Effects of Implementing a Formative Assessment Initiative

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Abstract

This study supports the work of Black and Wiliam (1998), who demonstrated that when teachers effectively utilize formative assessment strategies, student learning increases significantly. However, the researchers also found a "poverty of practice" among teachers, in that few fully understood how to effectively implement formative assessment in the classroom. This qualitative case study examined a voluntary series of formative assessment workshops offered at one public middle school designed to enhance school-wide practice. Results indicated growth in capacity among volunteers. Non-participating teachers also reported greater use and understanding of formative assessment. The workshops' contemplative, collegial, professional learning community structure also shaped participants' experience in important ways. Implications for practice, leadership and further research are discussed.

Keywords: formative assessment, differentiated instruction, professional development, adult learning principles, contemplative leadership

Effects of Implementing a Formative Assessment Initiative

Modern school administrators live in an age of choice. Educational consultants and test companies offer principals and superintendents potential solutions to their possible and imagined problems. Presented with an overabundance of programmatic options for implementing school-wide and district-wide instructional initiatives, school administrators should carefully discern their cognitive value and predicted effectiveness. However, when these options are combined with imposed senses of urgency from state departments of education and local boards of education, leaders sometimes neglect the

reflection necessary for making sound decisions.

School leaders are not entirely to blame for craving quick fixes to deep issues, applying bandages to gaping wounds, or seeking 24-hour cures for illnesses that have incubated for years. High-stakes accountability systems and the No Child Left Behind Act of 2001 (NCLB) ushered in a form of public data reporting that, when misinterpreted, cost some schools and educators reputations and jobs. Rather than seek their problems' root causes, administrators and teachers scrambled to "fix" their test scores. When they did, they sought to broaden their schools' program bases by purchasing off-the-shelf, packaged curricula, instead of simply focusing on good classroom instruction.

Schools needed teachers who clearly understood the curricular standards for which they were responsible, and who could communicate those standards in ways their students understood. Teachers needed to be able to assess their students' progress toward standards. Teachers then needed to be able to take logical next steps informed by assessment-derived data. These next steps would lead to differentiated instruction – helping students meet the standards, or enhancing the students' learning who had already met them. Schools did not need more test-taking strategies. Schools needed to equip their teachers with an instructional process proven to increase student achievement by clearly communicating progress toward an objective and aiding, through intervention and detailed feedback, progress toward meeting that objective. Schools needed formative assessment.

Schools and school districts did *not* need more programs; however, old habits die hard, and throwing money at instructional problems was an old habit plaguing public education. Some school and district leaders became so dependent upon off-the-shelf programs that they neglected the basic professional development needs of their teachers – needs that they could meet themselves with an appropriate amount of research, forethought, planning, time, and involvement. Opting against a strictly programmatic implementation of a formative assessment initiative, the researcher, with colleagues in a Kentucky public school district, aimed for what we hoped would be a cognitively deeper journey.

The researcher utilized a single-case study approach to examine one collegial group's experiences with the formative assessment concept and process. Fourteen educators (12 teachers, one curriculum specialist and one principal) volunteered to participate in a *Formative Assessment Academy* series of professional development workshops led by the researcher. This study explored the six-month long process of implementing the Academy and evaluating its effectiveness.

Background and Review of Relevant Literature

Formative Assessment and Kentucky's Core Academic Standards

In 2009, Kentucky's newly-drafted Senate Bill 1, or *SB1*, (S. Bill 1, 2009) included a definition of *formative assessment*, the first time the term was ensconced in state law. The Kentucky Association for School Councils (2010) described formative assessment as, "a process used by teachers and students during instruction to adjust

ongoing teaching and learning to improve students' achievement of intended instructional outcomes" (p. 7). The definition implied more than the traditional means of assessment *of* learning (Assessment Reform Group, 1999). Formative assessment was different than testing students at the end of units of study and then assigning grades for performance. Formative assessment was a process, and was usually ungraded and given back to students with descriptive feedback indicating levels of progress or denoting next steps for instructional and learning strategies (Popham, 2011b). Traditional assessment was only part of the entire formative assessment process.

Simultaneously, in 2010 Kentucky became the first state to adopt the *Common Core State Standards* (Common Core State Standards Initiative, 2010) in English/language arts and math before final drafts were even completed. Kentucky educators started working with the new standards in a series of network meetings beginning summer 2010. In addition to guiding familiarity with the new standards, and promising fewer but deeper standards, facilitators from the Kentucky Department of Education also versed network participants in the language of Professional Learning Community (PLC) models and, implicitly, communication and organizational change theories. Teachers and administrators also practiced methods for recognizing effective classroom-level formative assessment, a centerpiece of this state-mandated "balanced assessment" approach, at these initial network meetings.

Most teachers acknowledged the formative assessment process as a best instructional practice before it was enacted into law; however, most also had merely a

nebulous understanding of the whole process and how to overcome its logistical

challenges (Popham, 2011a). Others, though, formatively assessed their students

instinctively, particularly in elementary grades where standards-based reporting and

anecdotal record keeping were more commonplace. A primary reason for this informal,

unintentional implementation of formative assessment was that classroom teachers had

not been given ample opportunities to study the research supporting it or to adequately

practice and reflect on teaching strategies to foster it (Chappuis, Commodore, & Stiggins,

2010). As a public school district administrator, the researcher had to own that fact, and

then attempt to locally respond to the situation, beginning with self-study of the

formative assessment process.

Formative Assessment

Scriven (1967) first utilized the terms *formative* and *summative* when writing

about two possible purposes of evaluation. Bloom (1969) stated that the terms could also

be applicable to teachers who specifically wanted to assess student progress toward a

standard. Bloom (1971) soon introduced the foundation of assessment for learning (or

formative assessment) in the *Mastery Learning* instructional model. Bloom's Mastery

Learning model stipulated that students would not progress to new concepts and

objectives until they met, or mastered, previous ones. Later models mirrored Bloom's

work. These models also employed the following process: unpacking (or *deconstructing*

as it is currently known) state curricular standards into smaller, teacher-friendly learning

objectives; writing student-friendly learning targets; grouping those targets into learning

progressions; and finally differentiating or providing interventions for students after formatively assessing their progress toward learning targets. Formative assessment, then, was the key to completing the cycle of teaching, assessment, and revised teaching. Popham (2008) advanced Bloom's model with his own learning progression work. According to Popham, teachers should formatively assess students using groups of learning targets, called progressions, which built upon each other and culminated in a significant "target curricular aim" (p. 24).

Fuchs and Fuchs (1986) completed a meta-analysis of 21 controlled events to test the instructional effectiveness of formative assessment, primarily focusing on students with learning disabilities. Their findings revealed such dramatic increases in learning and achievement that the researchers recommended formatively assessing special education student Individual Education Plans (IEPs) over traditional IEP evaluation methods. The research of Fuchs and Fuchs not only added to the foundational base for formative assessment but also to that of Response to Intervention (RTI), which, when employed in conjunction with formative assessment and appropriate differentiation of instruction, comprised an overall more effective picture of a school and district instructional program.

Forty-four years after Scriven (1967) first publicized the terms *formative* and *summative*, they were current buzzwords in education. But, like other common educational terms (e.g., the acronym PLC for Professional Learning Community), they were also becoming distorted in their overuse and misinterpretations for individual

purposes. Cauley and McMillan (2010) clarified:

One way to think about formative assessment is to contrast it with summative

assessment. Although formative assessment can be performed after a test, effective

teachers use formative assessment during instruction to identify specific student

misunderstandings, provide feedback to students to help them correct their errors, and

identify and implement instructional correctives. (p. 1) Teachers had long used

summative assessment measures as standard-markers of student achievement. Likewise,

states measured school effectiveness using summative procedures. Formative

assessment, though (with its sibling, interim, or *interim-benchmark*, assessment) only

recently garnered the attention previously afforded summative assessment.

Taken together, formative, interim and summative assessments comprised what

became commonly known in school districts as components of a *balanced assessment*

system (Chappuis et al., 2010). Popham (2011b) had little use for interim assessments,

stating that no research-based evidence existed to prove their instructional effectiveness.

Chappuis et al. (2010) contended that of the three assessment possibilities daily

classroom-level assessment for learning (or formative assessment) was most integral to

student improvement and success. The authors stated that teacher and administrator

assessment literacy was a prerequisite for successful formative assessment

implementation. They also placed the onus of responsibility for teaching assessment

literacy and effective use of formative assessment squarely on the shoulders of school

administrators and higher-education authorities. Ironically, they wrote that even though

research had proven formative assessment's effectiveness, "historically, (classroom-level formative assessment) has been almost completely ignored as a school improvement tool"   (p. 16). Schools needed formative assessment, but school leaders had not proven that they could support a formative assessment initiative that would translate to meaningful change.

