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SEEKING SYMMETRY IN A SCHOOL-UNIVERSITY PARTNERSHIP: UNIVERSITY OF CHICAGO AND CHICAGO PUBLIC SCHOOLS—A COLLABORATIVE APPROACH TO DEVELOPING MODELS AND TOOLS FOR PROFESSIONAL DEVELOPMENT AND TEACHER PREPARATION

This case study describes how the University of Chicago's Center for Elementary Mathematics and Science Education and its Urban Education Institute partnered with each other and with two charter schools and seven Chicago Public Schools. "Tools" were developed to disseminate knowledge and expertise through "models" that allowed for this knowledge and expertise to flow in many directions across all levels of the partnership. Strengths, such as the shared tool of Everyday Mathematics, and weaknesses, such as the "a la carte," voluntary nature of the professional development offerings, are discussed specifically and frankly. In fact, the lessons learned from this partnership are listed, alongside the examples of these lessons' inclusion in a new (2010) ITQ partnership with the Chicago Public Schools.

The University of Chicago has had a long and illustrious history in education. John Dewey joined the faculty in 1892, shortly after the University opened, and the school that he founded (The University of Chicago Laboratory School) continues to be guided by the principles of progressive education that Dewey espoused. Much more recently, the University has undertaken several bold and visionary initiatives aimed at improving schools and schooling. Two of those initiatives, the Urban Education Institute (UEI) and the Center for Elementary Mathematics and Science Education (CEMSE), are at the center of the IBHE-funded Improving Teacher Quality (ITQ) project that is the focus of this case study. I write this case study from my perspective as the Project Director for that ITQ project, which began in September 2007 and continued through September 2010.

The Urban Education Institute (UEI) was established in 2008, drawing together the four campuses of the University of Chicago Charter School (UCCS), the Consortium for Chicago School Research (CCSR), and the Urban Teacher Education Program (UTEP)—each of which had existed previously as distinct entities—into a unified organization with a shared mission. UEI aims to make lasting and significant contributions to improving urban schools by bringing together researchers, practitioners, evaluators, and innovators to confront the challenges of urban education. UEI's charter schools provide a real-life context for the meaningful intersection of research, tool development, and preservice and inservice teacher education and support. As such, UEI offers a unique model for how higher education institutions can systematically engage in the improvement of

Pre-K through Grade 12 schooling. The Director of UEI was the Principal Investigator for the University of Chicago's ITQ project. UEI's elementary charter schools, Donoghue and North Kenwood Oakland (NKO), were the professional development schools at the center of the project.

We intentionally designed our ITQ project to have leadership both from UEI and from the University of Chicago's Center for Elementary Mathematics and Science Education (CEMSE), where I work. CEMSE was founded in 2002 to provide an institutional base for the Elementary Component of the University of Chicago School Mathematics Project (UCSMP). CEMSE continues UCSMP Elementary's mission—to improve K-6 mathematics education across the nation—and broadens it to include both science and mathematics education for children up to 14 years of age.

Like UEI, CEMSE seeks to impact education on a wide scale through the creation and dissemination of useful knowledge, tools, and services. CEMSE's work comprises three complementary and overlapping strands: Tool Development, School Support Services, and Research and Evaluation. A central focus of CEMSE's Tool Development work is *Everyday Mathematics,* a reform-oriented elementary mathematics program that has become the longest lived and one of the most widely used elementary mathematics curricula in the United States. The first edition of *Everyday Mathematics* was published in 1988; in 2010, the curriculum was in use by nearly 3 million students, or close to 1 in 5 elementary school students in the United States (Bell & Isaacs, 2007).

Implementing *Everyday Mathematics* is often a challenge for teachers because it approaches teaching and learning mathematics very differently than the way many elementary teachers experienced mathematics themselves, either as students or as teachers. In recognition of this fact, CEMSE has built a school support services team of professional developers and coaches who work with schools and districts to support the use of *Everyday Mathematics*. The *Everyday Mathematics* author group and school support services team collaborate closely at CEMSE to insure that a) the assistance delivered to schools is of the highest quality, and b) the successes, challenges, and needs of users can inform ongoing development and improvements to the program. Like many of my colleagues at CEMSE, I am both one of the *Everyday Mathematics* authors and a member of the School Support Services team.

Both UEI elementary charter schools, Donoghue and NKO, use the *Everyday Mathematics* program, as do a large number of Chicago Public Schools, including all of those that participated in this project. Establishing a strong connection between curriculum developers, professional developers, and users of *Everyday Mathematics* was an important focus of our ITQ project. A rich interchange of information, in which every party had something to offer and something to gain from the collaboration, was key to establishing a more balanced partnership than may be found in a typical school-university relationship.

This case study will describe how CEMSE and UEI partnered with each other and with the Chicago Public Schools (CPS) in a project aimed at: a) improving leadership, instruction, and achievement in mathematics and science in the two UEI elementary charter schools and seven other CPS schools; b) improving elementary teacher preparation in mathematics and science in UEI's UTEP program; c) informing the *Everyday Mathematics* curriculum; and d) developing and disseminating tools and models that emerged from project work. I will describe the organizational structures and implementation processes that we employed over the course of our three-year project. Throughout, I will discuss project successes, as well as project challenges, with an eye toward highlighting lessons learned that others might find useful.

Our project had certain key features that may have relevance to other school-university partnerships with similar organization and goals. These include:

- a multi-tiered organizational structure that involved many people at various levels of authority and decision making, each carrying out different functions within the partnership;
- the development and support of professional development schools as models of "best practices," both for preservice teachers and for inservice teachers and leaders;
- an emphasis on working with a network of schools, rather than with individual schools;
- the deployment of "external" coaches into schools to impact instructional practice and to develop and support leadership; and
- a focus on "tools" as tangible ways to translate principled knowledge into practice and to share ideas across settings.

What's in a Name? "Models" and "Tools"

The official name of our project was *University of Chicago and Chicago Public Schools: A Collaborative Approach to Developing Models and Tools for Professional Development and Teacher Preparation.* Its verbosity made it unwieldy for everyday use (and for citing again in this case study), but it is worth highlighting what we meant by *models* and *tools,* since those had considerable significance for the goals and design of our project.

