



Examining faculty questions to facilitate instructional improvement in higher education



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ABSTRACT

Many of the innovations that show promise for improving outcomes for underprepared community college students require instructors to make changes to their teaching practice. Little research explores the experiences of faculty teaching in reformed courses as related to their professional learning needs. Drawing on a multi-year qualitative study, this paper uses data from 100 faculty interviews to explore the questions they ask when teaching a new course. A key outcome of the analysis is a typology of questions that mirrors the stage of implementation. Through analysis of 20 observations of implementation activities, this paper also documents the learning opportunities made available to instructors and examines the extent to which these activities addressed their questions.

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A postsecondary credential is widely recognized as the surest path toward upward mobility, and community colleges play an essential role in providing access to students traditionally underrepresented in higher education. In the United States, community colleges serve 45 percent of all undergraduates (American Association of Community Colleges, 2014). Their low cost and open-access admission policies make them a natural choice for adult students returning to school, low-income students, and students from low-performing high schools. Unfortunately, after three years only 22 percent of full-time first-time students graduate (Snyder & Dillow, 2012). Research has established that poor outcomes are related to the large numbers of students referred to developmental (i.e., remedial) coursework. Developmental classes are not credit-bearing, but are required, and some colleges offer multiple semesters of preparatory work. More than half of students in community colleges are placed in one or more developmental courses in math, reading or writing, but only about one-third complete the sequence of required courses (Bailey, Jeong, & Cho, 2010).

To address this challenge, community colleges are experimenting with altering the curriculum and structures in their developmental courses through a range of instructional

innovations (Quint et al., 2011). For example, colleges are compressing multiple levels of coursework into a single semester, linking developmental courses with credit-bearing courses, and restructuring the content of traditional courses into modules. Many of these reforms appear to show promise for improving student outcomes, but to be fully optimized they may require faculty to adjust their classroom practice (e.g., Edgecombe, Jaggars, Baker, & Bailey, 2013). For example, reforms that mainstream developmental students into college-level courses demand that faculty teach a more heterogeneous group and provide students individualized scaffolding and support. A revised math curriculum emphasizing conceptual learning suggests the need for alternatives to the traditional demonstration-practice cycle.

To effectively make these changes, faculty need opportunities to learn how to adapt their practice to the new course structure, objectives or content. Yet despite the growing body of research documenting instructional reform efforts in developmental education (e.g., Cho, Kopko, Jenkins, & Jaggars, 2012), there has been little inquiry into the experiences of faculty teaching in new courses. Research in this area has largely focused on the activities and structures of professional development programs, rather than on the learning experiences of teachers (Stes, Min-Leliveld, Gijbels, & Van Pategem, 2010; Webster-Wright, 2009). As a result, we know little about faculty members' questions, concerns, and needs.

This paper uses qualitative data from a multi-campus study of instructional reform in developmental education to present a typology of questions raised by community college faculty teaching in reformed contexts. We also document the professional

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learning opportunities made available to instructors and examine how these activities addressed their questions and met their needs. The findings presented in this paper have implications for crafting meaningful and useful learning opportunities to support faculty to teach in new ways.

Perspectives from the literature

Through classroom experiences, conversations with colleagues, and professional resources, teachers are constantly learning about students and about their teaching. While important to the work lives of teachers, research suggests these opportunities do not necessarily lead to systematic improvements to classroom practice (Lord, 1994; Wilson & Berne, 1999). Instead, researchers point to formalized professional development as a promising, albeit complicated, mechanism for changing classroom practice (Borko, 2004; Guskey, 2002). In primary and secondary school settings, features of high quality professional development programs have been extensively documented. They include coherence with everyday teaching practice, engagement with materials of practice, collaboration, mentorship, opportunities to engage with subject matter, and experiential practice (Desimone, 2009; Wilson & Berne, 1999). In the specific context of reform, research shows that teachers learn when they have the opportunity to observe the new approach, practice implementing it, and access follow-up supports well beyond initial implementation (e.g., Bennett & Bennett, 2003).