Primarily, it was the researcher's experience that teachers recognized classroom formative assessment strategies as best practice. They received cursory introductions to the concept in teacher education courses. A few were even able to cite foundational researchers. However, many university and school district leaders had not intentionally equipped teachers with the tools necessary to successfully implement formative assessment. Holman (2007) recognized the logistical challenges for traditionally-trained teachers, admitting that the process of deeply implementing daily classroom formative assessment required a three-year cultural paradigm shift on the parts of all school stakeholders (including teachers, administrators, parents, and students). Nearly ten years earlier, Black and Wiliam (1998) bemoaned, "There is a wealth of research evidence that the everyday practice of assessment in classrooms is beset with problems and shortcomings" (p. 141).

Teachers fostering new ways of thinking about formative assessment practices steeped themselves in the foundational *Black Box* study (Black & Wiliam, 1998). Black and Wiliam (1998) explored these questions: "Is there evidence that improving formative assessment raises standards? Is there evidence that there is room for

improvement? Is there evidence about how to improve formative assessment?" (p. 140). Educators who read and reflected upon this study discovered its findings could inform their own practice, and that formative assessment positively affected student achievement, particularly "low achievers more than other students and so reduces the range of achievement while raising achievement overall" (p. 141). Reflecting on the seminal study, Black, Harrison, Lee, Marshall, and Wiliam (2004) later wrote, "We were convinced that enhanced formative assessment would produce gains in student achievement, even when measured in such narrow terms as scores on state-mandated tests" (p. 11). Other researchers explored and confirmed additional components of effective formative assessment. Researchers such as Cauley and McMillan (2010) and others (Chappuis, 2009; Sadler, 1989), for example, noted the power of student self-assessment and descriptive feedback as integral components of a balanced assessment system generally, and of effective formative assessment specifically, targeting not only student achievement but also student motivation. Chappuis et al. (2010) argued that student motivation was a necessary precursor to student achievement.

Additionally, an undeniable component of the formative assessment process is differentiated, or adjusted, instruction. Tomlinson et al. (1995) described teachers' awareness of classroom differentiation needs as "awareness of the needs of academically diverse learners" (p. 1) and differentiation as "[implementing or modifying] instruction to meet those needs" (p. 1). The researchers studied groups of preservice teachers after two separate treatment groups either a) participated in a one-day differentiation workshop or b) participated in a one-day differentiation workshop and worked with a curriculum

coach on differentiation strategies during their student teaching experiences. Participants

in both groups still identified differentiation as a professional growth area after the study.

Generally, teachers understood the differentiation concept; however, because

teachers lacked training, their logistical concepts of classroom-level differentiation halted

classroom implementation. Reiss et al. (1998) later refined a definition of differentiation

as follows:

> accommodating learning differences in children by identifying students' strengths
> and using appropriate strategies to address a variety of abilities, preferences, and
> styles. Then, whole groups, small groups, and individual students can equally
> engage in a variety of curriculum enrichment and acceleration experiences.
>
> (p. 75)

The authors recognized though that, like the preservice teacher groups in the

previous study, many teachers were not comfortable differentiating instruction. Because

they were not comfortable, they simply did not differentiate.

According to Reiss et al. (1998),

> In a survey of randomly selected 3rd and 4th grade teachers in public schools, 61
> percent indicated that they had no training in meeting the needs of high-achieving
> students in heterogeneous classrooms. Fifty-four percent of the responding
> teachers in private or independent schools indicated that they had no background
> or training in meeting the needs of such students. We also know that preservice
> and novice teachers understand, but do not have the background and skills to
> address, the diversity in levels of achievement and aptitude for learning in the
> classroom. (p. 75)

Tomlinson (1999) then succinctly described differentiated instruction as

"personalized instruction" (p. 12). While earlier definitions highlighted differentiation's uses for traditionally identified *gifted* students, Tomlinson's explanation implied differentiation's use for *all* students. The author also recognized that while teachers recognized differentiation's value, differentiation "causes us to grapple with many of our traditional – if questionable – ways of 'doing school'" (p. 12). Tomlinson also articulated teachers' frustrations with the concept's logistical challenges: "The nature of teaching requires doing. There's not much time to sit and ponder the imponderables" (p. 13). The author concluded though, "To make differentiation work – in fact to make teaching and learning work – teachers must develop an alternative approach to instructional planning beyond 'covering the text' or 'creating activities that students will like.'" (p. 14). Teachers did not have time to work out differentiation's inevitable challenges, but paradoxically they needed time to develop new ways of doing their work.

Schmoker (2010) took this time spent on differentiated instruction's "widespread adoption" and its "architect" [Tomlinson] to task (p. 22). The author stated that differentiated instruction was not supported by research and that its attempted implementations

> seemed to complicate teachers' work, requiring them to procure and assemble multiple sets of materials. I saw frustrated teachers trying to provide materials that matched each student's or group's presumed ability level, interest, preferred "modality" and learning style. The attempt often devolved into a frantically assembled collection of worksheets, coloring exercises, and specious "kinesthetic" activities. And it dumbed down instruction: In English, "creative" students made things or drew pictures; "analytical" students got to read and write. (p. 22)

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Instead of differentiated instruction or other "fads," Schmoker contended that schools

first focus on "coherent, content-rich *guaranteed* curriculum" (p. 23).

Tomlinson and Sousa (2010) contended that while Schmoker (2010) claimed to

disagree with differentiation, the author actually supported one of its primary tenets –

good instruction begins with clear curriculum. Tomlinson and Sousa wrote,

> [Schmoker] paints a picture of differentiation that is chaotic, counterintuitive, and implemented apart from any knowledge of effective curriculum and instruction. [We] don't doubt that he has witnessed these aberrations. We have also seen such teaching and find it troubling. But we have also witnessed administrators and teachers working in a principle-guided, consistent, and coherent way to ensure that the model is implemented with fidelity. That some school leaders and teachers engage in an educational approach with little or no understanding of the model they claim to use is regrettable and damaging. (p. 28)

According to the authors, differentiated instruction was an integral component of

Schmoker's (2010) "coherent . . . curriculum" (p. 23), but some teachers and

administrators lacked training to effectively utilize differentiation principles.

Teachers and administrators who lacked differentiation training would always

struggle to effectively differentiate classroom instruction. Tomlinson and Imbeau (2010)

wrote, "A teacher who has the best intentions, dynamic curriculum, and plans for

differentiation cannot – and will not – move forward unless that teacher is at ease with

translating the ideas into classroom practice" (p. 72).

The formative assessment process, then, could increase student achievement

through continuous progress monitoring and adjusted, or differentiated, instruction as

measured by various methods, including those that resulted in NCLB public reporting.

Formative assessment initiatives needed sound structures to ensure their intentional and lasting implementations, though. Similar instructional initiatives utilized the Professional Learning Community structure. Some leaders found that this familiar structure might also support the implementation of a formative assessment initiative.

Professional Learning Communities

It was important that schools focus on a few things at a time and implement those few things correctly and to fidelity (Schmoker, 2011). The structure by which schools did this work was equally important. Recognizing this need, a handful of innovative educators devised Professional Learning Communities (PLC's) to give schools focus and consistency in their improvement efforts.

Teachers and school administrators once worked in isolation. Administrators proceeded with the minutiae of running schools while teachers closed their individual doors and went about their own business. Those were days when a solitary method of working was status quo; those were also days of curricular chaos combined with comparatively minimal school accountability. However, with school reform, organized curriculum maps informed by state standards replaced chaos. High-stakes accountability systems that measured student learning, but also teacher and administrator effectiveness, replaced minimal accountability. Additionally, this method of accountability resulted in sanctions and improvement plans for schools and districts that did not meet a prescribed standard. Most disquieting to some, work that necessitated opening classroom doors, administrator visibility, and collegial cooperation replaced isolation.

The culture shift from isolation to inclusion was difficult for some teachers who were accustomed to and preferred separation. Holdouts from the era of isolation encountered difficulty in the forms of parent complaints and corrective action plans. Administrators were also challenged to shift from roles of school managers to those of instructional leaders. However difficult the transition, a modern school whose faculty members do not currently operate under some auspice of a Professional Learning Community is rare.

Components of Professional Learning Communities were long evident, not only in schools but also in other societal sectors. Social Identity Theory (Tajfel, 1970, 1972, 1978, 1981; Tajfel, Billig, Bundy, & Flamant, 1971; Tajfel & Turner, 1979), implicit in the structure of PLCs, helps explain why they work. Summarized, the theory stated that group members followed the expected rules and behaviors set forth by their other colleagues within the same group. The theory also stated that group members identified with other members of their group even when the individuals had little in common other than the group's work. Social Identity Theory explains why PLCs, intentional in their processes, *unintentionally* and informally function as they do. All social groups instinctively operate that way. However, the intentional, formal aspects of real Professional Learning Communities explained why meaningful ones worked, and, in contrast, why some groups were PLCs in name only.