Models

We aimed to explore and refine professional development structures and mechanisms (i.e., *models*) that would allow for knowledge and expertise to flow in many directions—directly between and among teachers, from coach to teacher, from teacher to coach, and from these individuals to others with whom they work, including preservice teachers, school leaders, and curriculum developers. The original request for proposals from IBHE put special emphasis on “feedback loops” between partners. Our project viewed this as impetus and opportunity to develop a collaborative and multi-directional approach to providing support for teachers and schools. We believed that the models that would emerge through our efforts would provide for the sort of responsive and differentiated professional development and support required by a network of schools with very diverse profiles and needs. Specific information about some of the models we employed, such as summer writing groups and issue-focused study groups, are discussed later in this case study.

Tools

We define tools very broadly; they reflect the translation of research, ideas, and expertise into forms (i.e., *tools*) that can be used by others. By embodying some of the knowledge and expertise of the tool maker(s) and making it available to others, tools often enable less expert practitioners to perform at a level of expertise they could not reach without the tools. Tools can also promote the dissemination and scaling of research, ideas, and expertise because they enable this knowledge to be shared with, and used by, many with relative ease and efficiency.

The large tool at the center of our project was *Everyday Mathematics,* the mathematics curriculum used by all of the schools and teachers in our project. Having a common curricular tool allowed us to differentiate our support for teachers and schools while still building and maintaining a focused and cohesive approach to improving instruction. “Implementation tools” are another type of tool that became very important in our project. They include things such as unit- or lesson-planning templates, menus for differentiating instruction, and assessment booklets—tools intended to support teachers as they implement their curriculum and that, when they are deemed helpful, teachers use regularly in the course of their day-to-day work. These tools were a natural byproduct of project activities; they were often co-developed by coaches and teachers in the course of working together to improve instruction and then shared across the project.

Within our project, work on such tools reflected UEI’s and CEMSE’s belief in an “engineering” approach to tool development such as that described by Burkhardt and Shoenfeld (2003) and Bryk (2009). As Bryk asserted, “Education needs a Design, Educational Engineering, and Development (D-EE-D) infrastructure. This activity should be organized around the core problems of practice embedded in the day-to-day work of improving teaching and learning and in the institutions where teaching and learning take place” (pp. 597–598). Our project provided a valuable context that served as an engineering test-bed for the early stages of this process, producing prototype tools that can then be systematically studied and iteratively refined.

Clearly, tools played an essential role in helping us implement the types of models we were seeking to use in our project. Tools served as shared content across the network of schools in our project, as well as with our partners in CPS, the UTEP program, and the *Everyday Mathematics* author group. Tools were also a vehicle for disseminating knowledge and expertise within and outside of the project—concretely translating the research, ideas, and expertise from all project partners into practice and sharing these ideas and practices within the project and beyond.

History and Overview of the Project

The "UC/CPS Collaborative Project" was informed by an emerging body of scientific research on the characteristics of professional development (PD) that positively affect teachers' practice and student achievement. This literature points to professional learning that is content focused (Darling-Hammond, Wei, Alethea, Richardson, & Orphanos, 2009; Garet, Porter, Desimone, Birman, & Yoon, 2001); sustained and intensive (Darling-Hammond et al., 2009; Yoon, Duncan. Lee, Scarloss, & Shapley, 2007); concentrated on instruction and practice (Ball & Cohen, 1999; Desimone, Porter, Garet, Yoon, & Birman, 2002; Supovitz, 2002; Supovitz & Christman, 2005); informed by knowledge of how students learn and approach specific content (Borko, Jacobs, Eiteljorg, & Pittman, 2008; Kennedy, 1998); collaborative (Darling-Hammond et al., 2009; Garet et al., 2001); and aligned with existing standards, instructional systems, and curricula (Ball & Cohen, 1996; Bryk, 2009; Garet et al., 2001).

When we proposed the "UC/CPS Collaborative Project" to IBHE in June 2007, we viewed it as an opportunity to apply this rich research base in an ambitious project that would connect and expand upon several other projects and relationships among the various partners. At that time, CEMSE and the Chicago Public Schools Office of Mathematics and Science (OMS) were finishing the first year of an intensive effort to support the implementation of the *Everyday Mathematics* curriculum in ten CPS schools that were undergoing restructuring due to repeated failures to make the "adequate yearly progress" required by No Child Left Behind. Although the "Restructuring Schools" project had numerous strong elements (many of which were incorporated into our IBHE project proposal), conspicuously absent were exemplary school-wide models of implementation for the struggling schools to observe and learn from. The project also lacked opportunities for the participating schools to collaborate and learn from each other.

Also at this time, CEMSE and the University of Chicago's Center for Urban School Improvement (now UEI) were seeking opportunities and mechanisms for developing and expanding collaboration between the two groups. UEI was interested in strengthening the mathematics and science strands at its two elementary charter schools—Donoghue and North

Kenwood Oakland (NKO)—and in its preservice Urban Teacher Education Program (UTEP). CEMSE was interested in playing a role in these efforts. The prospect of working closely with two local, urban schools using *Everyday Mathematics* offered CEMSE valuable opportunities both to support these schools' implementations and, in the process, to learn from their questions, challenges, and successes.

Against this backdrop, it is probably not surprising that our 2007 proposal to IBHE emphasized developing UEI's charter schools as professional development schools for mathematics and science, a role these schools already played to some extent for literacy. As a first step, we knew that we needed to bolster the mathematics and science practices at Donoghue and NKO by working on planning, instruction, and assessment at the individual teacher and the school levels. In this respect, our project had considerable success. Both Donoghue and NKO made substantial improvements in mathematics and science over the course of the project, evidenced both by their instructional practices (at the teacher and school level) and in their student test scores. These impacts will be discussed more fully below.

But our original proposal envisioned more than simply improving the practices in these two charter schools. We also proposed to explore and address mechanisms for helping these schools function in a professional development capacity for others so that they would become true professional development schools. This was the primary reason for including partnership schools in the project—to begin investigating models and tools for collaboration and dissemination within a small network of schools. The UEI charter schools also serve as training sites for preservice teachers in UTEP, so we viewed the schools as potential "model" sites for both preservice and inservice teachers.

Organizational Structures: The Players and Workings of the UC/CPS Partnership

Our project was complex on a number of levels—most notably in its multiple partners, multiple layers of operation, and multiple audiences.

