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## Developing a Professional Vision: The Role of Faculty Learning Labs as a Peer-Mentoring Model

Mary A. Bair

*Grand Valley State University, bairma@gvsu.edu*

Nancy DeFrance

*Grand Valley State University, defrancn@gvsu.edu*

Nagnon Diarrassouba

*Grand Valley State University, diarrasn@gvsu.edu*

Terry Stockton

*Grand Valley State University, stocktte@gvsu.edu*

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# Developing a Professional Vision: The Role of Faculty Learning Labs as a Peer-Mentoring Model

By Mary Bair, Nancy DeFrance, Nagnon Diarrassouba, & Terry Stockton

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*This paper describes a faculty development project in which four teacher educators, who were part of a larger Faculty Learning Community, used an innovative model called the Faculty Learning Lab to support each other in critical reflections about their teaching. Within the learning lab, which was guided by Knowles' adult learning theory, each faculty member invited colleagues to observe a lesson, priming their observations with a description of desired learning objectives. Learning lab members shared their noticings regarding evidence of student learning and their hypotheses about the interaction of factors that may have affected the learning. Exploratory analyses indicate that participation in this faculty mentoring project has helped participants develop a professional vision, as well as a sense of professional collegiality.*

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**M**ENTORING IS A NECESSARY component for teaching success in complex educational settings, and there are many models of mentoring for the K-12 and higher education settings (Feiman-Nemser, 1996; Sorcinelli, Austin, Eddy, & Beach, 2006). In this paper we argue that, although learning labs have been proven to be a successful mentoring strategy in K-12 schools, their use in higher education is largely unexplored. We begin by reviewing the literature which led us to identify the need for peer-mentoring models in the field of faculty development. Following this, in the methods section, we discuss the development of an innovative peer-mentoring model called Faculty Learning Lab, where faculty members supported each other in examining artifacts of student learning and reflecting about their teaching practice. We describe the process by which each faculty member invited colleagues to observe a lesson, priming their observations with a description of desired learning objectives. We also discuss the procedures that learning lab members used to share their noticings regarding evidence of student learning, and their hypotheses about the interaction of factors that may have affected the learning. Following a description of the methods we used to analyze our data, we present the findings of this exploratory study, which indicate that participation in this faculty mentoring project has helped participants to develop a professional vision, as

well as develop a sense of professional collegiality.

## Review of Literature

Critical reflection has long been recognized as a key component of the teaching process. Schön (1983, 1987), who revitalized the concept of the reflective practitioner, recommended that teachers study their own teaching with a view toward improvement. He recommended reflection *in* action, where practitioners think about what they are doing as they do it, and reflection *on* action, a retrospective interpretation and analysis of what had occurred in the classroom. However, critical self-reflection is difficult for teachers. Classrooms environments are characterized by demands of multidimensionality, simultaneity, and unpredictability (Doyle, 1977). Within this complex context, teachers need to attend to, and make sense of, multiple interacting events; furthermore, when reflecting on the day, teachers may simply recall events that confirm their biases (Knight, 2014). Also, since teachers make hundreds of decisions a day (Kauchak & Eggen, 2005) they may not recall the rationales that led to a particular decision.

Van Es and Sherin (2008) argue that learning to notice is one of the key aspects of the reflection process. Others contend that teachers need to be trained to develop a “professional vision,” or the ability to notice and interpret significant events or

interactions in a classroom (Sherin, Russ, Sherin & Colestock, 2008, p.28), and to use those interpretations to inform their pedagogical decisions.

Historically, teaching was an isolated profession; teachers rarely consulted with peers to examine student work or to improve teaching (Lortie, 1975). Furthermore, in higher education, faculty knowledge of teaching was often based on informal approaches, or trial and error (Fletcher, 2018). Recently, however, there has been a shift towards teachers collaborating to improve student learning. In the K-12 setting, the emergence of professional learning communities (PLC) is one example of this shift. Members of PLCs observe and discuss each other's practice, analyze student data, and discuss strategies to improve instruction and learning (Stoll, Bolam, McMahon, Wallace & Thomas, 2006).