DuFour and Eaker (1998) built upon small group communication components of Social Identity Theory (Tajfel, 1982) and organizational change theory (Kotter, 1995;

1996) to make the PLC structure marketable. Professional Learning Communities would distinguish themselves from other school-based group meetings. True PLCs would be job-embedded, collegial groups of teachers and administrators who worked together for positive change in curriculum, instruction, or assessment. The authors and others in their *Professional Learning Communities at Work* organization offered numerous resources (DuFour & Eaker, 1998; DuFour, DuFour, Eaker, & Karhanek, 2004; DuFour, Eaker, & DuFour, 2005; DuFour, DuFour, & Eaker, 2006; Eaker, DuFour, & DuFour, 2002; Eaker, DuFour, & DuFour, 2007; Graham & Ferriter, 2009; DuFour, DuFour, Eaker, & Karhanek, 2009; DuFour, DuFour, Eaker, & Many, 2010; Campbell, 2011) and professional development opportunities. Unlike some of their contemporaries, though, DuFour and Eaker (1998) were clear that PLCs were not a NCLB magic bullet. DuFour and Eaker emphasized the need for shared group norms and a focus on the important issues of running a school (e.g., curriculum, instruction, assessment). Only PLCs maintaining this kind of focus deserved the title "PLC."

A group of unique individuals with distinct personality types could only achieve a common purpose, vision, and mission using a structure of meaningful Professional Learning Communities (PLCs) that remained true to their original focus on curriculum, instruction, or assessment. Higher-functioning PLCs collaboratively developed group norms to guide their work (DuFour & Eaker, 1998). PLCs were not for advancing group members' individual agenda items; PLCs operated ultimately for transforming curriculum, instruction, and assessment for the good of the student (DuFour & Eaker,

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1998). Eaker et al. (2002) confirmed the following:

Schools that function as professional learning communities are *always* characterized by a collaborative culture. Teacher isolation is replaced with collaborative processes that are deeply embedded into the daily life of the school. Members of a PLC are not 'invited' to work with colleagues: they are called upon to be contributing members of a collective effort to improve the school's capacity to help all students learn at high levels. (p. 5)

PLC implementation could not happen overnight. PLCs could not provide quick fixes to change issues requiring deep thought, planning, and reflection. According to Eaker et al. (2002),

While embracing the abstract idea of the PLC model, (some school and district leaders and teachers) lack confidence in their ability to move from abstraction to implementation, from promise to reality in their own settings. Thus, it is common for participants in our workshops to seek the step-by-step recipe they can follow to create a PLC in their own school. The bad news, of course, is that no such recipe exists. (p. 2)

Additionally, following its inception, the term "PLC" became such a buzz phrase in the education community that thoughtful school leaders were forced to spend time educating their teachers about the differences between a true PLC (which might focus on deep curricular change) and a traditional faculty meeting (which might focus on upcoming school events or other such "business" items). When implemented with fidelity, PLCs provided the logistical and structural basis for implementing change

focused on elements of a school's or district's instructional program.

School leaders could support a meaningful Professional Learning Community in order to implement a formative assessment initiative. To do so, they would also have to embrace the organizational change theory that was integral to both.

Application of Change Theory for Deep Implementation

Even supported by the structure of a high-functioning Professional Learning Community, a formative assessment initiative required deep institutional change, not only in instructional practice but also in culture. Change theories helped illustrate why such initiatives requiring deep, and initially overwhelming, change could still be successful.

Nash (2010) synthesized organizational change theory of Kotter (1995, 1996), Senge (1990), Heifetz (1994), and Heifetz and Linskey (2002) and studied not only effects on implementation, but also long term effects on the school reform process. Using a framework that embodied their major themes of leadership, vision, teamwork, and action implementation, Nash used each of the themes as separate measures of a reform effort's effectiveness. Also, Molacek (2008) applied Kotter's (1995, 1996) change theory and Rogers' (1995) Diffusion Theory to evaluate the effectiveness of a piano keyboarding initiative implementation in a rural public school district.

Additionally, Herr (2006) explored change implementation in three private higher education institutions. Herr specifically analyzed leaders' roles using only Kotter's

(1996) eight-step change process. DuFour and Eaker (1998) cited Kotter's (1996)

principles of successful change for PLC work to be lasting and effective because much of

the work on which these collegial learning communities centered was that of impending,

or occurring, change in a school or district.

Kotter (1995) broke change phases into eight distinct steps. Kotter identified the

following: creating a sense of urgency, forming a powerful coalition, creating a vision,

communicating the vision, removing barriers, creating short-term wins, building on

change, and anchoring the change in the organization's culture. Considering these steps,

the researcher drew parallels to Kotter's change theory and the implementation of a

formative assessment initiative known as *The Formative Assessment Academy*.

The Formative Assessment Academy

When formative assessment became a component of legislation, the researcher

was an instructional supervisor in a Kentucky public school district. After a yearlong

curriculum revision process during which teachers in the district unpacked standards and

rewrote them as student-friendly learning targets, some teachers and administrators grew

eager for the next step. We were a small district, but even in small districts schools

operate at their own paces and knowledge levels. One school, whose teachers and

administrators deeply engaged in the curricular revision process, and who regularly

revisited it in high-functioning Professional Learning Communities, was ready for the

next instructional step before the others. When the principal approached the researcher

and another administrator colleague about moving forward, we were initially

apprehensive about taking the formative assessment leap before we felt they were ready, but we agreed to test the waters.

We presented a summary of and rationale for all the work we had done with curricular standards and learning targets to this school's entire staff. Then, we offered a vision of where this work was leading us. In essence, we restated what most of those teachers and administrators already knew: the learning targets we had spent the previous year writing and revising meant very little as stand-alone statements. Yes, communicating standards in student-friendly terms was already exponentially more effective than simply rewriting a standard on the board straight from the state's curriculum document. We knew these teachers sensed there was another purpose though. That purpose was for the means of better formatively assessing their students. More effective formative assessment processes would translate to increased student learning and achievement.

The researcher and his colleague demonstrated how the formative assessment process fit within the greater instructional program of the school and district. In this demonstration, we created the model shown in Figure 1 to illustrate the components of a high-functioning school district's instructional program. A PLC structure supported all initiatives that were currently in place. These initiatives informed and were informed by the others; none could effectively survive in isolation.

We explained in general terms the formative assessment process and how teachers might implement and manage it in their classrooms. Teachers viewed examples of some

formative assessment strategies and reflected on what they were already doing that could be considered components of the greater formative assessment process. Then we offered what their principal claimed they had been asking for.

Beginning the next month, we would meet after school in a Professional Learning Community to collegially study the formative assessment process. The researcher felt that the PLC structure was integral to the academy's delivery, and these teachers did not question it. During the meetings we would remain focused strictly on curriculum, instruction, and assessment decisions made for the improvement of student learning. And we would collegially help each other internalize and implement the content so that we operated in a safe, contemplative environment. These teachers knew how real PLCs operated, as opposed to faculty or committee meetings masquerading as professional learning communities. Because of this, they maintained high expectations for each other's commitment and active participation.

We would not offer professional development credit for the meetings. Enhanced professional learning was the only enticement. The researcher did not promise to make the participants formative assessment and differentiation experts; however, we did promise to collegially explore issues surrounding these topics. We would study research, look at strategies, discuss practices, and help each other become better practitioners. And it would be strictly voluntary. If teachers wanted to participate, then they would be expected to fully participate (e.g., in discussion, in practice). By the end of the final session, participants would also be prepared and expected to share their knowledge with

others. If they felt that they were not ready for this step, then there would be no retribution for non-participation.

Six of Kotter's (1995) eight change theory steps could be identified at the onset of the initiative. The researcher created a sense of urgency, created a vision, and communicated the vision in the initial presentation. The volunteers and their administrators became our powerful coalition. The voluntary, after-school component and structure of the meetings removed any self-imposed barriers of time, while the researcher's support of participants also aided in removing barriers of risk. Too, operating as a true, collegial PLC removed much of what might have manifested as a barrier of competition. Participants were allowed short-term wins when they used the research and strategies immediately in practice. The researcher combined learning community philosophy (DuFour & Eaker, 1998; DuFour et al., 2005) with the contemplative leadership concept (Merton, 1961, 2004; Steindl-Rast, 1999; Palmer, 2000) to create a unique, special community where being wrong was okay and where being vulnerable was accepted.

This first incarnation of the Formative Assessment Academy met monthly over a period of the following five months. Sixteen educators initially volunteered to participate in the Academy during which they would read and discuss relevant research, apply that research to practice, learn new classroom strategies, and collegially debrief strategies implemented after the last meeting. By the onset of the first session, the number was 15, and finally, after concluding the first session, settled at 14 (12 teachers, one curriculum

specialist, and one principal) after one teacher opted out of workshop participation.

Research Problem

Due to an increasing need for the knowledge and practice of high-quality classroom-level formative assessment strategies, 14 educators participated in a five-meeting formative assessment initiative over a period of six months. This Formative Assessment Academy's ultimate goal was to enhance classroom practice. The researcher sought to equip teachers with foundational knowledge of classroom-level strategies, along with tools and increased levels of confidence in their own abilities to disseminate the pedagogy to their teaching-team colleagues.