Multiple partners

Within the University of Chicago, the partners consisted of:

1) UEI, including its two elementary charter schools, Donoghue and North Kenwood-Oakland (NKO), and its teacher education program, UTEP; and
2) CEMSE, which houses the author group for the Pre-K through Grade 6 *Everyday Mathematics* (EM) curriculum, as well as a team of professional developers and coaches who support that curriculum.

Within CPS, the partners consisted of:

1) The Office of Mathematics and Science (OMS) (which became two separate offices as part of a reorganization at CPS in the 2009-10 school year);
2) The leadership in CPS Area 14, including the Chief Area Officer and the Area mathematics and science coaches; and
3) Seven neighborhood elementary schools, six of which are in Area 14.

Multiple Layers of Operation

Each of the many partners in our project operates at a different level and with a different function within their larger organization (UC or CPS). Given its many components and ambitious goals, it is probably significant that our project—and the partnership that proposed it—was not a start-from-scratch operation, but rather was built upon many relationships and overlapping pieces of work that preceded it. It also seemed crucial to have one organization (CEMSE) serve as the hub for connecting the various partners and coordinating project activities, with one individual (the Project Director, me) responsible for managing cross-partner relationships and communication. Even with this centralized management structure, the structural arrangements of our partnership involved interaction and collaboration at all levels of each organization.

Organizational leaders. Individuals at centralized leadership levels within UC and CPS, including the Director of UEI (the Principal Investigator for the project), the Director of UTEP, the Director of Elementary Mathematics at OMS, the Chief Area Officer and Area Mathematics and Science Coaches in Area 14, and me, the Project Director, were motivated by the prospect of improved, lasting collaboration and connections among the partner organizations (UEI, UTEP, OMS, Area 14, and CEMSE). Each of these individuals was part of a project steering committee that met regularly (three to four times per year) for the duration of the project to set goals, discuss issues, and assess progress from "20,000 feet." Each individual also met one-on-one with me roughly every other month to discuss issues particular to their organization. These organizational leaders were invested in the project as a whole, but, except for me, were not closely involved in day-to-day decision making about project activities. This organizational structure at the "Executive" level allowed for relatively quick day-to-day decisions at the leadership level of the project, while still insuring that large-scale decisions and the overall course of the project were based on input from all partnering organizations.

School leaders. Individuals in school leadership roles (principals and some school-based teacher leaders) comprised another important layer of the partnership. School principals were part of the project steering committee, but they also played active roles in ongoing project operations. The CEMSE math/science coaches and I interacted regularly with these school-based leaders to establish school-level priorities and to develop and refine specific approaches for supporting each participating school. CEMSE coaches were assigned to particular schools within the project (with one CEMSE coach designated as a liaison for each school), allowing them to work closely with each school leader to determine systems and mechanisms for support that fit the specific school context. (For example, having the CEMSE coach participate in grade-level meetings every other week was a system that emerged in one school with a strong grade-level meeting structure. In another school, CEMSE embedded supports into regularly-scheduled after-school math professional development sessions.)

The degree to which the school leaders engaged with the CEMSE coaches played a role in the overall success of the project supports within each building. In schools where the CEMSE coach-school leader relationship was strong, they were able to work together to initiate and continually revise systems for using the limited support resources of the project to best address the needs of the school. In schools where the relationship with the school leadership was weaker, the CEMSE coach was left to establish his or her own priorities and systems of support for the school. For obvious reasons, this situation was less efficient and effective.

In response to this issue, over the course of the project we developed tools to support collaboration between the CEMSE coach and the school leadership. These tools were designed to help with setting school-based priorities and planning and refining systems of support. One such tool was a meeting log (Appendix A) that captured areas of focus and next steps for each partner. Although very simple, this log helped us make sure that the limited time that coaches and principals had for collaborative planning was targeted on important project-related issues and culminated in actionable next steps. Another tool we developed was a school goals and plan worksheet (Appendix B) that helped school leaders establish and articulate priorities and plans and provided a framework for ongoing planning and check-in discussions between the CEMSE coach and the school leader. The school goals and plan worksheet was also important in that it laid groundwork for thinking about long-term goals and sustaining support systems after project funding ended, which was an important focus for our project, especially during its third and final year. We have since used these tools in other projects to promote collaboration between school leaders and external support personnel around short- and long-term goals and sustainable systems of support within schools.

Teachers. The classroom teachers in each school made up the largest group of project participants and the group that had the most direct contact with project supports. The supports offered to teachers varied, both in substance and in format, but all were squarely focused on instructional issues (as opposed to materials, logistics, etc.). The handouts that were shared and discussed at the project "kickoff" meeting in each school summarized the available supports for teachers as follows (many of these are described in more detail later):

- In-School Support provided by CEMSE coaches, including a range of possible services. For example:
    - ♦ Co-planning with grade level teams;
    - ♦ Co-teaching lessons;
    - ♦ Observing lessons and providing feedback;
    - ♦ Arranging for inter- and intra-school visitation and debriefing;
    - ♦ Discussing/analyzing student work;
    - ♦ Using student data to inform instruction; and
    - ♦ Facilitating PD workshops and study groups.
- Cross-school, issue-based study groups (approx. every other month)
- Cross-school visits focused on particular issues or practices
- Subsidies for PD workshops offered by the CPS Chicago Mathematics and Science Initiative
- Summer writing opportunities

The kickoff materials also indicated that the specifics of the above support options would be informed by a multi-faceted needs assessment, which included individual teacher surveys, meetings with each grade-level team, ongoing input and feedback from the teachers, and an entrance interview and ongoing consultation with school leaders. As discussed in the Implementation section below, these needs assessments were an important part of our early planning.

The wide variety and flexibility in support options offered to teachers was intentional, stemming from our focus on exploring various models of support and dissemination. It was also aimed at reaching a greater number of teachers; we wanted to offer differentiated supports that were available to teachers individually or in groups, and that catered to their different needs and preferred formats for their own professional development.

In retrospect, this flexibility in how our project connected teachers with expertise was both a strength and a weakness. We worked with a sizable number of teachers whose teaching practices in mathematics and science were significantly affected through the supports offered by our project, and many of these teachers report that the flexible and less-traditional PD formats (such as study groups and collaborative coaching) enticed them to participate fully and also led to dramatic changes in their practice. However, we also know that there are too many teachers we barely reached at all, in part because of our emphasis on "a la carte" PD offerings that were often voluntary.