Likewise, in higher education, faculty learning communities (FLCs) are becoming an integral part of faculty development efforts. Faculty developers recognize that while critical reflection may begin in solitude, it is "an irreducibly social process" (Brookfield, 1995, p. 141). Brookfield recommends the creation of "institutional expectations and procedures" which convey the message that critical reflection is a normal and desirable professional habit (p. 252). Faculty learning communities have been found to be successful in helping teachers improve their practice, and in developing teachers as scholars (Cox, 2003; Hubball & Albon, 2007).

Within PLCs in the K-12 context, classroom observations have often been used to support reflection about practice. Typically, these peer observations have focused on instructional and management strategies used by the teacher. More recently, *student-centered learning labs* (Sweeney, 2011) have emerged as a form of peer mentoring in which the focus is not on teacher strategies but on student learning. Within a student-focused learning lab, a teacher invites colleagues to observe a lesson, priming their observations with a description of desired learning objectives as well as possible sources of evidence of student learning. Following the observation, colleagues share what evidence of student learning they noticed in the examples of student work, and also share hypotheses about factors that may have affected the learning. These conversations are mediated by the facilitator, a col-

league who provides the prompts for a productive discussion, using the observed lesson and artifacts of student learning as contexts for exploring relationships between learning and teaching.

An examination of such "artifacts of practice," which may include lesson plans, samples of student work, or videos of teaching, is valuable because artifacts represent authentic practice, yet they can be brought outside the actual classroom for careful examination (van Es, Tunney, Goldsmith & Seago, 2014, p. 341). There is a growing body of evidence indicating the positive impact of such artifact-based professional development on teacher learning (Sherin, Jacobs & Phillipp, 2011; van Es, Tunney, Goldsmith & Seago, 2014). Van Es and colleagues (2014) describe an approach, called video clubs, in which teachers meet to collaboratively study video recordings of their own instruction. Like the learning labs (Sweeney, 2011), the video clubs are student-focused. Teachers learn, through strategically facilitated conversations, to analyze videos for evidence of student thinking and to consider their own decision making with an eye toward developing student conceptual understanding. However, researchers caution that artifacts themselves are simply tools; teachers need to be taught how to take an inquiry-based approach to examining the artifacts rather than an evaluative one.

Although the study of artifacts of practice to help teachers develop a professional vision has proven to be successful in K-12 schools, its use as a means of peer mentoring among faculty in higher education is largely unexplored. In higher education, peer observations of teaching have traditionally been used within the context of quality assurance, and to provide evidence to support retention, tenure, and promotion of faculty. Furthermore, there are still reservations about the extent to which formative teaching observations actually enhance faculty members' critical reflection or practice (Yiend, Weller, & Kinchin, 2014). There are even reports of faculty resistance towards any sort of peer observation of teaching (Fletcher, 2018). Although it is acknowledged that a focus on student-centered teaching requires a paradigm shift in the way faculty approach their teaching (Rands et al, 2017), discussions around teaching still tend to focus on content rather than pedagogy (Fletcher, 2018). There is, therefore, a need for models of faculty development

that focus on discussion of artifacts that represent students' thinking.

The purpose of this paper is to contribute to the literature on faculty development in higher education by describing a project in which faculty developed a peer-mentoring model called the Faculty Learning Lab, a modified version of the K-12 classroom learning lab. Within the Faculty Learning Labs, participants learned to support one another in the examination of artifacts of practice for the purpose of enhancing student learning through improved instructional decision making. The following section describes the conceptual framework that guided this project, the procedures that were used in the learning lab, the methods used to gather and analyze data, and the main findings that emerged. It concludes with a discussion of the significance of the findings and recommendations for further research.

## Conceptual Framework

This faculty development project was guided by Knowles' (1980) notion of andragogy, the method and practice of educating adult learners. The assumption made by Knowles (1975) is that adult learners are inherently self-directed. He articulates the steps of self-directed learning as: setting a climate of mutual respect and support, diagnosing learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes. The Faculty Learning Lab model, with its emphasis on self-directed learning, aligns closely with the principles of adult learning.

### Methods

This section describes the institutional context in which the project occurred, the demographic background of the faculty participants, the procedures that were developed and adopted for engaging in the learning lab, the data that were gathered, and the process by which they were analyzed.

### Context

This project occurred in a college of education at a large, Midwestern, comprehensive liberal arts university. Two of the authors applied for and received a Teaching Innovation grant from the

university's Faculty Teaching and Learning Center. The dean of the college and two department heads supplemented the grant with additional funds. The purpose of the grant was to provide job-embedded, collaborative, professional development for faculty in the college. Funds were used to hire an external coach to provide initial training on learning lab protocols, to buy journals for each participant to record their reflections, and to provide lunches for the monthly FLC meetings.