This study investigated perceptions of improved or increased pedagogical knowledge of a group of Kentucky public middle school educators after their participation in a voluntary, PLC-supported formative assessment initiative. The group operated as a Professional Learning Community, following the tenets set forth by current practitioners of the model (DuFour, 1997; DuFour, 1999, McTighe & Emberger, 2006; Schmoker, 2001; Stiggins, 1999; Stiggins & Chappuis, 2006) and of the communication theory on which it was implicitly based (Tajfel & Turner, 1979; Turner, 1982).

Rationale

The rationale for the current study is twofold. First, research indicates that

assessment for learning, or formative assessment, helps students learn. Black and Wiliam (1998), though, identified a "poverty of practice" (p. 141) among classroom teachers regarding their use of formative assessment. In other words, teachers could not effectively practice strategies with which they were not equipped. While Black and Wiliam first noted this pedagogical deficiency, Chappuis et al. (2010) placed the onus of responsibility for it on school and district-level administrators and higher education authorities.

Second, at the time of this writing, many states were undergoing curricular standards revisions. In February 2010, Kentucky became the first state to adopt the *Common Core State Standards* in English/language arts and mathematics (Common Core State Standards Initiative, 2010). The standards adoption partially answered requirements of Kentucky's *Senate Bill 1* (S. Bill 1, 2009); however, it did not fulfill all of the requirements. When Kentucky's governor signed SB1 on March 25, 2009, it contained a definition of "formative assessment" and a call for districts across the state to institute "balanced assessment systems" – systems of equitable uses of classroom-level formative, interim-benchmark, and summative assessments (Kentucky Association Professional Educators, 2010).

The ultimate purpose of the current study, then, was to provide school leaders who were seeking to build capacity among their teachers and who were seeking to meet the letter of the law, but in a meaningful way, an implementation process to follow.

Research Questions

Four research questions frame this study:

1. What role did a professional learning community structure play in shaping
   participants' perceived effectiveness of a voluntary formative assessment
   initiative?

2. How did this initiative affect participants' perceptions of their knowledge of formative
   assessment and differentiation strategies?

3. How did it affect participants' perceptions of their abilities to teach others about
   formative assessment and differentiated instruction?

4. How did it affect school-wide use of classroom-level formative assessment strategies?

Conceptual Framework for the Study

Formative assessment implemented effectively results in positive instructional
change (Black & Wiliam, 1998, Fuchs & Fuchs, 1986). However, leaders must consider
adult learning needs for effective implementation of a formative assessment initiative
(Drago-Severson, 2008). Additionally, one-day professional development sessions are
not as effective as the same learning in a collegial group over time (Chappuis et al.,
2009). These collegial groups form a cohesive structure, in part because of their
subconscious observance of Social Identity Theory (Tajfel & Turner, 1979; Lave &
Wenger, 1991; Wenger, 2007) principles.

The reviewed literature formed a conceptual framework for the *Formative
Assessment Academy* conducted in the case study school district (see Figure 2). In the

Formative Assessment Academy, formative assessment research and literature was disseminated via a collegial learning group operating according to Professional Learning Community principles. As the facilitator of this learning group, the researcher adhered to adult learning principles by encouraging collegial, job-embedded inquiry and practice. Participants implemented research-based strategies over time and reflected on their practice in order to refine it. The researcher and colleagues offered leadership support to participants; additionally, participants collegially supported each other. Finally, the Formative Assessment Academy's primary goal was to effect meaningful classroom practice change.

In this study, the researcher hoped to demonstrate enhanced pedagogical knowledge for voluntary participants in a PLC-supported formative assessment initiative and for their non-participant teaching colleagues. The researcher also hoped to discover patterns in data that suggested the Formative Assessment Academy model's effectiveness in order to provide a framework of implementation for other school and district instructional leaders.

Method

The researcher used a naturalistic, single-case study approach. Since subjects in the current study were limited to participants in the original formative assessment initiative, their colleagues, and their administrators, this study utilized a somewhat modified form of purposeful sampling. The sampling was modified in that, while subjects in this research study were limited, subjects in the original initiative were only limited by

their teaching in the specified school where the formative assessment initiative took place. Participation in the initiative was voluntary. Therefore, this seeming limitation should not diminish the power of purposeful sampling. The researcher conducted semi-structured interviews with all participants. Thematic patterns emerged from transcribed interview responses. Interview data were coded using constant comparative analysis (Glaser & Strauss, 1967). The researcher examined and categorized each interview response. However, the process was recursive. Previous categories were reviewed each time a datum was coded and categorized. The researcher achieved trustworthiness of data through member checks (Lincoln & Guba, 1985), thick description and a rich narrative (Geertz, 1973; Miles & Huberman, 1994), and partial triangulation (Denzin & Lincoln, 2008).

While the Formative Assessment Academy approach later spread to other schools within the same district, and is now being utilized by other surrounding school districts, this study concentrated solely on the first incarnation of the formative assessment initiative model. Other implementations of the Formative Assessment Academy may illuminate next steps for further research; other questions may be answered. For the purposes of this study, though, the researcher examined only the first Formative Assessment Academy initiative.

Participants

Nine of the twelve teachers who participated in the Formative Assessment Academy agreed to be part of this research study. One former principal, now a district

administrator, participated in the initiative; one former curriculum specialist, now serving

in a different role in the district, also participated in the initiative. Both agreed to be part

of this research study. Additionally, six of the teacher-participants' colleagues, one from

each of the teaching teams represented in the original formative assessment initiative,

participated in this study, as did their current assistant principal. The researcher used

random sampling to choose teacher participants' colleagues for interviews when possible.

In some cases, only one non-participant colleague per teaching team was available for an

interview because of teacher absence or teacher supervision duties. Regardless,

participants and non-participants from each teaching team in the school participated in

the study. The superintendent of schools also agreed to participate. While the

superintendent did not attend the Formative Assessment Academy sessions, his

perception of the initiative's effectiveness was an important one to include. Table 1

demonstrates relevant teacher participant demographic information of those who

consented to participate in this study.

Table 2 demonstrates relevant research study administrator demographic information.

For the purposes of this table, "relevant role" denotes the administrator's role during the

Formative Assessment Academy initiative, and not the administrator's current role.

Table 3 demonstrates relevant teacher demographic information of the Formative

Assessment Academy participants' colleagues who agreed to be part of this study.

Data Collection

The researcher approached data collection as a form of historic artifact collection

(Busha & Harter, 1980). The researcher collected and recorded perception data as participants articulated them. Data collection consisted of semi-structured interviews with teacher participants, teacher participants' colleagues, and administration. Administration in this context is defined as former school principal, present school assistant principal, former school curriculum specialist, and school district superintendent. The researcher constructed three sets of interview questions, which were approved by the Institutional Review Board, for use with the three stakeholder groups.

Data Analysis

Thematic patterns emerged from transcribed interview responses. The researcher utilized *naturalistic inquiry* (Lincoln and Guba, 1985) and followed an interview protocol. However, the results of the protocol, while predicted, were not guaranteed. The researcher's primary goal was to allow a datum to speak first for itself. The researcher then detected emerging data patterns.

The researcher assigned pseudonyms and codes to respondents and responses to aid in this pattern detection (Saldaña, 2009). Besides maintaining anonymity of research subjects, another reason for coding was to lend credibility to the qualitative narrative. Interview data were coded using constant comparative analysis (Glaser & Strauss, 1967). The researcher examined and categorized each interview response. However, the process was recursive. Previous categories were reviewed each time a datum was coded and categorized. This procedure allowed the researcher to be cognizant of emerging patterns in the data not at first evident.

Limitations

One limitation of this study was the comparatively small number of subjects who participated. This reflected the very nature of such purposeful sampling. However, the researcher's personal investment of time in conceiving the original Formative Assessment Academy was the primary limitation. Another related limitation of the study was the researcher's professional relationships with all research subjects.

To somewhat respond to questions of relational bias, the researcher offers the following: while employed by the school district, the researcher worked closely with teachers and administrators regarding curricular and instructional issues. Additionally, the researcher worked at length with teachers and administrators to foster a positive, open, collegial way of working and communicating with one another through the aid of Contemplative Leadership principles (The Merton Institute for Contemplative Living, 2010) and Enneagram personality-typing models (Riso, 1987; Riso & Hudson, 1999; Lapid-Bogda, 2004, 2007, 2009; Naranjo, 1991; Wagner, 2010). The researcher is confident that issues of relational bias, either on the part of the researcher or on the parts of the research participants, were moot during the interview process, and during the subsequent analysis and reporting of data.

Results

Subjects perceived a link between the Formative Assessment Academy's effectiveness and its Professional Learning Community structure. Participants said their understanding and use of formative assessment strategies had increased as a result of participating in the Formative Assessment Academy and were actively sharing their new

knowledge with colleagues. While participants reported that their knowledge of differentiation also increased, teachers believed this remained a significant growth area for their instructional practice. Administrators, however, believe the teachers were differentiating more than they realized.