Research on high-quality professional learning about teaching in higher education echoes the findings of the broader field in many ways, suggesting the efficacy of communities of practice (Blanton & Stylianou, 2009), mentoring (Shagrir, 2012), and reflective practice (Steinert et al., 2006). Yet the context of postsecondary education presents unique challenges for developing meaningful, contextualized experiences focused on teaching and learning (e.g., Furco & Moely, 2012; McHenry, Martin, Castaldo, & Ziegenfuss, 2009). In particular, long-held professional norms, such as faculty autonomy, coupled with increased reliance on adjuncts, and weak instructional leadership, serve as barriers to meaningful or sustained professional development on teaching. Moreover, faculty have an array of responsibilities that extend beyond classroom teaching. Taylor and Rege Colet (2010) identify a range of topics that fall under what they term “educational development” for postsecondary faculty which include organizational development (institutional policies and structures), professional development (scholarly and personal development), and curriculum development (programs of study).

Historically colleges and universities primarily supported professional development activities aimed at enhancing disciplinary expertise (Brawer, 1990). The past several decades have seen a shift, as more postsecondary institutions, and community colleges in particular, structure opportunities for faculty to learn about instruction and classroom practice—what Taylor and Rege Colet (2010) term “instructional development.” Yet, many faculty members continue to need support to develop the language and habits of reflective practice and to translate knowledge about a new approach into changes in the classroom (e.g., Nakabugo & Sieborger, 2001; Wilkerson & Irby, 1998).

Existing literature points to a collection of promising practices related to professional learning about teaching, and researchers widely agree that professional development should be relevant to the needs of teachers and students and derive from instructors’ questions (Darling-Hammond, Chung Wei, Andree, & Richardson 2009; Robb, 2000; Speck & Knipe, 2005). However, additional research is needed to understand when and how to implement these approaches in higher education. This is particularly true for faculty teaching in reformed contexts. This present analysis of faculty questions contributes to efforts to fill this gap by probing

deeply into faculty experiences at various stages of reform implementation. We argue these findings have applicability to instructors teaching in non-reform contexts as well.

Research design

This paper draws on data from a three-year study that explored how instructional innovations in developmental education are initiated, adapted and scaled within and across institutions. The project looks at four instructional innovations—two in developmental English and two in math. Although these reforms differ in how they attempt to improve student success in developmental education, they share a common focus on exposing students to more complex or challenging tasks. In a co-requisite model which allows students referred to developmental English to co-enroll in college composition, developmental students complete college-level work with additional support. In an accelerated integrated reading and writing reform, students complete assignments that mimic college-level work instead of practicing discrete reading or writing subskills. In both math reforms, a developmental arithmetic course that emphasizes discovery-based learning and a pre-statistics course, the focus is on conceptual understanding of mathematical concepts. To support instructors teaching these new courses, faculty leaders devised a range of learning opportunities for colleagues at their own institutions and at other colleges piloting these reforms for the first time.

Data relating to faculty questions and needs were collected through interviews with faculty members as well as observations of professional development activities. The instructors were purposively selected based on their role in the reform and recommendations from administrators and colleagues. They were identified as diverse in their professional backgrounds, perspectives on the reform, and approaches to delivering instruction. Included in the sample are faculty teaching in one of the four reforms ($N = 45$), faculty leaders responsible for designing learning opportunities for their colleagues ($N = 6$), and instructors who were not participating in the reforms ($N = 20$).

Researchers conducted 103 semi-structured, audio-recorded interviews over five academic semesters. Interviews focused on faculty experiences and perceptions of the reform as well as their pedagogical approaches. This analysis draws on a subset of questions included in the interview protocols about instructors’ prior and current professional development experiences and questions or areas for further professional development. To capture changes in faculty perceptions and experiences, researchers interviewed 25 of the participants more than once. For most, initial interviews occurred during the instructor’s first semester of teaching in the reform and follow-up interviews occurred in subsequent semesters.

Additional data sources include observations of 20 faculty learning activities occurring at different stages of implementation. These include meetings in which faculty planned for implementation and/or discussed curriculum and instruction, multi-day convenings of faculty from multiple colleges implementing new reforms, and coaching calls between a faculty leader and small groups of faculty at other campuses. Researchers also analyzed the content of 3 online platforms designed to connect faculty implementing these innovations, email exchanges among faculty, and notes from 23 faculty meetings we did not observe.