Notably, all teachers at Donoghue and NKO received at least a base level of project support. In part, this stemmed from the project design, which allocated roughly four to six days per month of CEMSE coaching support for the PD schools. It was also the result of strong grade-level structures in the PD schools, which provided a mechanism for coaches to reach all teachers efficiently through established grade-level meetings and also afforded natural opportunities for collaboration within grade-level teams around planning and instruction. Donoghue and NKO also entered the project with school cultures that valued "making practice public" and with well-established expectations about engaging with colleagues and coaches. Even with these supportive factors in the PD schools, though, teachers did differentiate themselves in terms of how much they made use of the project and in what ways. These differences were more pronounced in the partnership schools, which received only two to four days per month of direct CEMSE support. Within each partnership school, there were also differences in how the limited project supports were distributed—differences that were largely determined by the school leader in conjunction with the CEMSE coaches. In some schools, particular teachers or teams were prioritized for school-based support. In others, participation was largely voluntary.

Despite the variety in format for project supports, there were important commonalities in content and substance. Because all the participating teachers used *Everyday Mathematics,* the curriculum served as a shared context for meaningful professional development. Regardless of what type of professional development option teachers experienced (coaching, study groups, workshops, etc.), they (and we) knew that it would be directly applicable to what they were teaching every day and that there would be others in the room with similar experiences. We think that having this shared tool across the project was an important factor in our ability to offer within-school and cross-school supports that were universally relevant, yet tailored to a wide range of teacher needs.

Math/science coaches. The CEMSE-based mathematics and science coaches round out the participants in our project. The project had a staff allocation of roughly two full-time coaching positions, which was split between two and four coaches in any given project year. As indicated previously, these coaches spent roughly four to six days per month at the professional development schools and roughly two to four days per month at the partnership schools.

The coaches (and the *Everyday Mathematics* curriculum) were the primary channels through which knowledge and expertise flowed from the University to the schools, but it was an ongoing challenge to help many teachers understand the role of these "external" coaches and welcome their support. Teachers wondered whether they would be forced to work with the coaches (sometimes), whether the coaches would be evaluating or reporting on them in any formal way (never), what kinds of things they could ask coaches to help with (almost anything directly related to math or science instruction), and how the coaches fit into other programs and supports within the school (this varied by school).

In the first year of the project, coaches spent considerable time and energy explaining their roles, demonstrating that they had something valuable to offer, and working to build teachers' trust and acceptance. Over time, word of mouth about useful supports and services helped teachers gradually realize that the coaches were more helpful than threatening. Such "winning over" was less time consuming in subsequent years of the project. But, it never went away completely and is probably inevitable when "external" coaches enter the already-complicated dynamics of school roles and relationships. Over time, coaches became increasingly sensitive to possible confusion and mistrust over their roles in the schools. They also became more adept at explaining their roles and putting teachers sufficiently at ease to make use of the supports they had to offer.

Coaching has received considerable attention as a promising intervention for influencing classroom practice (Neufeld & Roper, 2003; Boatright & Gallucci, 2008). This, coupled with a lack of budget for schools to hire their own coaches on staff, suggests possible increased usage of external coaches in school support models. When using an external coaching model, it seems important to explicitly plan for and attend to the challenges in integrating these "external" supports into schools in meaningful ways. Based on our experiences, it is essential to have clear explanations of the coaches' roles and what services the coaches will and won't offer (and why); clear expectations for teachers' interactions with them; and ample time for coaches to "prove" their worth and establish relationships.

In addition to their interactions with the teachers, the CEMSE coaches had direct interactions with the participants at each of the other levels. They served on the project steering committee and collaborated with the school leaders to prioritize and plan project supports at the school level. In a project as large and multi-layered as ours, it seemed important to give the coaches enough autonomy and flexibility to meet the needs of individual teachers and schools and to include them directly in the information flow among partners to make sure that this communication was relevant, complete, accurate, and timely.

Multiple Audiences

One of the ongoing challenges for the CEMSE coaches was trying to serve multiple partners and audiences simultaneously: a school district; an area within that district; a network of schools; individual schools within that network; and administrators, teachers, and students within each school. Even setting aside the larger contexts of district and area (both of which were important, but secondary, audiences that we expected would benefit longer-term from the tools and models generated by the project), simultaneously providing support for nine schools at the network, the school, and the individual teacher level posed challenges that needed to be considered (and reconsidered) on a regular basis. These challenges required prioritizing in light of the original project goals and making determinations about which supports would provide the most "bang for the buck" or lead to continued progress.

Even with these important guidelines in mind, though, this decision-making was necessarily subjective and speculative at times. As a project, we tended to err on the side of supporting individual teachers over schools, in part because our schools generally lacked strong structures for school-wide input and support and because we believed that many of the individual teachers with whom we were working would ultimately contribute to leadership capacity at the school level.

Structurally, this may have been the weakest link of our partnership: in many of our schools, we were missing a person or team between the school principal and individual teachers through which we could develop school capacity without over-relying on an already-overburdened principal. Our project set out to develop math/science leadership teams in each participating school as an early objective, but amidst many priorities and challenges this goal was unevenly achieved. Similarly-structured projects may want to take note of this important learning by establishing a teacher leader or leadership team in each school that works with, but is not wholly dependent on, the school principal to help plan, prioritize, and funnel project supports. Ideally, this would happen at the beginning of the project, rather than in the middle or at the end.

When our project began, the PD schools had recently identified lead math teachers and were working to establish roles and responsibilities of those leaders, a process that our project influenced and supported. They also initiated and supported a cross-school math/science leadership team at the start of the project, which was another factor in the ability of these schools to make good use of project supports from the very beginning.

Implementation Processes: A Timeline of Project Activities

The year-by-year history of the implementation of our project reflects the project's evolving priorities and relationships. As might be imagined, in Year 1 we focused on establishing strong working relationships through meaningful support structures; in Year 2 we focused on deepening and expanding those relationships and supports; and in Year 3 we focused on developing sustainability mechanisms. The shared thread across all three years was a focus on developing, implementing, and sharing activities and tools that seemed likely to have a high impact on teacher practice and student learning.

Year 1—School Year 2007–08

We began the 2007–08 school year with three areas of focus: a) developing partnership relationships through the steering committee and other project activities; b) beginning mathematics support with the professional development schools; and c) recruiting and selecting partnership schools.