Table 4 illustrates all research subjects' names and professional roles in the study. Research subject names and the name of the school and district (Worthe Valley Middle School; Worthe Valley School District) are pseudonyms.

Research Question 1: The Role of the PLC Structure

The Professional Learning Community structure played an important role in the conception and sustainability of the Formative Assessment Academy professional development model. Research Question 1 examines the structure's effectiveness. The researcher's findings suggest connections between participants' perceptions of the PLC's effectiveness, adult learning theory, and previous literature. If participants responded affirmatively to the Academy's effectiveness, the researcher asked participants to what they attributed its success. Consistently, participants explicitly referenced the Professional Learning Community structure, implicitly noted principles of high-functioning PLCs (e.g., collaboration), or both. Table 5 illustrates Formative Assessment Academy participants' (teachers and administrators) responses.

Principal Jennifer Barnes explicitly connected the *implicitly* collegial nature of the Formative Assessment Academy PLC to increased student achievement at Worthe

Valley Middle School:

> Grades have improved. You walk into the classrooms and the learning
> environment has been adjusted to match teaching and learning styles. The
> collegial talk you hear – the discussions – they [WVMS teachers] feel like the
> students have been more successful. And they feel as if they have helped *all*
> students, and not just those who come to their classrooms eager to learn. (JB,
> 5/20)

Ms. Brewer's comments echoed previous researchers' and authors' findings on true PLCs (Black et al, 2004; DuFour & Eaker, 1998; Jackson & Street, 2005; Reeves, 2009) and principles of more effective adult learning (Drago-Severson, 2008).

Figure 3 isolates six of the eight components in the researcher's Formative Assessment Academy conceptual model. These six inner components demonstrate the Professional Learning Community tenets' and adult learning principles' integral connection to the Formative Assessment Academy's effectiveness. Figure 3 demonstrates how the researcher provided job-embedded formative assessment professional development teacher workshops in collegial learning groups known as Professional Learning Communities. Teachers practiced collegial inquiry to implement and refine strategy implementation over time. The researcher and other colleagues provided leadership support. Arrows demonstrate these six components' interconnected nature.

Teachers and administrators at Worthe Valley described numerous features of a professional learning community emerging as a result of their participation in the Formative Assessment Academy, suggesting that the PLC structure contributed to the

initiative's effectiveness in enhancing teacher knowledge and use of formative assessment strategies. Table 6 illustrates evident patterns articulated by all research subjects.

Research Question 2: Participants' Perceptions of Increased Knowledge

Teacher participants reported increased uses of classroom-level formative assessment strategies. Participants also primarily attributed the increased uses to their participation in the Formative Assessment Academy. However, all teacher participants agreed that differentiation of instruction remained an area for continued professional growth. One administrator, Superintendent Clinton Schull, agreed that teachers needed more training to effectively differentiate instruction. Former curriculum specialist Violet Benedetto felt that teachers' differentiation abilities went "across a continuum" (VB, 5/20). In contrast, two administrators, Jennifer Brewer and Tyrone Ketcher, felt that teacher participants grew more in the area of differentiation of instruction than they realized or would admit. These administrators articulated parallel ideas that teacher participants would downplay their growth in the area of differentiating instruction. According to Tyrone Ketcher and Jennifer Brewer, if teachers were engaging in the formative assessment *process*, then they would have to differentiate instruction as a result of data derived from formatively assessing their students. Ketcher and Brewer suggested that when teachers adjusted their instruction as part of the formative assessment process, they were differentiating instruction, albeit informally and unintentionally. Tyrone Ketcher stated:

I think that they have done it more than they believe that they have done it. I

would say they would tell you that they are not confident at all in differentiating instruction. I think they do it, but they don't pay attention – you know, sometimes their questioning naturally leads them there. I think they do a lot more than they give themselves credit for, but I would say they would tell you they're not confident at all. (TK, 5/27)

Additionally, Jennifer Brewer explained:

I'll be honest: I think they're a lot more confident, but again, they're *comparatively* more confident. They're coming from a level of not really doing it that often. But I think they will still tell you that [differentiation] is the area where they want to grow. Understand, too, some of those teachers are sitting in classrooms of 32 kids with one adult. And they know there is no way that all of their kids are at the same place instructionally. They know this is the next step. Would they tell you they're confident? Probably not. But as an administrator looking in I can tell the confidence level has risen. They're ready for it, and they're trying it more than they'll say are. (JB, 5/20)

Alternately, according to Superintendent Clinton Schull:

I still think we've got a lot to do on that. I think there are *efforts* to differentiate. I think still figuring out how to do that well is something that we've got to continue supporting and looking at. You know, I see from time to time center-based activities, but typically all the kids in class do all those things. They may have some level of choice how they do this or that, or they may have different group roles, but I still believe we are trying to figure it out – and I think as a learning organization we are trying to figure out what it is and what its role is in the instructional program. We ultimately have to figure out how to make it doable. (CS, 5/26).

Participants consistently used qualifying language to articulate their hesitancy to claim any differentiation of instruction expertise. Michelle Sutphin stated, "I feel like I could do it. I just don't feel confident in doing it really well" (MS, 5/26). Cody Rossow said, "I'm still getting my feet wet" (CR, 5/27). Naomi Davison agreed, "Well, I know

how to differentiate instruction. I think I could always get better" (ND, 5/27). Two teacher participants, Eric Deegan and Michelle Sutphin, reported that they would feel more confident differentiating instruction if effective logistical models existed from which they could pattern their own differentiated classrooms. However, teacher participant Naomi Davison pointed out that new state curricular standard implementation would make differentiation a necessity:

> When we implement the new standards, we're going to see [learning] gaps in our students [from *Kentucky's Core Content for Assessment 4.1* to *Kentucky's Core Academic Standards*] and we are all going to have to differentiate. Those standards are naturally going to force us to get better at differentiation in order to accomplish what we need to do. I predict there are going to be some major gaps. (ND, 5/27)

Data for this research question also revealed some teacher participants' perceptions about their abilities to differentiate for all levels of student readiness in their classrooms. Kay Smyth stated, "I feel like I do a better job differentiating for my lower level students this year. But I don't feel very confident differentiating for accelerated students" (KS, 5/26). Sabrina Leverett agreed, "I don't feel as if I do a good job pushing students who need to be accelerated" (SL, 5/26).

The researcher designed the Formative Assessment Academy to change classroom practice. Formative assessment strategy use increased. Participants and colleagues developed new and growing understandings of formative assessment as a *process*. However, the researcher did not observe the formative assessment process. Additionally, participants and colleagues still did not feel confident enough to effectively

differentiate their instruction. While the Formative Assessment Academy included a differentiated instruction component, the researcher spent comparatively less time on the differentiation component than on the formative assessment strategy and process components. Some teacher participants and administrators rightfully recognized that learning and growth remained in the area of differentiated instruction.

Table 7 demonstrates analyzed teacher participant data from Research Question 2. These perceptions of increased knowledge, maintained levels of understanding, or areas of continued professional growth informed patterns discovered in Research Question 3's analyzed data.

Research Question 3: Perceptions of Abilities to Teach Colleagues

Administrators, teacher participants, and teacher participant colleagues agreed that some formative assessment strategy sharing had occurred and that this sharing resulted in positive effects. This strategy sharing suggests an increased perceived participant ability to share formative assessment knowledge with their colleagues. However, all research subjects also agreed that little differentiation of instruction principle sharing had occurred. This lack of sharing implied no perceived increase in participants' abilities to share differentiated instruction principles with their colleagues. Data revealed that teacher participant colleagues made no connection to their peers' participation in the Formative Assessment Academy and dissemination of knowledge about differentiation principles.

Assistant Principal Tyrone Ketcher summarized some knowledge sharing that had

occurred in the form of a "carousel walk" activity during school-based professional development day:

> Other teachers who didn't participate in the Academy rotated into participants' classrooms to learn about formative assessment strategies that they used. The participants were taking what they learned in the Formative Assessment Academy and teaching others, *and* giving student work samples so teachers could see how [a strategy] was used. They talked about record-keeping, too. (TK, 5/27).

When asked about differentiation of instruction, Mr. Ketcher replied, "Differentiation? They haven't done a lot of sharing with that" (TK, 5/27). Teacher participants had not yet formally shared differentiation principles with their colleagues.

Likewise, while Superintendent Clinton Schull stated that he had not personally recorded evidence of sharing, he did *recall* teacher participants sharing formative assessment strategies to Worthe Valley School District's cadre of incoming teachers during their New Teacher Institute the previous summer. "I recall discussing plans to expand the initiative with Mr. Ketcher during a school site visit, but I don't remember specifics" (CS, 5/26).

Every teacher participant and every colleague interviewed consistently noted positive effects of sharing formative assessment strategies on Worthe Valley Middle School's professional development day. Debra Darden noted, "The other teachers were very receptive to hearing how an individual teacher put formative assessment to use. That really made me think and evaluate, too. It allowed me to reflect on changes in my instruction" (DD, 5/27). Ms. Darden also noted an unintentional discussion of

differentiation during her professional development session, "I got to teach [formative assessment] on that professional development day. Looking back, I did talk about differentiation then, but a lot of that [resulted from] questions teachers asked. It wasn't planned" (DD, 5/27).