Data were analyzed using Atlas.ti qualitative analysis software. After an initial round of inductive analysis (Le Compte & Preissle, 1993), we generated a draft coding list covering topics related to faculty questions, needs, and concerns. Throughout several rounds of test coding, the coding scheme was discussed and refined based on discrepancies with updated definitions and inclusion/exclusion rules. To ensure validity, these coding checks and refinements

continued at weekly research meetings. The final codebook includes 11 faculty question categories; examples include assessment, course structure, curriculum, pedagogy, and student learning. Each data source was tagged according to when it was collected, allowing researchers to identify the corresponding stage of implementation. Additional codes were applied to catalog the nature of professional learning opportunities available to faculty. These include the structure (i.e., training, online, team meeting) and the content or task (scaling, logistics, pedagogy, curriculum). Drawing on both coding categories, the data was mapped to implementation stage and analyzed thematically to develop the question typology presented here.

What questions do faculty ask when participating in reform?

Based on our analysis, we identify four categories of questions that emerge and evolve over time (see Table 1). Specifically, the questions that instructors raise before the reform launches differ from those they ask in their first and then subsequent semesters of teaching. In the section that follows, we describe these questions. Later we discuss implications for creating responsive opportunities for instructional development.

Questions about the purpose and nature of the reform

Faculty in our study first heard about the reform to be piloted at their college in a number of ways. Some heard when the initiative was announced at a faculty meeting, others from colleagues through informal channels, via an email announcement, or through a meeting or workshop dedicated to presenting information on the change. The questions faculty raised in these early encounters were about the nature and purpose of the reform. Understandably they wanted to know what the reform is designed to do and how it intends to achieve those objectives. These questions ranged from factual inquiries about course content to implicit and explicit interrogations of the reform's theory of action. For example, several faculty reported that upon first learning about the pre-statistics course, they wondered if students who did not take algebra could be successful in college-level statistics. Likewise, in observations and interviews, instructors raised questions about how students with less time in developmental education (in terms of semesters or credit-hours) would be able to learn all they would need to be successful in college-level English or math.

A significant subset of questions catalogued at observations of implementation activities which introduced a new reform centered on the effectiveness of the approach. Faculty wondered if the approach has a track record of success, and significantly, for

which students? Specifically, instructors often want to know if the reform has been implemented with student populations that are similar to their own. For example, at a convening for faculty learning about integrating reading and writing, several instructors raised questions about the number of non-native English speakers at the presenter's college and the outcomes for those students. In addition to interest in course pass rates, faculty often raised questions about the performance of students in subsequent courses. For example, a popular question at workshops introducing an open-access, one-semester developmental reading and English course was if students who passed the class were able to pass college composition.

Questions about reform implementation

The second category of questions emerged as faculty learned they would be implementing the reform at their own college. At this phase, instructors work to resolve questions about course structure and policies, particularly as they pertain to their local context. These questions were especially salient to instructors leading implementation efforts. Faculty teams leading adoption efforts in our sample asked:

- Which students will be eligible for the new class? Will students be placed into the course using the developmental education placement instrument? If so, what score range will place them into the course?
- How will we explain and market the new course to students?
- How and to what extent will counselors/advisors, tutors, and other support staff be informed about the reform?

Addressing these logistical questions can take considerable energy during the start-up period. For example, faculty at colleges offering pre-statistics courses found themselves navigating college and state policies related to algebra as a pre-requisite college-level math courses. Faculty teams leading the adoption worked to arrange rooms for the new courses, often trying to secure computer lab space. At some colleges they worked closely with administrators and counselors to staff course sections and ensure enough eligible students were enrolled.

Faculty with a less central role in leading the effort also raised questions about reform implementation. For example, at a start-of-semester meeting among instructors teaching a co-requisite developmental English course, significant time was spent discussing grading policies for students who pass the support course but not the college-level course (or vice versa). When reforms included course policies with implications for students (i.e., in a reform

Table 1
Four question categories.

	(1) Questions about purpose and nature	(2) Questions about implementation	(3) Questions about classroom practice	(4) Questions about student learning
Timeline	When faculty first learn about the reform	Prior to reform launch	When preparing to teach in the reform	After one or more semesters of teaching the reform
Sample question	Does this approach have a track record of success, and for which students?	How will eligible students be recruited to take the course?	How much time will I need to spend on each topic?	What new strategies can I employ to support students who struggle with this concept?
Sample responsive professional learning opportunity	Presentation to prospective instructors on rationale for change and reform theory of action	Departmental meeting focused on defining course policies	Collective viewing and discussion of videos of reformed classes	Faculty team reviews student assessments to identify areas for curricular improvement
Challenges associated with typical professional development	Presenters may focus on these questions at the expense of other question types	If not resolved, these questions may dominate professional development designed to address other question types	Common approach of sharing strategies may not generate a thoughtful instructional design	Many faculty have little experience critically reflecting on student learning

where high-performing students might bypass a subsequent level of developmental education), faculty wondered about how they would communicate or explain these procedures to students.