### Participants

Sixteen faculty members, including the four authors, representing six different academic programs in the college of education (special education, literacy studies, educational foundations, curriculum and instruction, educational leadership, and school counseling) volunteered to participate in this project. Within the larger FLC, participants voluntarily formed smaller sub-groups of four members (4X4) which were referred to as quads; each quad worked independent of the other quads, yet all sixteen participants met together for monthly meetings. All participants committed to participating for at least one year in the faculty learning community (FLC) devoted to the exploration of student learning outcomes. This paper describes the work of one quad consisting of four teacher educators.

### Procedure

The project, which extended from January 2017 to June 2018, began with a half-day training provided to the FLC by a coach who had expertise on the use of learning labs in the K-12 setting. Following this initial training, the second author, also experienced in the use of learning labs, led the FLC in four half-day training sessions where participants developed and practiced the skills needed to participate in a learning lab: first, how to assume the role of a *host* and articulate student learning objectives, and identify artifacts of practice that provide evidence of student learning, and second, how to participate as *guests* and examine the artifacts for evidence of student thinking. Participants also practiced taking on the responsibilities of a *facilitator* and constructing prompts to engage hosts and guests in the analysis of student learning, and inquiry into factors that may have affected student learning.

Finally, participants learned to use Swivl cam-

era technology to produce high-quality recordings of instructional interactions for subsequent analysis and reflection. The cameras were owned by the college of education, and training was provided by a technology graduate assistant who helped individual faculty members record classroom instruction, recordings which were then shared with colleagues at the learning lab meetings. The graduate assistant also helped faculty record the discussions that ensued in the small group faculty learning labs. Participants were able to review these recordings of themselves in the roles of host, facilitator, and guest, and reflect on their participation.

This paper focuses on the work of one quad where four teacher educators engaged in student-focused, facilitated, collaborative analysis of their own (and each other's) teaching practice. The quad was diverse in terms of gender (two males and two females), race (African American, Indian, and Caucasian), rank (one full professor, one associate professor, one tenured assistant professor, and one affiliate faculty member) and program (reading, TESOL, and educational foundations).

To guide the discussion, each faculty member shared either a video recording of instruction or artifacts of teaching, such as descriptions of assignments, and examples of student work. Each quad member self-identified a conceptually demanding aspect of one of their courses and then took turns adopting three different roles: host, facilitator, and guest (see Table 1). Since the Faculty Learning Lab was student- rather than faculty-focused, we prioritized time to attend to student learning more so than faculty teaching. Thus, *Hosts* provided an opportunity to observe lessons efficiently via their description of the sequence of instructional events richly illustrated with artifacts of teaching. *Guests*, in conversations with the host that followed observation, shared noticings regarding evidence of student learning, artifacts of instruction, and other factors that may have affected student learning; and *Facilitators* provided the prompts for a productive

conversation, using the observed lesson and artifacts of student learning as contexts for exploring the relationship between learning and teaching.

To create a climate of respect and support, the members of the quad developed protocols (Houk, 2010; Sweeney, 2011) to guide learning lab conversations before, during, and after the examination of artifacts. These included the following pre-observation prompts to guide the conversation between facilitator and the host, observation prompts to guide guests' feedback, and de-brief prompts to promote reflection:

- *Pre-observation prompts to guide conversation between facilitator and host:*
  - What are your objectives for student learning?
  - What might be some sources of evidence of learning?
  - What might you want your guest faculty to look for?
  - Are there any gaps between your objectives for learning and the evidence of learning?
- *Observation prompts to guide guests feedback:*
  - What do you notice about student learning?
  - What are the gaps between student learning and expectations for learning?
- *De-brief prompts:*
  - What factors may have interacted to affect student learning?

Quad members agreed to maintain a non-judgmental stance, to hold positive assumptions about the host, and to focus on helping the host become self-directed.

### Data

**Data sources.** For this project, we relied on the following data sources: video recordings of quad members' classroom instruction and learning lab meetings; participants' individual reflective

**Table 1. Faculty Learning Lab Schedule**

Meetings	Host	Facilitator	Guest	Guest
1	Mary	Terry	Nancy	Nagnon
2	Nagnon	Mary	Terry	Nancy
3	Nancy	Nagnon	Mary	Terry
4	Terry	Nancy	Nagnon	Mary

journals; notes from small group discussions; and artifacts of practice such as samples of student work, teaching materials, and descriptions of tasks that prompted student work.