However, most teacher participants and colleagues noted a lack of opportunity to share knowledge of and learn more about differentiated instruction. Michelle Sutphin stated she had shared her own insights about differentiation "with my student teacher, but not with the whole school" (MS, 5/26). Kay Smyth was unsure about any school-wide sharing of differentiated instruction principles: "I'm pretty confident that some of the sessions during that professional development day focused on differentiation, but I can't say for sure" (KS, 5/26). When the researcher asked Sabrina Leverett if any sharing of differentiation strategies or principles had occurred, she replied, "No. Not really" (SL, 5/26).

Most participant colleagues noted positive effects of formative assessment strategy sharing, which implied participant sharing effectiveness. Hugh Brown said, "Before that professional development, I didn't use near the amount of formative assessment strategies. I thought it was very beneficial" (HB, 5/27). Lonnie Hollin and Harriet Petty both described receiving formative assessment strategies from teacher participants during the "carousel walk" professional development activity at WVMS. Max Chaffins also noted receiving formative assessment strategies on this professional development day, as well as receiving more strategies and assistance from teacher

participant Cody Rossow.

When asked about differentiation of instruction, however, participant colleagues echoed participants' comments. Hugh Brown replied, "Differentiating. I've not gotten that. It's still unclear to me, but I know the goal is to reach all learners. It's tougher. Maybe not as clear to people not in the Academy" (HB, 5/27). Kimberly McCoy stated, "I haven't done much – well, maybe anything – where I've taken pretest data and broken down which students need to focus on what" (KM, 5/26). And according to Max Chaffins:

> Yeah. I know I have a hard time with differentiation. It's on my growth plan, though. I guess I haven't felt comfortable enough to give up that control to the student. I know we've talked about it, but as far as specific examples of participants sharing differentiation strategies, I don't know of any. (MC, 5/26)

While analyzed data from this research question *implied* a response about teacher participants' willingness to share knowledge, the data did not *explicitly* respond. In future studies, the researcher would revise the interview protocol to elicit explicit responses.

Research Question 4: School-wide Use of Strategies

Research Question 4 asked about the Formative Assessment Academy's effect on the school-wide use of formative assessment strategies. Four subsections organize analyzed data that emerged from the research question: 1) teacher participants' increased perceived use of strategies; 2) participant colleagues' perceptions of their own use of

strategies; 3) teacher participants' perceptions of their colleagues' use of strategies; and 4) administrators' perceptions of increased school-wide use of strategies. Subsection 3 illustrates a deficiency in monitoring and follow-up of strategy sharing.

Teacher Participants' Self-Perceptions of Increased Strategy Use

All teacher participants reported increases in their own formative assessment strategy practice. Most of the participants simply affirmatively responded. Others were more enthusiastic. Debra Darden replied, "Oh, yeah. Definitely. More than double this year. This year I have *mindfully* integrated a lot more" (DD, 5/27). Naomi Davision agreed, "Definitely. I try to include formative assessment in *every* section or unit I teach" (ND, 5/27). And according to Eric Deegan, "I would say *absolutely*" (ED, 7/14).

Most were equally sure of their colleagues' uses of strategies. Some articulated anecdotal evidence of their colleagues' use of formative assessment. Others stated that they had not quantified any perceived increased use of formative assessment strategies.

Teacher Colleagues' Self-Perceptions of Strategy Use

Most teacher participant colleagues reported increased uses of formative assessment strategies. They attributed these increases to collaboration with Formative Assessment Academy teacher participants or attendance at the professional development day.

Max Chaffins, a first year teacher, noted a personal increased use of formative assessment strategies and increased understanding of formative assessment process

knowledge when compared to his student teaching experience and his teacher preparation program. Hugh Brown reported that he used formative assessment strategies "a whole lot more. I definitely have, and I know other teachers have, too. Those formative assessment professional development days have been the most benefit to me as a teacher this year" (HB, 5/27). Harriet Petty reported an increased use of strategies, too. Teacher participant Michelle Sutphin teaches in the classroom next to Ms. Petty. Additionally, teacher participant Sharon Farrante is her friend. Ms. Petty stated:

> Definitely more. I used some last year, but I don't think I assessed and analyzed the results to change what I was doing. This year I'm still not great at that – I still struggle with that component – but I'm much better. Ms. Sutphin participated in the Academy – she teaches right next door. She has more experience than I do – I can learn a lot from her. Also, Sharon Farrante did the Academy. Mainly there are people I'm close to who I've gotten strategies and advice from. I've heard about a lot of people using formative assessment strategies this year. (HP, 5/26)

Sheryl Banta is a collaborative exceptional education teacher on participant Naomi Davison's teaching team. The researcher asked Ms. Banta if she had noted an increase in her own use of formative assessment strategies. Ms. Banta replied, "Well, my classroom is the regular education teacher's classroom so I'm using those along with her. I am definitely using those formative assessment strategies along with Ms. Davison and other teachers" (SB, 5/26).

Lonnie Hollin is an eleven-year Worthe Valley School District teaching veteran completing his first year at Worthe Valley Middle School. When the researcher asked if he had increased his own use of formative assessment strategies he replied as follows:

I would say it has probably been about the same over the past few years. I began

to implement some things several years ago and I can't say that my use of formative assessment is more this year than in the past. I was familiar with it when I got here. I knew it was a recent initiative here, but I had some previous knowledge of formative assessment before I came here. (LH, 5/26)

Participant Debra Darden is Kimberly McCoy's teaching team leader. Ms. McCoy, a fifteen-year teaching veteran, reflected on her perceived increase as follows:

There has definitely been an emphasis on more formative and summative assessment – maybe just in the last two years. It's something that we talk about on professional development days. Not every day, but now and then there are some people on my team who participated in the Academy and that has impacted our team meeting conversations. I didn't participate in the Academy, and neither did another one of my teammates, but Debra Darden is my team leader. I don't mean to give the impression that we talk about formative assessment every day, but we do talk about it. I also served on the interview committee for next school year's new language arts teachers, and formative assessment was the subject of one of our interview questions. We had lots of really good applicants. The people straight out of college did great – no problem. We had some applicants who have *some* experience in the classroom – great, no problem. They were all fantastic. Then we had some people who were even more experienced, and from them we had a couple of blank stares, or 'Help me with the terminology' type reactions when we asked them about formative assessment. I thought it was interesting that the people who blanked out on formative assessment were the ones who probably went through school when I did. And I don't remember discussing it in my teacher preparation coursework fifteen or so years ago.

All teacher participant colleagues articulated the school-wide use of classroom level formative assessment strategies at Worthe Valley Middle School this school year. Five of the colleagues noted a personal increased use of formative assessment in their classrooms.

Teacher Participants' Perceptions of Colleagues' Strategy Use

Teacher participants consistently reported increased formative assessment

strategy use by their colleagues. When the researcher asked for evidence of data to support the increase, teacher participants primarily gave assumptions as evidence. Teacher participants suggested that, while they believed their colleagues were using more classroom-level formative assessment strategies, they had no evidence to prove that they were.

Sabrina Leverett said, "I believe several of them are using the strategies. There are still some who are hesitant. Some are not quite open to the newness yet, but some outside the Academy are using them" (SL, 5/26). Michelle Sutphin replied, "I would assume they are using more, but I don't have evidence to support that assumption" (MS, 5/26). Additionally, when asked about results of her sharing strategies during the professional development day at WVMS, Ms. Sutphin responded, "I don't know. I mean, there was no follow-up or anything" (MS, 5/26). Sharon Farrante believed more of her colleagues were formatively assessing their students: "I think so. So many Academy participants talk to those other teachers about how they're designing their lessons. Word kind of got around" (SF, 5/26). When asked about results of her sharing, Ms. Farrante responded:

> We haven't really discussed that as a whole, but I know I've shared something with the language arts teacher on this team and she really liked it so I know she's using it. I think they were very open to the strategies and things that we were talking about. (SF, 5/26)

Naomi Davison stated the following about her colleagues' use of strategies:

> I would probably think yes – more so than before, anyway. Probably not as much as the people who did participate [in the Formative Assessment Academy], but

people have asked to borrow my training binder [of research and strategies]. I think they're probably using [formative assessment strategies] more than in times past, but I don't know if it's as frequent as the participants. I know I've had some teachers tell me that the strategies worked in their classrooms. I never followed up, exactly, but I've heard some teachers talk about how they used them. I think it has somewhat worked. (ND, 5/27)

Finally, Kay Smyth replied, "We didn't follow up to see if anybody had used any of the strategies, but they were very interested" (KS, 5/26).