Questions about classroom practice

The third category of questions emerges as faculty prepare to and begin their first semester teaching in the reform. These questions are related to two dimensions of classroom practice: course materials and use of class time. Questions about course materials were related to selection of texts and selection or creation of major assignments and assessments. Three of the four reforms studied in this project did not prescribe a particular textbook, giving instructors significant leeway in course development. While some were energized by the freedom and creativity this allowed, this lack of structure raised questions for many. In the co-requisite model, faculty asked if they should have separate assignments in the companion section or if the same texts should be used across both course components. In an interview, a faculty member in his first semester of teaching a pre-statistics course revealed he was regularly emailing a more experienced colleague to ask about course assignments.

Questions about class time include broad questions about pacing the course (i.e., How much time will I need to spend on each topic?) as well questions about how to use the time in an individual class. As one instructor stated in an interview, “All semester, I feel my most pressing question is knowing know what I’m going to do tomorrow.” While some of these questions are natural to the process of becoming acclimated to any new course, we observed some trends in the questions about classroom practice that are specific to the reforms studied in this project. One question that emerged repeatedly was about when and how to include skill-based instruction (i.e., grammar, reading comprehension, and foundational mathematical procedures). For example, faculty teaching integrated reading and writing courses wondered when they would have time to address sentence errors in a course that emphasized writing text-based full-length essays. A second was about the use of class time given that the instructional designs deemphasized lecture. Faculty teaching the conceptual arithmetic course asked for examples of how faculty leaders structured the class periods.

Questions about student learning

In most cases, the fourth category of question did not emerge until faculty had completed one or more semesters in the new course. Questions about student learning reflect a depth of understanding of the reform and a desire to improve pedagogy to meet students’ needs. They interrogate the reform’s central principles, asking “what does this look like in practice?” These questions often sound similar to the questions about classroom practice described above, but the former are activity-oriented (What will I do if I am not lecturing?). Questions about student learning are objective-oriented (What class activities will help my students understand fractions?).

Some questions about student learning revealed that faculty were deepening their understanding of the reform’s design principles, which was raising new questions. For example, one instructor with several semesters of experience teaching the redesigned arithmetic course stated that he was allowing “more conversation” in class, but a recent experience in a professional development workshop had prompted a question of whether this was really facilitating students’ discovery of mathematical concepts. An integrated reading and writing instructor in her second semester noticed that general class discussions about the readings were not preparing students to write about specific

features of the texts, and therefore wondered how she could teach students to read more closely for detail.

Another feature of the questions about student learning is their focus on meeting a variety of student needs. Faculty wondered how to adjust their practice to ensure students with a range of abilities could be successful. In her second semester teaching a pre-statistics course, one instructor wondered how to effectively ensure that lower-skilled students were following the enthusiastic and sometimes freewheeling class discussions. She reflected that she was often tempted to “give them the answer,” even though she knew they would understand it better if they arrived at the concept through discussion.

Are available learning opportunities responsive to faculty questions?

While the specifics of the questions vary by reform, we saw a general trend in which faculty first seek information about the effectiveness of the reform, then must resolve questions about implementation at their college, then have concrete questions about course materials and use of class time. Once they have experience in the course, their questions begin to focus on student learning and the instructional strategies that will maximize it. In this section, we use this temporal framework to explore how professional learning opportunities available to instructors in our sample aligned with these question categories.

Faculty in this study participated in a range of learning opportunities for new and continuing instructors. These included workshops to disseminate information about the reform to potential instructors; training sessions to orient new instructors to course materials and policies; online platforms to collect lesson planning materials, and faculty discussions; coaching/mentoring meetings to respond to the needs of individual or small-groups of teachers; convenings to bring together faculty from multiple colleges teaching the same course; and regular meetings of cohorts of faculty teaching the same course in the same college. All of these learning opportunities were designed and led by faculty. Many (like workshops) were programmed in advance by one or more faculty leaders. In other cases (like monthly meetings of new faculty) they were emergent, co-constructed by the participants.