**Data Analysis.** Data analysis was an iterative process of reading, coding, and organizing coded data into categories and themes (Marshall & Rossman, 2006). The purpose was to understand the experiences of the quad members who participated in the faculty learning lab. The analysis of data was done individually, initially, and then collaboratively by the members of the quad. Data analysis began with a careful review of all the data. Next, we coded the data using open codes to indicate sections of data that we found to be useful (Merriam, 2009). Codes that emerged included terms such as *focus*, *instructor*, *strategy*, *student*, *engagement*, *feedback*, *evaluate*, and *pedagogy*. We grouped similar codes into categories. For example, the codes *self*, *teacher*, and *student* were grouped into the category *actor*. Other categories that emerged, and their specific codes, were *rules of engagement* (coach, cheerleader, mentor, and administrator), *stance* (describe, interpret, evaluate, analyze, and inquire), and *topic* (teacher pedagogy, student background, student prior experience, disciplinary content, and college context). Finally, the categories were grouped into the theme of *shifts*.

## Findings

Our findings show that participants made shifts toward developing a professional vision (Sherin, Russ, Sherin & Colestock, 2008); that is, they improved their ability to notice and interpret events that were significant to a learning situation. In the following section, we first present the four major categories within which a shift was noted: from a focus on teacher moves to students; from focusing on student behavior to student thinking; from feelings of isolation to intellectual partnership; and from an evaluative stance to an inquiring one. Then, we discuss factors that may have contributed to the shift towards a professional vision. We conclude with a discussion of the use of the Faculty Learning Lab as a model for faculty mentoring.

### **Actor: From Teacher to Student**

Each participant in the quad took turns serving as a host, bringing guests into his or her classroom

via video of lessons and artifacts of student learning (e.g., student papers) as well as artifacts of teaching (e.g., directions for an assignment). Although we had emphasized the importance of focusing on student learning, as the following examples show, initial objectives articulated by hosts focused on their own personal teaching goals.

Host 1: "I had some goals... I want to... make sure that I am engaging my students... I thought... I could use a real life story that would be more engaging and would help them connect to something that was more real-life."

Host 2: "I want to improve the directions I am giving students..."

Host 3: "Did I provide opportunities for students to construct their own ideas...?"

Host 4: "I am having trouble explaining the difference between theory and philosophical construct."

After examining the artifacts in silence, guests began their observations by listing what they observed. At the beginning of the project, guests tended to make connections to their own experiences: "I was reflecting on *my own* teaching practice as you were telling your story. ... one of the things *my* students always want is stories..." Several participants also thought it was important to start observations with "warm" feedback before moving on to "cool," more critical feedback. Consequently, their initial observations were entirely teacher-focused and overwhelmingly positive: "I think you did a phenomenal job with that."

Through facilitator prompts, hosts began to articulate objectives for student learning and guests began to shift their focus from the teacher to the student. However, we found that our initial comments about students consisted of description and interpretation of student behavior. For example one guest noted, "So the students were looking at you while you are telling the story, because I kept trying to tell where their heads were and it seemed that they were looking at you, so that's something I noticed." Another said, "They all seemed really engaged."

Such focus on student behavior was probably influenced by the artifacts of practice that were shared; several hosts shared video clips of whole group instruction where it was easy for guests to

comment on observable student behavior. Later, addition of other artifacts of student learning broadened the perspective of guests regarding what was worth noticing.

### **Topic: From Behavior to Thinking**

Facilitators repeatedly pressed the host to articulate objectives in terms of new and worthwhile learning, and to bring artifacts that provided evidence, or lack thereof, of student thinking. Following such encouragement, hosts brought in samples of student work. For example, one host explained his disappointment with the laundry list of article summaries that the student had submitted instead of a literature review: “My assignment was to write a clean chapter 2 [a literature review] and cleanness would be organization, reporting on the research, synthesizing, critiquing, but what I have here is just chunks, chunks, and then, that is all.”