Teacher participants sensed that their colleagues were utilizing more formative assessment strategies than before. The participants did not produce quantitative data to support their assumptions. However, one teacher participant, Sabrina Leverett, offered the following:

I was finishing my Master's Degree this semester so one of the components of my professional portfolio was a section on my participation in the Formative Assessment Academy. I sent out a survey to the staff and asked about the "carousel walk" activity on the professional development day. Everyone who responded said they would use at least one of the activities we shared that day. (SL, 5/26)

Additionally, all teacher participants reported formally sharing strategies with their colleagues (e.g., during the professional development day at WVMS, at the district's New Teacher Institute) or informally (e.g., with student teachers, with intern teachers, with teaching team colleagues during team meetings).

Table 8 illustrates findings from the first three subsections. All teacher participants and most of their colleagues perceived increases in formative assessment strategy use. However, teacher participants also reported that little follow-up and

monitoring had occurred to ensure the sustainability of formative assessment strategy use.

Administrator Perceptions of Strategy Use

Every administrator research subject articulated evidence of school-wide use of formative assessment classroom level strategies. Most administrators also noted *increases* in formative assessment strategy use after teachers participated in the Formative Assessment Academy.

Violet Benedetto's observation of strategy use was primarily limited to teacher participant classroom observations: "I can vividly remember their sharing with *students*" (VB, 5/20). Superintendent Clinton Schull noted that, while he was not aware of any data demonstrating a pre/post measure of strategy use, "I'll say *anecdotally* it's not unusual to see those formative assessment strategies being used at WVMS. I see that routinely in classrooms over there. I think there's more awareness about formative assessment now and how to use it" (CS, 5/26).

The researcher asked former principal and current district administrator Jennifer Brewer about increased use of formative assessment strategies at Worthe Valley Middle School. She responded affirmatively, and added:

> It's not simply the teacher participants – the ones who went through the Formative Assessment Academy – but all teachers because the participants have been sharing. I've seen those strategies being used when I've observed classrooms during instructional rounds, or during informal and formal teacher observations when I'm supporting specific teachers or just checking in with them. I can't say that only the Academy participants are using formative assessment

strategies. It's certainly not the case – it's the whole school. (JB, 5/20)

Tyrone Ketcher, current assistant principal of WVMS, agreed that he had

measured an increased strategy use since the formative assessment initiative:

> Yes, particularly by the participants in the Academy. They really want to utilize
> those strategies, and they have been very intentional about doing so. And their
> enthusiasm is starting to spread out to others. I'd say definitely there has been an
> increased use. Also, I have seen teachers outside the Academy using some
> techniques shared with them. I see other evidence in unit pl0ans. Periodically
> we've done some common assessments – there's evidence in that process, too.
> And then in professional growth plans (PGPs) – I have talked to some teachers
> about using formative assessment in their goals, particularly effectively using pre-
> test results. So I am starting to see formative assessment use show up in some
> PGPs, too. (TK, 5/27)

Table 9 illustrates administrator assumptions regarding the school-wide use of

formative assessment strategies. For the purposes of this table, "specific evidence" refers

to quantifiable evidence (e.g., found in lesson plans, recorded observation data), and

"anecdotal evidence" refers to recalled evidence.

Conclusions

This study contributes to literature supporting formative assessment's positive

instructional implications. However, this study primarily contributes to literature that

suggests adult learners have different and varying needs. High-functioning Professional

Learning Communities that allow adults job embedded opportunities to collegially

practice and reflect upon new concepts are effective structures to support learning.

School leaders should temper their desire for instant school change efforts that

offer temporary solutions to instructional issues with contemplative, collegial learning community implementations that could translate to deeper and longer-lasting school reform. Leaders should carefully consider their own and others' leadership styles and communication styles when planning PLC-based professional development initiatives. They should reflect on their willingness to facilitate, actively participate in, or monitor the results of these learning communities. Leader participation communicates an initiative's importance to other stakeholders; however, leaders should be willing to foster open discussions of shortcomings and struggles among participants during an initiative's implementation. Initiative participants should feel free to seek help from colleagues in front of leaders without fear of retribution. Meaningful collegial inquiry and professional growth take place when school leaders and district administrators are reflective enough to support true Professional Learning Communities.

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Figure 1. A graphic representation of a high-functioning school district's instructional program demonstrates the interdependent relationships of all necessary components (e.g., formative assessment, systems of intervention, differentiated instruction, and learning targets) supported by collegial learning communities.
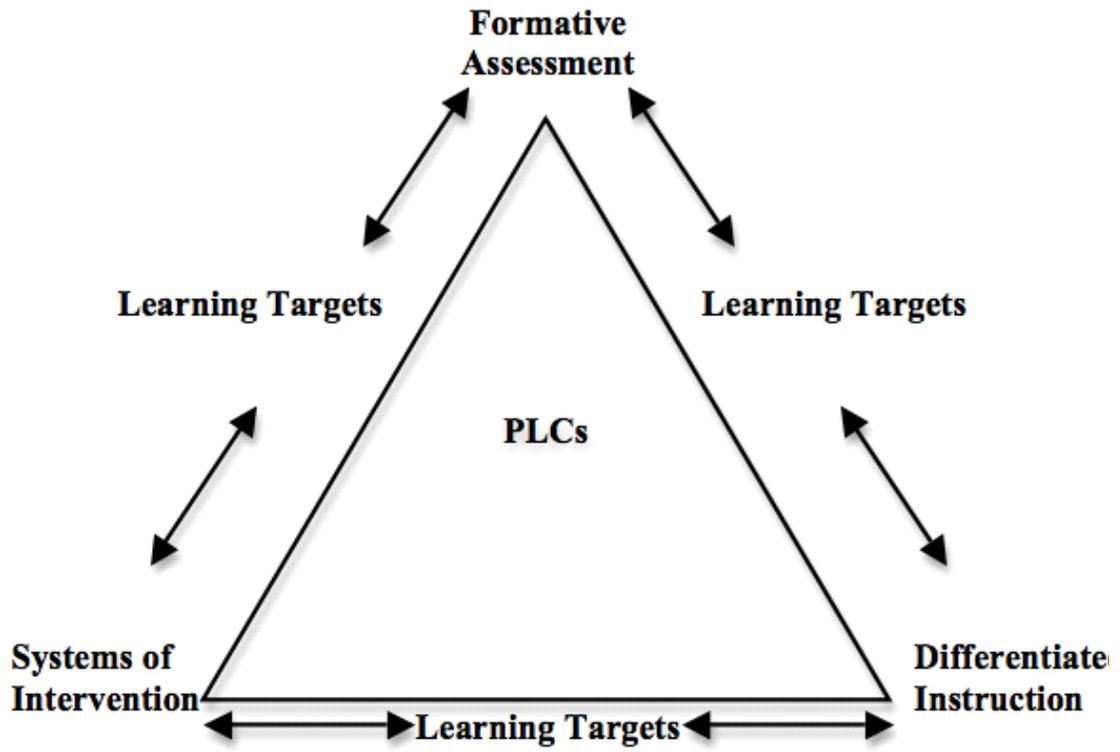
Figure 2. The Formative Assessment Academy conceptual framework demonstrates the relationships between research, adult learning principles and lasting instructional change.
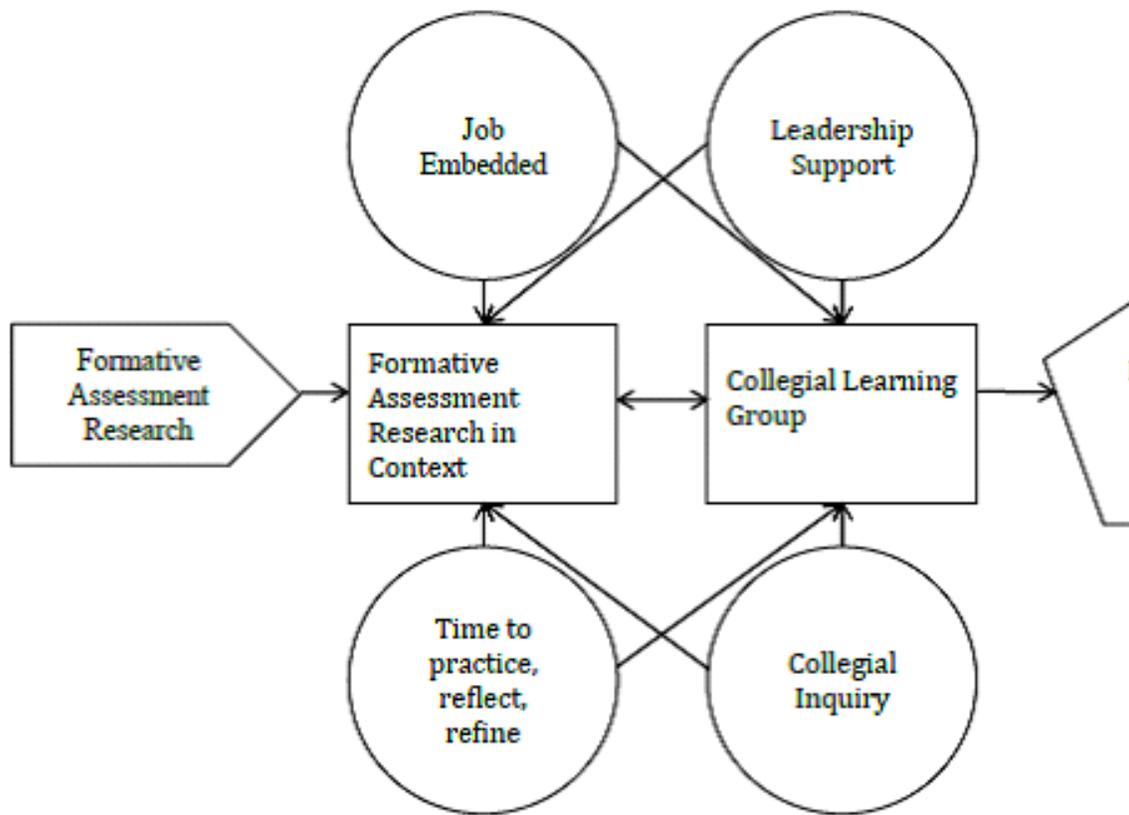
Figure 3. Professional Learning Community and adult learning principles translate to more meaningful professional development opportunities for teachers.
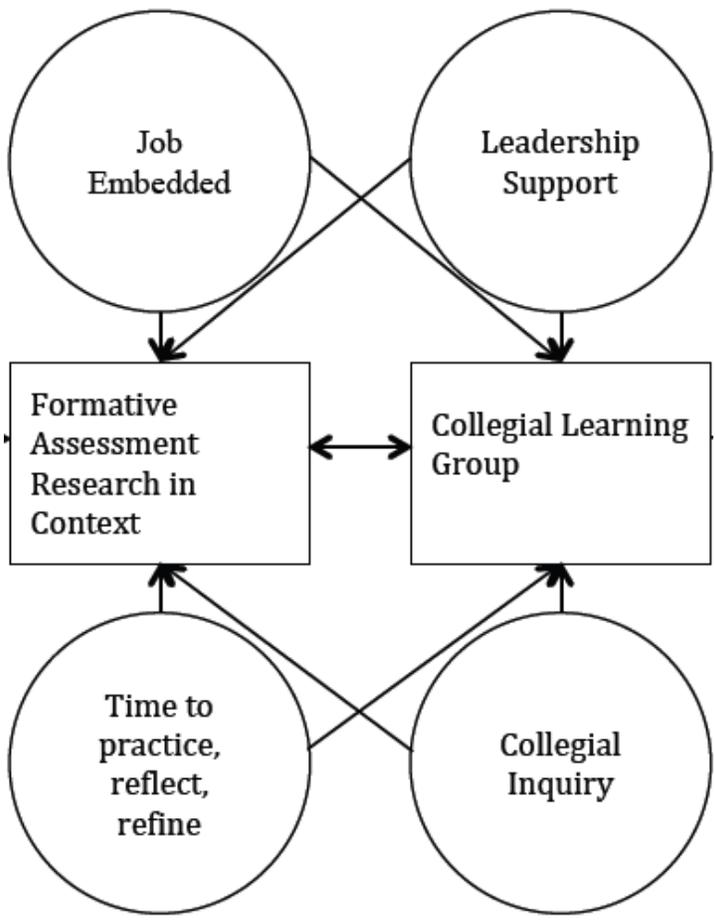
Table 1