Questions about the purpose and nature of the reform

We documented numerous instances in which faculty learning opportunities were responsive to questions about the reform’s purpose. Those leaders who had developed the reform in their own classrooms were extremely practiced at communicating how the approach addressed the problem of low success rates in developmental education. They communicated this information in presentations to colleges considering the reform, at local and national conferences, and in smaller sessions with faculty embarking on the change. For example, after administrators and faculty leaders at one college elected to adopt a co-requisite model in the upcoming semester, they convened a special department meeting which featured a presentation by a reform leader. The faculty leaders in our study had a wealth of empirical data and anecdotal evidence suggesting the efficacy of their approaches, but at times this information was misaligned with faculty needs. For example, we observed that one-time orientations often focused on the nature and purpose of the reform and evidence of its effectiveness. As one reform leader explained, there was a tendency to “sell faculty” on the model, in part because this was an area in which faculty leaders felt comfortable. However, in the weeks leading up to the start of the semester, many instructors have immediate and pressing concerns about classroom policies

and practice that were not addressed by a presentation on the rationale for the reform.

Questions about reform implementation

These questions dominated the conversations at many of the implementation activities we observed, particularly at meetings or events before the college's first semester launching the course. They were largely addressed by sharing how other faculty or colleges resolved the issue. For example, in response to concerns that pilot sections of the course were under-enrolled, leaders with experience scaling the co-requisite model at their own college provided numerous examples of how they interfaced with advisors to increase efforts to market the course to students. Questions about course policy were sometimes difficult to navigate in cross-institutional conversations because the solutions are highly dependent on college policy. In one instance, instructors expressed concerns on how they would implement the reform leader's curriculum, conceived in a pass/fail course, in their own colleges where letter grades were required. Contextual differences necessitated that many of these questions be resolved by intra-college teams. These questions can be particularly consuming for faculty at the start of a change effort, and if unresolved can delay or deter inquiries into teaching and learning (Edgecombe et al., 2013).

Questions about classroom practice

The third category of question was most often answered by sharing syllabi, course outlines, texts, homework assignments, assessments, and other course materials. These efforts sometimes overlapped with discussions of questions about reform implementation. Reformers typically distributed sample course materials in meetings and orientation sessions prior to the start of the semester, and some faculty leaders opted to share all of their materials with instructors who requested it. Online resources were designed to address these questions about classroom practice. For example, at one college, the reform leader developed an online portal to organize instructors' course syllabi, assignments, and assessments as well as examples of student work and corresponding grading. The portal also archived monthly written reflections of instructors in their first semester teaching in the reform.

In addition to questions about course materials, faculty raised questions about course pacing and use of class time. One faculty leader provided significant support to a new adjunct by hiring him as an embedded tutor in her section. He was therefore able to see how she used the time in her class before teaching his own section later in the week. In two other cases, college teams engaged in peer observation to develop a deeper understanding of the types of activities colleagues were employing. Two faculty networks reviewed videos of teaching to, in the words of one faculty leader, give instructors "a vision of the possible." Faculty shared that seeing these artifacts of classroom practice increased their confidence and gave them ideas for ways to engage with their students. For example, an adjunct instructor teaching the co-requisite English decided how to structure his own course after reviewing several other instructors' course syllabi stored online. He and others shared that reading the written reflections of their colleagues helped them anticipate and plan for common challenges they might face during the first few weeks of teaching.

One challenge of addressing questions about classroom practice was participants' lack of experience engaging in discussions about teaching. Like the majority of college faculty, most had training in their discipline rather than in pedagogy, and most reported that previous professional development experiences consisted of conference and workshop attendance rather than in-depth inquiry

into pedagogical practices. In our data, discussions about teaching were most frequently structured around "sharing strategies." These conversations tended to be unstructured with many ideas discussed simultaneously. For example, in a meeting of faculty teaching the co-requisite model an agenda item was strategies for teaching grammar; participants toggled between sharing specific techniques (e.g., showing students sample incorrect sentences), describing obstacles to teaching the topic (e.g., students make the same mistakes, even with repeated instruction), and discussing their instructional goals (e.g., "I don't want them to be able to recite the rules, but I want them to be able to edit their work"). If participants gleaned new strategies from conversations like this, they did not receive guidance on how these strategies might be employed within a purposeful instructional design.