As mentioned above, the project steering committee included key representatives from each partnering organization. At the first steering committee meeting in fall 2007, each member was asked to share his or her reasons and goals for participating in the project. Although partners articulated many and varied goals, several common themes emerged from their responses:

- Individuals involved at centralized leadership levels within UC and CPS all expressed a goal of improved, lasting collaboration and connections among the partner organizations (UEI, UTEP, OMS, and CEMSE).
- These organizational leaders also expressed a desire for tools, models, and knowledge that could be used and disseminated beyond the existing partners, including new models for professional development, improved knowledge about effective coaching and leadership practices, increased capacity to support high-quality mathematics and science centrally, and the development of professional development schools where both inservice and preservice teachers could see and learn about best practices for mathematics and science.
- School leaders expressed goals that were targeted at the classroom and school levels, such as improved assessment and differentiation practices to meet varied student needs, more consistent and enthusiastic implementation of their curriculum materials, and improved collaboration among their staffs.

As the project progressed from the Planning phase of these early meetings to the Doing phase of the rest of the project, it was critically important to hold on to these shared goals and use them as a basis for decision-making about allocating project resources and prioritizing project activities.

We began our work with the professional development schools in late August 2007. At this time, the CEMSE team met with the director of each school to discuss and plan the initiation of project activities. Together, we decided to have the CEMSE team meet with the staff in each building at a faculty meeting within the first month of school to introduce the project and administer the teacher survey portion of our needs assessment. We agreed that it was important for teachers to have an opportunity for meaningful input into both the substance and format of the support they received through the project, and we aimed to convey this message at the faculty meeting and through the needs assessment survey. We developed the needs assessment survey (Appendix C) to be very specific to our project, with questions aimed at asking teachers to: a) rate their comfort level with various aspects of teaching *Everyday Mathematics;* b) identify perceived barriers to strong mathematics instruction; and c) describe topics and formats for support that they would find useful. We found the survey to be helpful both in gathering data from teachers about their needs, and also in communicating with teachers about the goals of the project and its emphasis on differentiated and responsive support for teachers and schools. As with many of the tools we developed in our project, we have shared and reused this needs assessment survey in several other contexts.

We followed up the teacher survey portion of the needs assessment with a meeting with each grade-level team during their common planning time. These conversations were informed by teachers' responses on the needs assessment survey and led to the articulation of goals and next steps for project support from each grade level team. The specific goals and next steps for each team varied, but there was a shared interest in assessment and differentiation in mathematics that emerged in each of the PD schools. Ultimately, these became areas of focus for the project at large.

Another early step at the PD schools was to establish a mathematics and science leadership team. Donoghue and NKO created a cross-school leadership team that included the school directors and two to three teachers from each building. This team first met in September 2007 and was charged with helping to plan and prioritize the project supports in each PD school.

The recruitment of partnership schools also began in fall 2007. We decided to narrow our recruitment to one or two CPS areas in order to be able to collaborate with and support area leadership as part of the project. We also decided to seek out schools that had ties to the Urban Teacher Education Program (UTEP), either through the placement of student teaching interns and/or through the hiring of UTEP graduates as teachers. This decision was an attempt to increase our project's impact on preservice education at the University of Chicago and to build on and strengthen existing connections between the University and CPS. Concurrent with the initiation of our project (and as a direct result of the planning conversations for the project proposal), my colleagues at CEMSE and I began teaching UTEP's Math Methods and Science Methods courses for its preservice teachers. Over time, this has allowed for deep, sustained, and highly productive work with many UTEP students, beginning with their coursework and internship placements and continuing after they graduate from the program and begin working in project schools.

So, with strong input from leaders at both UTEP and the CPS Office of Mathematics and Science (OMS), we approached a number of schools in CPS Areas 14 and 15 to share information about the project and invite them to apply to be partnership schools. During this first year, we paid a consultant (a retired OMS employee) to operate as a liaison between CEMSE, OMS, and the areas and schools to help us with the recruitment and selection process. The OMS liaison, the CEMSE coach, and I met with each principal who expressed interest in the project. Either in these meetings or in a follow-up entrance interview, CEMSE staff and school principals discussed information about the current status of the mathematics program in each building, goals and possible mechanisms for support, and next steps for initiating the project in the school. As with the needs assessment survey, we designed our entrance interview protocol (Appendix D) to be very specific to the features of our project and to serve the dual role of collecting important information from principals while also conveying important information about the project.

The first partnership school signed on in November 2007 and the last one in January 2008. We conducted a "kickoff" meeting in each partnership school, just as we did in the PD schools, to introduce the project and administer the teacher needs assessment survey. We also began coaching and other support activities in each partnership school, but at a lower frequency than in the PD schools. With all of the schools on board, we were able to begin thinking about cross-school activities. We wrote and circulated our first project newsletter in December 2007; we used the newsletters to share promising practices from participating teachers and to inform teachers about project offerings—especially cross-school activities.

Cross-school activities during the 2007–08 school year included evening study group sessions focused on common issues that had been identified in the needs assessment surveys. We offered one session on different structures for teaching mathematics lessons, one on problem solving, and one on assessment and differentiation. All of the sessions used *Everyday Mathematics (EM)* as the context for exploring the target issue, which grounded the experiences of the participants in a shared tool. In line with our focus on tools, we developed and piloted a different professional development tool for each of these sessions: case studies for the *EM* structures session, classroom video from NKO for the problem-solving session, and collections of student work from project schools for the assessment and differentiation session.

Year 1—Summer 2008

Tools became a springboard for project activities in the summer of 2008. We established a summer writing program in which teachers from project schools were invited to participate in two-week long summer writing groups. Each group focused on developing or refining tools to support mathematics teaching and learning. Some of the tools were for professional development, such as those that we piloted during the 2007–08 study groups. Others were the "implementation tools" that were described previously—tools such as unit- or lesson-planning templates, differentiation menus, and assessment booklets that support teachers as they use their curriculum on a day-to-day basis. In this first summer, we had a number of these tools that had been co-developed by coaches and teachers in the course of working together to improve instruction, but did not yet encompass all units, grade levels, or mathematical strands. So, summer writers collaborated on expanding or refining these tools, which were then carried by coaches from one teacher to another, to UTEP preservice teachers, back to the *Everyday Mathematics* author group at the University, and to other users of *Everyday Mathematics*. Many of these tools, suitably modified, have found (or will find) their way into upcoming editions of *Everyday Mathematics* and into an online forum aimed at supporting users of the curriculum. (Our subsequent IBHE ITQ-funded project builds on this tool development and dissemination work by developing an online space [a "Virtual Resource Center"] where all schools can access the tools that emerged from our 2007–2010 project.)