Guests now focused their attention on examining the student paper in light of the host’s concern. Initially, they were critical. One noted, “I see four different subsections, each labeled [with the same title] and each subsection presents a different study. I do not see a thread that runs through them.” Another agreed, “Each subsection is just descriptive. They [students] do not seem to have a lot of analysis with them, just lists of vocabulary and interventions.”

Over time, guests were able to shift from describing and evaluating the work to analyzing and interpreting the thinking of students: “I wonder where [within curriculum] students are understanding what the purpose of the literature review is.” Some even adopted a student perspective, empathizing with struggling students whom they had previously criticized: “If you have forty-two articles, it is going to be very difficult to read them, analyze them and synthesize them with any sort of cohesion. One of the barriers might be their perception of how much literature they need to bring into this review.”

The choice of artifacts, articulation of objectives in terms of student learning, and a deliberate curiosity about gaps in student thinking enabled a shift from noticing superficial behaviors that implied student engagement to discussions about the evidence of intellectual engagement of students. It is important to note that this change was not quick or easy. In order for the shift to occur, we had to

first change the way in which we perceived each other and the norms that guided our interactions.

### **Rules of Engagement: From Isolation to Intellectual Partnerships**

Many project participants, especially mid-career faculty members, were used to teaching in relative isolation. Since our college has no requirement for peer review for tenured faculty who are not seeking promotion, several participants had not been observed by a colleague in years. They were hesitant to reveal possible weaknesses in their teaching; initial meetings were awkward and faculty members expressed apprehension. Several were self-conscious and uncomfortable about sharing videos of their teaching.

To assuage their fears, facilitators directed the attention of the guests away from the teacher moves to the artifacts of students’ work by asking, “What other factors may have affected student learning?” Additionally, guests were strictly prohibited from responding to questions with any attempt, however veiled, to fix the host’s instruction. With these guidelines in place, guests offered their perspectives on factors that might be mediating students’ learning by opening opportunities for host’s inquiry with “I wonder...” For example, “I wonder how the students interpreted the instruction,” or, “I wonder what experiences the students bring about...,” and “I wonder what evidence you have of students’ incoming concepts about...” With practice, guests were able to stop offering advice and to express genuine curiosity about the gaps in student learning and in diagnosing factors that may have contributed to the gap. Hosts were free to be self-directed, reflect on the feedback, and then decide upon the best approach for closing the gap.

This shared concern for student learning helped faculty see each other, not as threats, but, as intellectual partners committed to student growth, and helped promote a sense of self-efficacy. It also created a sense of trust among members who, instead of posturing before their peers, exposed their vulnerabilities and sought opportunities to inquire into ways to become more effective instructors. For example, one participant noted that the most valuable part of the learning lab was the “...power of collaboration and feedback in informing my professional growth in stimulating and assessing student thinking.”

### ***Stance: From Evaluation to Inquiry***

Once a sense of safety had been established, hosts began to bring in artifacts from their most challenging assignments. They become more adept at expressing objectives in terms of student learning and at noting gaps between desired and realized student work. For example, they brought in papers where students had failed to integrate theory into the literature review or had written a poorly constructed problem statement. Likewise, guests adopted an inquiring stance, seeking to understand the host's discipline-specific objectives as well as student background knowledge and experiences which may have contributed to the unsatisfactory results.

Furthermore, hosts, previously stymied by students' apparent failure to meet instructor expectations, began to embrace students' thinking not as problematic, but as logical, an indicator of where students were, and a means of gaining insight into how to guide them to where they needed to go. Through analysis of the conceptual demands and necessary background knowledge or experience required for the work (i.e., the thinking that students must do), hosts' discussions about artifacts shifted from correcting student errors to diagnosing and addressing sources of misunderstanding.

Guests learned to respond to the hosts' stated objectives for learning by seeking to understand the discipline-specific concepts in-depth and to articulate them as students should. Hosts then held their own newly developed conceptions up against students' conceptions, which were available in student artifacts. Such comparisons facilitated an analysis of the possible sources for the gap between their own (new) understanding of important ideas and students' more naïve understandings. They were thus able to identify conceptual demands of the tasks and develop insight into what prior knowledge students needed to have in order to build fresh, nuanced, ideas.