Some faculty leaders' inexperience facilitating discussions about teaching provided an additional challenge to addressing questions about classroom practice. Most faculty leaders in this project were not experienced professional developers, and they were forthcoming about their discomfort in this role. This stemmed, in part, from an apprehension about appearing prescriptive about pedagogy. A lack of specified pedagogy was perceived to be essential in building buy-in for the reform; as one reform leader said, "there is no way we could have gained approval for the pilot if faculty had to give up their autonomy." Another source of the hesitancy was related to faculty leaders' own stage of development, as most had only a few semesters of experience teaching in the reform. One reform leader stated, "We didn't want to tell them this is what you have to do because we didn't really know what we wanted them to do anyway." We observed numerous instances in which facilitators responded to instructor questions about classroom practice by saying, "there's no one right way to do this." This often had the effect of halting the conversation and leaving the instructor's question unanswered.

Questions about student learning

Student learning questions were raised infrequently in the implementation activities we observed; our data on these questions are drawn primarily from interviews. One reason for this is that fewer learning opportunities were designed for continuing faculty, so most of the professional activities we observed were dominated by questions from faculty preparing to teach in the course for the first time. As such, pragmatic issues related to course policies and materials were most likely to be discussed even when reformers intended to discuss student learning. For example, at a conference presentation focused on refinements to classroom practice, instructors with less familiarity with the reform raised a series of seemingly off-topic questions about the course texts and policies. In another instance, a session intended to be a critical examination of student writing was derailed by a series of questions about grading policies.

We hypothesize that a second reason these questions were less likely to emerge during of implementation activities is a lack of practice in raising and discussing them (Wilson & Berne, 1999). By contrast, the interview setting provided participants a structured and formal opportunity to reflect on their teaching. Even in meetings and workshops that did include experienced instructors, student learning was infrequently mentioned, and when it was conversations were almost never sustained. For example, at a multi-college meeting designed to raise issues of pedagogy, even when prompted by facilitators to evaluate the rigor of student work, participant comments mostly served to describe and compare college and reform contexts. At an intra-college meeting, a conversation purportedly about improving student learning focused instead on the reasons why students struggle (family and work responsibilities, flagging motivation, lack of strategies for

effective studying). The primary way of discussing teaching observed in this project – strategy sharing – did not generally include consideration of how particular approaches would improve learning and under what conditions. In interviews, respondents consistently characterized strategy sharing as interesting and useful, but were generally unable to articulate how it had alleviated questions about student learning or contributed to systematic approaches to improving teaching.

Although we have few examples of these questions being addressed, the data show that the primary mechanism through which faculty did interrogate student learning in group settings was through the critical review of course materials and student work. For example, at a meeting for instructors beginning their second semester of teaching integrated reading and writing, participants read sample student papers for the purposes of discussing the clarity of the assignment prompt and the types of instructional activities that would need to follow to help students make improvements to their writing. Similarly, experienced instructors of a reformed course reviewed the representations of math concepts in the course text and made suggestions for how additional examples or clarity of wording might improve student comprehension of the topic. In both cases, these conversations included faculty reflection on their own teaching practice. For example, one math instructor was considering making changes to the prompts she provides to students to guide them to discover the course material. An English instructor began using journals to evaluate students' thinking processes and plan review lessons in response.

Discussion

The evolution of questions documented here presents a new perspective on faculty experiences, and specifically indicates the temporal dimension of their needs. These findings align with theories that highlight the importance of active experience (e.g., Kolb, 1984) as a precursor to learning. It was only after instructors had experience teaching in the new course that their questions deepened to focus on the nuanced features of their own pedagogy. These data are specific to faculty adopting instructional reforms, but the questions of newly hired instructors or instructors teaching any new course may follow a similar trajectory.

Considering this cycle can help reformers and instructional leaders create targeted and responsive learning opportunities. Our data demonstrate that even thoughtfully designed workshops can fall flat if not aligned with faculty questions. Findings also point to the drawbacks of meetings that bring together new and continuing course instructors, as it may be difficult to meet the needs of either group effectively. One-time trainings as a general strategy are similarly limiting. Because they most often occur before the launch of the reform, training sessions are unlikely to delve deeply into questions of student learning. Faculty who had the opportunity to follow-up later to address questions about teaching and learning reported the benefits of supports beyond the reform's launch.

