards e.g., those identified by the National Association for Sport and Physical Education (2004). Rather, they elected to develop outcomes based on some self perceived “group” notion of the need for greater activities of fitness. While unit and other plans may have been in the back of their minds, comments reflecting this were not evident.

The analysis of Lesson Plan components was an attempt to simply see if teachers had effectively attended to every aspect of a traditional lesson plan. As was done with Teaching Functions, teacher statements were counted and categorized by components found on a normal lesson plan such as: (a) objectives, (b) introductory set, (c) warm up, (d) transitions, (e) content development, (f) management/formations, and (g) timeline.

Similar to what was found in the analysis of Teaching Functions, little was revealed about the “mindsets” of teachers when listening to their talk about planning components. What was more revealing was the presence or absence of statements about planning components and the order in which they were made. Quite simply, what teachers talked about (objectives, introductory set, warm up, content development, management and formations) were appropriately conducted in class. Components that were not talked about (transitions between lesson tasks, the timeline of the lesson, and closure of the lesson) were also neglected in the lesson. In this regard, it seems that this/these teacher(s) were extremely concrete in their planning i.e., there was little reflection or thoughtfulness beyond the immediate lesson. They were all about the business at hand and not what the future would bring as a function of this collaborative experience! This was essentially what was reported by Taylor and Puchner (2002) in their study of math educators when they said that prior to their collaborative study experience, teachers got bogged down in the “nuts and bolts” of teaching and tended not to be reflective and thoughtful planners.

Similar to what was found in the analysis of Teaching Functions, there was an appropriate “order” in the way teachers planned parts of a lesson. Lesson planning session #1 began with attention largely being paid to objectives and management followed by planning in session #2 for introductory set content development.

When viewed together (Teaching Function and Lesson Plan components), in spite of some planning component omissions (particularly timeline and closure), teachers largely planned for an effective class. The following discussion of systematic observation reinforces this notion.

Quantitative evaluation of teacher and student behaviors in the focus lesson

Systematic observation revealed that collaborative planning resulted in an effective lesson that produced a significant amount of time allocated to physical education teaching and high levels of learner involvement. Specifically, in real time, almost 29 of the 38 min of class i.e., over 75% of class time, was devoted towards the content of physical education. The remainder of allocated time consisted of necessary transitions (5 min) and management (4 min). While high allocations of time towards the subject matter (physical education) indicated a degree of effectiveness, the analysis of learner involvement was more revealing. As Berliner (1979) indicated in his seminal work on academic learning time, a teacher must make use of allocated time by successfully engaging students in learning experiences. The sampled students in our study were successfully motor engaged 12 of the 38 min of allocated time which is consistent with “effective” teaching behaviors noted in the research on teaching physical education literature (e. g., see compilation of research in Silverman & Ennis, 2003; Metzler, 1989). This is important in that a positive collaborative experience in planning must also result in a positive and effective class where
students are successively engaged in learning experiences. After all, it would do no good to spend all that time on collaboration unless the resulting class was a good one.

Qualitative evaluation of lesson study

As was shown in the results, collaborative lesson plan study revealed multiple themes of positive dynamics between teachers throughout the entire process. For example, the experience of collaborative planning and teaching infused a new excitement for teaching among all participating teachers regardless of teaching experience as was revealed by teacher comments during various stages of interview. The excitement seemed rooted in the satisfaction gained by teamwork and a newfound sense of professionalism and collegiality enabling mentorship. For example, one teacher wrote, “Every time we get together, I learn something. Also, if I have… a problem with a lesson or student, it is nice to have other professional input…I value that!” The process of reaching a collaborative decision about what to teach in a lesson seemed to give the teachers a great sense of pride and ownership in their “product.” They felt that they planned and implemented an effective, quality lesson plan that can be revised and added to their “toolbox” for future use. When mistakes were made, they seemed determined not to repeat them.

Regarding mentorship, the most novice teacher wrote, “…after observing such a professional teacher after her 12 years of teaching, has made me more motivated than before. Watching (name) teach made me realize I can make a difference in some students’ lives by being a great teacher and working hard at it.” A more veteran teacher wrote simultaneously, “It (the experience) made me feel more professional. I felt that (named experienced teachers) and I were serving as a role model for (novice teacher), with us being veteran teachers and her just starting her teaching career. I enjoy being able to help (novice) and be a role model for her.” These types of comments supporting the collegial process lend credence to what Lewis, Perry, and Hurd (2001) have indicated to be a strong benefit of Lesson Study.

In addition, it validates, somewhat, Katz’ (1972) notion that with strong networking and formal conversation with peers novice teachers may more easily reach more mature levels of teaching. In effect, as written earlier, the professional development of teachers can be enhanced by the regular and systematic communication of teachers on all matters regarding instruction.

This enthusiasm of teachers in our study was not short lived. The seven month follow up communication indicated a lasting excitement and an interest in getting together again. One teacher wrote, “…I continued to keep in contact with at least one of the elementary teachers at least once per week”. The benefits seemed to apply to teachers regardless of experience. However, the most experienced of the teachers (27 years) had a more reasoned perspective. She wrote, “…we don’t get much opportunity to actually plan together and collaborate, twice a year if we are lucky. So to think about doing this on a regular basis is a nice concept but unrealistic.” So, the enthusiasm for the project was tempered by logistical reality and the perceived non likelihood this would consistently happen under the present system of professional development.

Regarding professional development, collaborative Lesson Study seemed more energizing than other more traditional forms. One teacher wrote, “This was definitely a better experience than workshops we’ve gone to. We were more involved in this instead of listening to someone lecture.” So it seems that the hands on, “action research” component of the study particularly contributed to the effectiveness of the professional development experience.

Another important theme expressed primarily in the follow up with teachers involved the shift to a more in depth approach to planning as a result of the lesson study experience. During the early stages of planning for the target lesson and the immediate debriefing session, teachers were more concerned with specific details of the lesson. Important issues were identification of outcomes, content development, and even safety, time management, and facilities. Attention paid to these details heightened instructional awareness for later planning. Teachers indicated that they were more thorough and reflective in subsequent planning on their own. It seems the attention to detail brought to the planning and follow up meetings made a lasting impression about the many faceted considerations for planning. One teacher wrote after a 7 mo time period, “I probably put more thought into my lessons now than I did before. It forced me to look deeper into my lesson than I had in the past.” Another wrote, “One of the things I got out of this project was the need to look deeper into what I teach and why I am teaching it. It helped me have significance for each lesson.” This shift to a greater and deeper focus on planning and teaching is consistent with what Taylor and Puchner (2002) found in a different context with different timelines and confirms and extends this notion first presented by Fernandez, Cannon, and Choksi (2002) that Lesson Study produces this outcome.

Conclusion

It can be concluded that Lesson Study planning is a professional development approach that helps teachers move more towards a desirable level of teaching effectiveness. Specifically, this study reinforced the notion that formal conversation and networking can result in a deeper and more reflective planning and evaluation of a lesson. It can be assumed if Katz (1972) model holds true, that this would also help beginning teachers arrive more quickly at a greater level of instructional maturity and invigorate teachers with extensive experience. In our study at least, collaborative Lesson Study approach seemed more amenable than more traditional forms of professional development such as attending conferences and in service lecture days that are out of the context of the classroom itself.

Drs. David Cluphf and E. William Vogler are faculty members at Southern Illinois University Edwardsville

References


study collaboration reveals critical lenses for examining practice.