For example, during a lab conducted towards the end of the year, the faculty host provided examples of unsatisfactory responses to a final exam question which asked graduate students to recommend and describe a set of assessments that might be used in a comprehensive approach to literacy assessment. Without hesitation, guests adopted an inquiring stance and articulated wonderings

about the prior knowledge and experience students brought to this exam task. One asked,

Can I ask a clarifying question? Before they get to this [exam question] do you have any evidence that you collected that they understand the vocabulary of the assessments and what it means. So if you did a task analysis, for example, what are the steps it would take - prior knowledge it would take - to [compose] this paragraph? One would imagine that they need to know the four different types [of assessment] and each of these has these different things [purpose, audience]. So, do you, other than the instruction that you do and the collective [discussion], do you gather evidence of [individual] student thinking?

Another articulated wonderings about the curriculum: "I wonder if they need a bigger build up for this in other classes. One of the things they are not understanding in this is those ideas of reliability, of why that is important, validity and reliability." A third raised questions about the students' perceptions of the relevance of the assignment: "I was also thinking about... their role within the school... If we are talking about formal [assessment], these are more... school district [decisions]. [Teachers may think], 'these things are done there so why should I be wasting my time?'"

The shift from an evaluative stance to an inquiring one was facilitated by the focus on examining artifacts for evidence of student learning. The learning lab protocols encouraged participants to understand the cognitive demands of the task, and to diagnose gaps in the students' prior knowledge or experiences that may have led to unsatisfactory results.

### **Discussion**

The purpose of the faculty learning lab was to help instructors look more closely for evidence of student learning, and to empower them to diagnose and solve problems with students' understandings. At the end of their year-long commitment to the learning lab, faculty found that their conversations reflected a refined professional vision in which they reflected on teaching and learning relationships. Rather than ask, as they did initially, "what did the teacher do?" they asked, "what did students do?" What students did was no longer defined by how they complied with required elements of an assignment, but how they thought about concepts.

Faculty, who were previously frustrated by students' difficulty in meeting the conceptual demands of a course, could turn to colleagues who were committed to their success and the success of their students. Colleagues offered no judgement (of teacher or students, positive or negative), no quick fixes, no anecdotes from their own experience, all of which were common patterns at the outset of the work. Rather, colleagues inquired about the learning objectives, conducted thoughtful analyses of thinking required, and offered *wonderings* regarding factors that might be putting some concepts out of reach of some students. In the next section we consider what features of the learning lab may have contributed to these changes.

### **Factors that Led to the Success of the Faculty Learning Labs**

Three factors that led to the success of the learning labs were the role played by the facilitator, the probing questions asked of the host, and the artifacts selected for scrutiny.

**The facilitator.** The facilitators played a significant role in helping the faculty member develop a professional vision. They did so by meeting one-on-one with the host and helping them articulate their goals in terms of student learning objectives, and identifying the artifacts that best captured evidence of learning. The facilitator also conducted the lab sessions and ensured that the conversation remained on the objective and evidence that the host had identified. The following guidelines, synthesized from the literature (Costa & Garmston, 2016; Cox, 2004; Kolb, 1984; Schön, 1983; Sherin, Russ, Sherin, & Colestock; Sweeney, 2011) and revised with experience, helped the facilitators stay in their role: in all things, focus on *student thinking* and learning; hold *positive presuppositions* of teacher and students; pause to *observe*, and *reflect* before hypothesizing; maintain a spirit of *inquiry*, *press* on thinking; wonder *without attempting to fix* anything; and nurture the *professional vision* of a reflective practitioner.

**Probing questions.** Another factor that helped the hosts shift their perspective was the probing questions that were asked of them by the guests; these were questions that encouraged reflection, and to which the host often did not have easy answers. The following questions facilitated a shift from self,

teacher action, and own experience towards student thinking and the student perspective:

- “What is your objective for student learning?”
- “What would I see or hear if students were successful in meeting that objective?”
- “What does this [artifact] reveal about student thinking?”

Questions that facilitated a shift from acting as a critic towards taking on the role of an intellectual partner or peer mentor included:

- “What gaps do you notice between what you expected and what you got?”
- “What are some factors that may have affected students' abilities to complete the assignment successfully?”

Other comments served as examples of questions that facilitated a shift from focusing on difficulties to be corrected towards an examination of the relationships between demands of content and students' prior knowledge or experience:

- “What are some of the prerequisite steps or prior knowledge needed for students to complete this assignment?”
- “What were some opportunities that you provided students to master those prerequisite steps?”
- “What types of evidence do you have that demonstrates that students' mastered those steps?”