Our data do include examples of learning opportunities that were responsive to the evolving questions of instructors. These activities shared two characteristics: they were sustained and tied to the work of developing and refining the reformed course. Examples include ongoing collaborative efforts to develop course learning objectives, design assessments, revise textbooks, create grading rubrics, refine curricula, or define standards for evaluating student work. In one case, a team of four English faculty members met weekly in the period leading up to the launch and throughout the first academic year of the pilot of an integrated reading and writing course. Initially, they worked collaboratively to identify shared curricular materials and clarify course policies. During the semester they used their meetings to discuss their classroom

experiences, troubleshoot challenges, and evaluate and refine the curriculum. Notably, the sustained nature of this collaboration allowed for conversations about pedagogy and student learning to emerge in ways that were atypical in our data. In a meeting focused on the selection of course readings, they discussed how to assess students' comprehension of these texts, which were more challenging than those used in typical developmental courses. In particular, the instructors discussed how and when they might apply strategies for strengthening students' reading comprehension skills. When we observed the courses in a subsequent visit, we noted each of the faculty members employing at least one of the comprehension techniques discussed in the meeting. In interviews the instructors reported that it was challenging to keep students engaged and motivated as they completed more advanced reading assignments, which was an ongoing area of inquiry and refinement among the team into the second semester of implementation.

When faculty collaborated on authentic course development and refinement tasks (i.e., curricular refinement), they avoided many limitations discussed previously. Because these gatherings were task oriented, they were less reliant on a skilled facilitator to sustain conversation or a pedagogical expert to impart wisdom. Conversations in these venues were grounded in particular facets of classroom practice (i.e., how to assess a specific skill), and therefore avoided more decontextualized strategy-sharing. When teams of instructors sustained a partnership over time, instructors were able to develop trust and rapport, which likely supported question-asking and critical self-reflection. It was in these settings that we saw questions about student learning raised, suggesting that long-term relationships can help facilitate the discussion of the fourth question type.

Conclusion

The findings in this study confirm existing scholarship establishing the challenges of structuring meaningful instructional development in higher education (e.g., Stes et al., 2010). Specifically, we identify the limitations of one-time workshops, decontextualized conversations about teaching strategies, and the challenge of facilitating in-depth conversations about teaching and learning. This paper extends existing scholarship by identifying how these limitations are connected to the way in which faculty questions vary according to their level of experience in teaching in a course.

Additional research is needed to explore the appropriateness of various types of professional development venues to explore these question types. For example, how might larger numbers of instructors (i.e., entire departments) participate in authentic course development tasks? What role can one-time workshops play? Can the benefits of the long-term collaboration cited above be generated in less intensive structures? Our dataset indicates potential advantages and drawbacks to a variety of structures like online forums, multi-college gatherings, and intra-departmental meetings, but we are unable to draw direct comparisons. And given that previous literature indicates the importance of reflective practice, we are in need of additional research on the ways in which structured professional development can draw out questions about student learning. Although we charted the responsiveness of professional learning activities, our data do not speak to their efficacy in generating improvements to classroom practice or student outcomes. We hypothesize that focusing on course development and refinement primes participants to engage in systemic inquiry-improvement activities in their own classrooms, but additional research is needed to make connections between professional learning opportunities and changes to pedagogy. The questions typology presented in this paper provides a grounded framework to guide such research.

Improving outcomes for students in higher education will depend on the ongoing improvement of instruction, whether that is catalyzed by a formal change to course structure or an individual faculty member's efforts to refine his or her practice. In community colleges, formal and informal changes to instruction are widespread, particularly in the area of developmental education. Reformers are working to improve instruction to improve learning, engagement and retention among students with significant academic needs. This context provides a natural setting to explore the experience of faculty members teaching new courses, but the question typology documented in this paper is instructive for understanding the needs of faculty as they embark on pedagogical change of all kinds. Importantly, our data also reveal the rich opportunities for learning about instruction that emerge from collaborative efforts in course design and refinement. When these activities allow for in-depth discussion of classroom materials, student work, and other artifacts of practice, they have the potential to focus attention on learning, which holds promise for improving instruction and outcomes for students in higher education.

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