Our overarching goals for the summer writing groups were threefold: a) to bring teachers from different schools together in a collaborative, professional working environment; b) to engage teachers in projects that would support their own professional learning and practice, as well as that of others; and c) to develop and strengthen relationships between teachers, coaches, and the project as a whole. In the summer of 2008, about 25 teachers participated in eight different projects. Virtually all of the summer writers found the experience to be extremely rewarding, and many returned in subsequent summers. Many also became more fully engaged in project activities during the school year. Our summer writing groups and the tools they produced illustrate the more balanced and multi-directional flow of information and expertise that we tried so hard to engender in our project.

Another push for the summer of 2008 was to use project funds to subsidize teacher attendance at the *Everyday Mathematics* professional development offered by OMS's Chicago Mathematics and Science Initiative (CMSI). Some schools made a strong effort to send virtually all teachers to the summer PD; participation in other schools was spotty. This trend continued throughout the project, with some schools taking advantage of the funding to get all teachers trained, and others not prioritizing this benefit of the project. In retrospect, we feel that we probably should have insisted on this training as a requisite for continued participation in the project. Given our premise that the CMSI PD would serve as a foundation for the types of coaching and support offered by the project, the uneven participation in the "base" training almost certainly limited our ability to maximize our impacts in some schools. Uneven participation may also have reflected a lack of complete commitment to the project (and/or the *Everyday Mathematics* program) in some schools, which may have been useful to understand and challenge more directly from the outset.

Year 2—School Year 2008–09

In Year 2, we continued the mathematics support activities we began in Year 1, building on earlier relationships and activities to strengthen and deepen the mathematics support in each school. We administered a short Year 2 mathematics survey as a follow up to the Year 1 needs assessment, and we tried to use the results of the survey to plan and prioritize supports within each school, as well as to plan additional cross-school mathematics activities (more on this below).

We also layered on science supports in Year 2, which provided new challenges on multiple levels. First, we learned from the science needs assessment survey that we administered (as well as from our conversations with teachers and school leaders) that our primary goal in most schools would be not to improve the quality of science teaching and learning in each building, but rather to boost the quantity of science teaching and learning that occurred at all. Many of our project schools did not teach any science except in science testing grades (Grades 4 and 7 in Illinois), and most lacked any science curriculum and materials, or had materials that had never been unpacked or opened. A second challenge involved the expansion of the CEMSE coaching team. CEMSE brought on a new science coach to support the schools, and the new coach had to build relationships with the school leaders and teachers before he could begin his work in earnest. In the interest of focus, the remainder of this case study will focus on the math side of our project, but it is important to note that the science work carried its own set of challenges. Some of these challenges stemmed from the fact that teachers across the project did not share a common set of curriculum materials for science, but most stemmed from the fact that science remains a dangerously low priority for elementary schools in CPS (and elsewhere).

During Year 2, cross-school activities took new forms. We changed the format of our study groups to allow cohorts of teachers to explore an issue in depth over time. We facilitated study groups on assessment and differentiation in mathematics, writing in mathematics, and technology in mathematics and science. Each group met roughly once per month to explore the issues in depth, and many tools emerged from these study groups. The use of video from participants' classrooms was one particularly powerful approach for the study groups. It gave teachers something very real and concrete to dig into and discuss, and it helped the teachers rapidly develop a sense of community and trust. Study groups also spawned many cross-school visits among study group participants who were eager to learn more from each other's practices.

As we became increasingly familiar with the teachers in each school (and they became increasingly comfortable with the project), we were also able to set up more cross-school visits outside of the study group context. We developed a protocol for planning and debriefing visits (Appendix E) to help focus these visits on instructional issues and to ensure that the preparation and follow-up were intentional, thoughtful, and rigorous. We also tried to have a CEMSE coach facilitate each cross-school visitation, especially as we were developing and refining the protocol. Many teachers expressed that these visits were extremely helpful for improving their teaching practice.

As mentioned previously, CEMSE coaches also fueled cross-school connections by carrying tools and ideas from one teacher to another. Because so many of the issues and challenges teachers were experiencing were so similar, one teacher's strategy or solution (such as a particular kind of assessment booklet or a framework for planning mathematics centers) was often of tremendous interest to another teacher or teachers. By engaging with many different teachers around the same issues, CEMSE coaches were able to develop and share expertise across settings. As has already been described above, our project worked to translate these popular ideas into tools that could be shared more broadly.

Year 2—Summer 2009

In Summer 2009, we again hosted summer writing groups, building on the successes of these groups in the summer of 2008. In addition, we offered schools the opportunity to propose school-based summer projects which we supported through CEMSE assistance and teacher stipends. The professional development and partnership schools proposed and worked on a wide range of projects, from preparing a new science lab to revising the math section of the report card to developing mathematics "visual organizers" for special education students. In general, these projects served to energize the schools around mathematics and science and to further strengthen relationships between teachers, schools, and coaches. As they did in Year 1, our Year 2 summer activities also served the important function of validating, building on, and disseminating practitioner expertise.

Year 3—School Year 2009-10

Coaching, school-based PD, and cross-school visits continued throughout Year 3. But Year 3 was also marked by a focus on sustainability. We initiated school goals and plan worksheets (Appendix B) to help school leaders plan and prioritize Year 3 supports and think about long-term goals and support mechanisms. We also initiated "collaborative coaching" in many schools. Collaborative coaching typically involves a team of teachers intensively co-planning a lesson, observing the lesson in at least one of their classrooms, and debriefing the experience afterward. It is a non-evaluative process in which the focus of the observation is on how the students interact with the content of the lesson. For many teachers, it is the first time that they engage in such a rigorous planning process for a lesson from their mathematics curriculum (the tendency is to assume erroneously that the teacher doesn't need to do much planning for prescribed and detailed lessons such as those in *Everyday Mathematics*). It may also be unusual for teachers to have a chance to collaborate so closely with their peers around planning and instruction or to meticulously observe students' interaction with the content. We have found collaborative coaching to be a powerful model that schools can implement and sustain internally, which is why we tried to focus on it during Year 3.