The following questions facilitated a shift from an evaluative stance towards describing, analyzing, interpreting, and inquiring collaboratively:

- “What would it take for student to master...?”
- “What might be the next steps?”

**Artifacts.** A third factor that influenced the outcome of the learning labs was the nature of the artifacts of practice selected for sharing with peers. Initially, instructors selected video clips that demonstrated teaching strategies such as giving instructions or leading a discussion, or student behaviors such as engagement in discussion, group work, or presentations. These initial clips did not always facilitate an examination of student thinking. It was only when hosts also shared samples of student work such as research proposals, literature reviews, and critical essays that the quad members were able to probe for evidence of students' conceptual under-

standings. Analysis of student work raised questions about their prior knowledge, which then led hosts to share additional instructional artifacts such as descriptions of assignments or essay prompts that had guided the student work. A holistic examination of all the artifacts helped diagnose potential sources of student misunderstandings, and also highlighted the importance of constructing formative assessments to elicit student thinking and facilitate student self-assessment that would inform subsequent instruction toward the learning objectives.

### **Conclusions and Recommendations for Future Study**

This paper has described the use of an innovative peer-mentoring model that helped faculty members study artifacts of practice, notice and interpret significant events, and use the interpretations to inform pedagogical decisions. While the outcomes presented here are tentative, and it is not our intention to claim generalizability, we have found that faculty learning labs that focus on artifacts of learning have the potential to be an effective approach to faculty development not previously reported in the literature.

Although we have not yet established the relationship between participation in the learning lab and growth in our students' learning, nonetheless we believe that participation in the project has had a positive influence on our practice. This exploratory analysis also indicates that participation in this faculty mentoring project has facilitated personal self-renewal and professional collegiality. Furthermore, unlike the traditional model of mentoring which includes a hierarchical dyad of mentor and mentee, this project also provides preliminary confirmation for the benefits of a mutual mentoring model (Sorcinelli & Yun, 2007; Yun, Baldi, & Sorcinelli, 2016), where mentoring is provided by several colleagues rather than a single mentor. The learning lab model facilitated a shared responsibility for mentoring and participating faculty were able to build a network of mentors and collaborate with multiple colleagues.

Future research is needed to confirm the value of learning lab support structures for faculty development in higher education institutions, and to explore the relationship between faculty participation in such experiences and student learning. Additional research is also needed to explore whether a learn-

ing lab model is a viable option beyond a college of education, that is, in colleges where faculty may not be as grounded in pedagogy as were the teacher educators who participated in this project.

Notwithstanding these limitations, our experiences with this project have uncovered the promise and challenges of faculty mentoring through learning labs. Supporting faculty in gathering and analyzing tangible, specific evidence of student learning is a powerful means for faculty in all colleges to reflect on the effectiveness of each class or lesson, and to develop professional vision. However, establishing authentic mentoring relationships requires faculty leaders who can create trust among faculty, garner support from administrators, and facilitate a professional, non-judgmental setting. Successful learning labs require time to build relationships and a climate of trust, formal support and recognition from the department chairs, and a willingness on the part of faculty to take on a collaborative inquiry approach. Although the results presented here are tentative, they suggest that learning labs have the potential to be an effective approach to faculty development.

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**Mary Bair** is a Professor and Department Chair of Educational Foundations in the College of Education at Grand Valley State University. Her research

interests include teacher education and faculty development. She is currently working on a project that explores the intersection of storytelling and professional identity.

**Nancy DeFrance** is an Associate Professor of Literacy Studies in the College of Education at Grand Valley State University. Dr. DeFrance's research interests include a focus on teacher professional development and the roles of coaches in facilitating effective teaching. Dr. DeFrance often invites K-12 coaches to collaborate and co-teach with her in order to assure a balance of research and practice emphases as well as authenticity in practicum experiences.

**Nagnon Diarrassouba** is a tenured Assistant Professor of Literacy Studies in the College of Education at Grand Valley State University. His areas of expertise and research interests include the teaching of English to speakers of other languages, bilingual and multicultural education, Francophone African education, and African literature.

**Terry Stockton** is a Senior Affiliate faculty member of the Social Foundations Department in the College of Education at Grand Valley State University. He is currently pursuing a Ph.D. degree in Urban Educational Studies. Terry's work focuses on equity issues, and he works closely with first generation students.

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