Demographic information for teacher participants in the original formative assessment initiative.

Teacher	Grade Level(s)	Subject Area	Years of Experience
Debra Darden	8	Science	8
Naomi Davison	7	Math	5
Eric Deegan	7	Science	11
Sharon Farrante	7	Math	1

Sabrina Leverett	7	Science	4
Cody Rossow	8	Social Studies	7
Kay Smyth	7	Math	1
Michelle Sutphin	6	Math	6
Mattie Wesley	6-8	Music	6

Table 2

Demographic information for teacher participants' supervising administrators.

Administrator	Relevant Role	Years in Education	Years in Admin.	Years in Role
Violet Benedetto	Curr. Spec.	27	7	6
Jennifer Brewer	Principal	11	6	2
Tyrone Ketcher	Asst. Principal	10	3	2
Clinton Schull	Superintendent	22	17	8

Table 3

Demographic information for teacher participants' colleagues who did not participate in the Formative Assessment Academy.

Teacher	Grade Level(s)	Subject Area	Years of Experience
Sheryl Banta	7	Special Education	5
Hugh Brown	7	Social Studies	3
Max Chaffins	8	Social Studies	1
Lonnie Hollin	6	Math	11
Kimberly McCoy	8	Language Arts	15
Harriet Petty	6	Social Studies	2

Table 4

Research subject names and roles at the time of the Formative Assessment Academy.

Research Subject	Research Subject's Role
Sheryl Banta	Colleague
Hugh Brown	Colleague
Violet Benedetto	Administrator – Curriculum Specialist
Jennifer Brewer	Administrator – Principal
Max Chaffins	Colleague
Debra Darden	Teacher Participant
Naomi Davison	Teacher Participant

Eric Deegan	Teacher Participant
Sharon Farrante	Teacher Participant
Lonnie Hollin	Colleague
Tyrone Ketcher	Administrator – Assistant Principal
Sabrina Leverett	Teacher Participant
Kimberly McCoy	Colleague
Harriet Petty	Colleague
Cody Rossow	Teacher Participant
Clinton Schull	Administrator - Superintendent
Kay Smyth	Teacher Participant
Michelle Sutphin	Teacher Participant
Mattie Wesley	Teacher Participant

Table 5

Participants' explicit and/or implicit PLC references.

	Explicit	Implicit

Research Subject	PLC Reference	PLC Reference
Violet Benedetto		X
Jennifer Brewer	X	X
Debra Darden	X	X
Naomi Davison	X	X
Eric Deegan		X
Sharon Farrante		X
Sabrina Leverett	X	
Cody Rossow	X	
Kay Smyth	X	X
Michelle Sutphin	X	X
Mattie Wesley	X	X

Note. X = Affirmative response.

Table 6

Research subjects' articulation of patterns found in analyzed Research Question 1 data.

Research Subject	Common Language	PLC Principles	Teacher Ldrshp.	Admin. Support
Sheryl Banta	X	X	X	
Hugh Brown	X	X	X	X
Violet Benedetto	X			
Jennifer Brewer	X	X	X	X
Max Chaffins	X	X	X	X
Debra Darden	X		X	X
Naomi Davison	X	X	X	
Eric Deegan	X	X	X	X
Sharon Farrante	X			
Lonnie Hollin	X			
Tyrone Ketcher	X	X	X	X
Sabrina Leverett	X	X		
Kimberly McCoy	X	X	X	
Harriet Petty	X	X		X
Cody Rossow	X	X	X	
Clinton Schull	X	X	X	X
Kay Smyth	X	X	X	
Michelle Sutphin	X	X	X	
Mattie Wesley	X	X	X	X

Note. X = Pattern articulation.

Table 7

Research subjects' articulation of patterns found in analyzed Research Question 2 data.

Research Subject	Experienced Diff. Inst. Growth	Remains Hesitant to Diff. Inst.	More Confident with FA	More FA Strategies	Implements FA Components
Debra Darden	X	X	X	X	X
Naomi Davison	X	X	X	X	X
Eric Deegan	X	X	X	X	X
Sharon Farrante	X		X	X	X
Sabrina Leverett	X		X	X	X
Cody Rossow	X	X	X	X	X
Kay Smyth	X	X	X	X	X
Michelle Sutphin	X	X	X	X	X
Mattie Wesley			X	X	X

X

Note. X = Pattern articulation. FA = Formative assessment.

Table 8

Teacher participants' and colleagues' articulation of analyzed Research Question 4 data.

Research Subject	P/C	Participant Increased FA Strategy Use Monitoring/Follow-up	Colleague Increased FA Strategy Use	Participant Reported Colleagues' Increased Strategy Use
Sheryl Banta	C		X	
Hugh Brown	C		X	
Max Chaffins	C		X	
Debra Darden	P	X		X
Naomi Davison	P	X		X
Eric Deegan	P	X		X
Sharon Farrante	P	X		X
Lonnie Hollin	C			
Sabrina Leverett	P	X		X
Kimberly McCoy	C		X	
Harriet Petty	C		X	
Cody Rossow	P	X		X
Kay Smyth	P	X		X
Michelle Sutphin	P	X		X
Mattie Wesley	P	X		X

(Note: the column header group above reads: "Participant Produced Quantifiable Evidence of Research Subject" | "P/C" | "Participant Increased FA Strategy Use" | "Colleague Increased FA Strategy Use" | "Participant Reported Colleagues' Increased Strategy")

Table 9

Administrator Perceptions of Formative Assessment Strategy Use at Worthe Valley

Middle School.

Administrator	Increased Strategy Use	Specific Evidence	Anecdotal Evidence
Violet Benedetto			X
Jennifer Brewer	X	X	X
Tyrone Ketcher	X	X	X
Clinton Schull	X		X

Note. X = Affirmative response.