We also tried to do more classroom videotaping in Year 3, in the hopes of using the footage to disseminate good practices moving forward and to encourage schools to incorporate videotaping as part of their own internal PD systems. We continued the study group format from Year 2, with cohorts of teachers investigating issues in depth over time. And we culminated the 2009-10 school year with a project symposium at which 25 teachers did presentations and gallery walk posters about tools or practices that they had developed or refined as part of our ITQ project. Many of the symposium presenters had participated in project study groups; others had engaged with the project through coaching, school visits, or summer work. Roughly 60 people were in attendance, including teachers from all nine project schools and the Chief Area Officer and Mathematics Coach from CPS Area 14. Based on participant evaluations, the symposium was extremely useful both for presenters and participants. We were ecstatic to culminate the school year with such a successful event that reflected our project's commitments to honoring teacher expertise and promoting teacher-to-teacher sharing.

During Year 3, we also tried to spark or resuscitate math/science leadership teams in each building (an early focus of our project), though with only intermittent success. The most common challenge was in schools where the math/science leadership team operated outside a more established leadership structure in the building (such as a broader "instructional leadership team"), resulting in the math/science leaders having little real responsibility or authority. Another challenge related to having no real structures at all for distributed leadership, so the teams would meet but had limited mechanisms for impacting the school at large.

Year 3—Summer 2010

Many teachers were disappointed that we did not offer summer writing groups during the final summer of the project. Instead, we devoted CEMSE staff time to cataloging and indexing the numerous tools that had been developed over the course of the project, with the goal of broader dissemination. As we did in the summer of Year 2, we also supported some school-based summer projects and hosted summer sessions for the ongoing study groups.

Implications: Results, Lessons Learned, and Next Steps

Results

We are proud of the work of our school-university partnership. Our project had a positive impact on the instructional practices and professional lives of many teachers, and our structures and activities allowed us to simultaneously learn from the expertise and experiences of the teachers with whom we worked. Both UEI elementary charter schools now have high-quality school-wide implementations of *Everyday Mathematics,* with strong systems and tools in place to support ongoing professional development, lesson planning and implementation, and using curriculum-embedded assessment data within and across grades. And many of these systems and tools are being incorporated, in some form, into *Everyday Mathematics* through program features or professional development.

The Illinois Standards Achievement Test (ISAT) mathematics scores at the UEI elementary charter schools rose dramatically over the course of the project. At Donoghue in 2007, 77.08% of students at Grades 3 and 4 met or exceeded expectations on the ISAT. (Donoghue did not have 5th graders until the 2007–08 school year.) On the 2010 ISAT, 88.49% of Donoghue 3rd, 4th and 5th graders met or exceeded expectations on the ISAT. Similarly, the 2007 ISAT math scores at NKO were 77.13% meeting or exceeding expectations, and the 2010 scores were at 87.84% meets or exceeds. Student test score gains were not as consistently high across the partnership schools in the project (who received fewer direct supports), but—as a group—the schools in the project saw positive improvements across time in both the percentage of their students meeting or exceeding state standards and in their students' ISAT scale scores at several different grade levels, often with magnitudes the same or greater than changes by their peers in the district and/or state as a whole. These changes are, in many cases, statistically significant, but it is important to note that much more evaluation work would need to be done to establish program causality.

Annual teacher surveys administered as part of the external evaluation of our project provide additional evidence of positive impacts. The following findings were taken from the final evaluation report that was prepared by our external evaluator:

- For the mathematics support activities, 100% of teacher survey respondents indicated that the project activities they participated in were either "very" or "somewhat" useful in their instructional practice. (For the science support activities, over 90% of teachers indicated the same.)
- Teacher surveys also indicated several commonalities in things teachers learned through their project participation, including:
    - ♦ a deeper understanding of the *Everyday Mathematics* curriculum;

- ♦ how to make their instruction more engaging, student-centered, and rigorous;
- ♦ how to better differentiate their instruction—often through the use of student learning centers;
- ♦ what productive interactions with an instructional coach could look like;
- ♦ what different pedagogical approaches look like in practice in district classrooms;
- ♦ how to implement teaching strategies that more readily promote student problem-solving;
- ♦ how to increase their leadership capacity for mathematics and science instructional issues; and
- ♦ the usefulness of an effective professional learning community of their peers in promoting their own reflective practice.

Related to this final bullet, we are pleased that several of the teachers in our project have continued their collaborations even after the official end of the project. Fueled by continued interest among its members, the Assessment and Differentiation Study Group continues to meet (and has expanded). Similarly, there have been several cross-school visitations initiated by teachers who wanted to continue this type of sharing and include new colleagues in the exchange.

Lessons Learned

Through its successes and challenges, our project has demonstrated several important principles that may be relevant to other school-university partnerships:

- Teachers benefit from professional development models that value their expertise and promote teacher-to-teacher sharing and collaboration. In our project these models took many forms, including: summer writing groups; sustained, issue-based study groups; targeted classroom visitations; focused grade-level meetings; and collaborative coaching.
- Working with networks of schools both requires, and enables, the provision of differentiated supports. Within such a network, teachers have increased opportunities to find or build “professional learning communities” that meet their needs and preferences for professional development.
- Although individual teachers can learn a great deal from such network-based “professional learning communities,” they need engaged peers and leadership in their own buildings to make the kind of sustained, school-wide impact that we want for students.

- With adequate external support (four to six days per month in our project) and strategic internal leadership, schools can make significant changes in their school-wide mathematics practices that can then impact student learning. The professional development schools in our project are good examples of this.
- Shared tools—especially a shared curriculum—form a useful foundation and focus for professional development activities within a school or network. Shared tools provide common language and cohesive experiences, while still allowing for differentiated supports.
- Tools (of all types and from all sources) can be an extremely effective mechanism for translating research and ideas into practice and for disseminating knowledge and expertise.
- There is tremendous potential in supporting teachers longitudinally and in a variety of contexts. This is true for inservice teachers as well as for preservice teachers who receive supports in the preservice years that continue in a cohesive way after they have their own classrooms.

Next Steps

Many of these lessons learned have influenced a new IBHE-funded ITQ project with the same core partnership of UEI, CEMSE, and CPS. We began our Teacher Leadership for Elementary Mathematics and Science (TeLEMS) project in the summer of 2010, building on the following elements of our 2007–2010 project that we found particularly effective:

- working closely with individual school leadership to identify and prioritize professional development needs, target support, and build capacity;
- supporting teachers in ways that promote collaboration and professionalism (e.g., seeking new knowledge; being reflective; etc.) and that focus on identified needs;
- developing and disseminating tools that emerge directly from the support activities of the project, thereby ensuring relevance;
- connecting inservice support and preservice training in powerful ways; and
- developing the math and science practices in the UEI elementary charter schools and facilitating these schools as PD schools for other schools and for individual inservice and preservice teachers.

TeLEMS also focuses on, refines, or further develops elements of our previous project that we found to be limiting or problematic. The TeLEMS focus on teacher leadership reflects our concern that teachers in many of our project schools were limited in their abilities to play meaningful roles in school leadership and to change and improve mathematics and science teaching and learning school-wide. As part of the project's "Teacher Leadership Institute," TeLEMS teacher leaders are trained to use collaborative coaching as a mechanism for impacting instructional practices through meaningful, collegial collaboration. TeLEMS also provides for the development of an online site to promote more widespread sharing of tools such as those that emerged from the project described in this case study. Finally, TeLEMS continues the support of the UEI elementary charter schools as PD schools for mathematics and science, and it extends CEMSE's collaboration with UTEP to include a CEMSE role in induction support. This serves to expand the sustained and cohesive math and science support for UTEP students from their preservice through their inservice experiences that was so successful for some students in our previous project. We are grateful that TeLEMS provides us an opportunity to apply the lessons that we learned from our first ITQ project as we extend the work of that project in ambitious and meaningful ways.

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Appendix A

Leadership/Administration Meeting Summary
UC/CPS IBHE Project

School Leader / Position: ____________________ CEMSE Support Person: ____________________

School: ____________________ Date: ____________________

Meeting Focus:

School Next Steps:	CEMSE Next Steps:

Next Meeting Date: ____________________ Focus: ____________________

Other Notes:

Appendix B

2009–2010 School Plan for Mathematics and Science

Things to consider while creating your plan:

- What goals and activities will help you continue to build upon/ sustain improved mathematics and science teaching and learning after IBHE project support concludes?
- How can you utilize your math/science leadership team to support short- and long-term goals?
- Are there particular teachers or teams that you'd like to focus on?
- Do you have structures in place to support your goals and activities (e.g., common planning time, adequate time and materials for mathematics and science, etc.)? If not, creating these could/should be itemized in the first column.
- How can you connect your math/science goals and activities to larger goals and initiatives within your school?
- How can you make fullest use of CEMSE support? Is there a support mechanism you'd like to explore, but haven't (e.g., peer-observation and/or coaching, lesson study, targeted PD series, content-focused support, etc.)? Is there a teacher-leader or group of teacher-leaders you'd like to develop over the course of the year?
- How will you share these goals and plans with your staff, parents, others?

2009–2010 School Plan for Mathematics and Science

Goal (Mathematics): ____________________

Detailed subgoals (if applicable):

ACTIVITIES OR STRUCTURES to assist with meeting this goal/subgoals	ROLES/RESPONSIBILITIES for each activity/structure (principals, M/S Leadership teams, particular teachers or teams, CEMSE, other)	TIMELINE for working toward various activities/structures	ACCOUNTABILITY for progress on activities/structures/goals (how will progress be monitored/confirmed/evident?)

Appendix C

Math Support Planning Survey

School: ____________________ Grade Level: __________________

Name (optional): ____

Instructions: The following information will be used to plan support for your mathematics instruction and implementation of *Everyday Mathematics*. Please answer the following items honestly and with any details that you think will be useful for planning our work together. Use the back of the sheets as needed.

1. Please use the following scale to rate your comfort level with different aspects of using *Everyday Mathematics.* Feel free to explain your rating in any area.

1	2	3	4	5
Uncomfortable		Somewhat comfortable		Very comfortable

___ Assessment logistics (how/what to assess, record, etc.)

___ Assessment usage (how to productively use assessment information)

___ Differentiation

___ Using manipulatives and tools

___ Managing manipulatives and tools

___ Using games

___ Organizing students for instruction (whole group, small group, etc.)

___ Facilitating meaningful mathematics discussions

___ Planning and implementing multi-part lessons (different activities, different groupings, etc.)

___ Pacing with lessons

___ Pacing over the course of a year

___ Other (please specify)

2. Please use the following scale to rate the degree to which the following factors act as **barriers** to teaching math more effectively. Feel free to explain your rating in any area.

1	2	3	4	5
Significant barrier		Somewhat of a barrier		Not a barrier

___ Available time for teaching math

___ Available preparation time

___ Availability of appropriate math materials

___ Comfort with *Everyday Mathematics*
(please describe any specific aspects that act as barriers)

___ My feelings about math

___ My math knowledge

___ Other (please specify)

3a. Please use the following scale to rate the degree to which each of the following **supports** would be helpful for developing/improving your mathematics instruction.

1	2	3	4	5
Not useful		Somewhat useful		Very useful

___ Co-planning and/or discussing mathematics instruction with grade-level team

___ Observing mathematics instruction in other classrooms

___ Co-planning lessons with a specialist or mentor

___ Co-teaching lessons with a specialist or mentor

___ Discussing student work with grade-level team and/or a specialist or mentor

___ Using student data to inform instruction

___ Workshops/study groups focused on particular mathematical topics

___ Workshops/study groups focused on particular aspects of using *Everyday Mathematics*

___ Other (Please make specific suggestions)

3b. Please describe the resources and/or supports that you currently receive (in any area or curriculum or instruction, not only math) that are most useful for your teaching. (Think about all types of supports: PD, support from other teachers, support from specialists, particular resources, meetings, etc.)

4. Have you participated in any professional development for *Everyday Mathematics?* If so, please describe.

5. What professional development or study group topics would be most helpful to you for developing your mathematics instruction? (Think about topics related to math content, math instruction, or topics specific to *Everyday Mathematics*.)

6. What else would you like us to know about mathematics instruction in your classroom or in your school?

Appendix D

IBHE: UC & CPS
Partnership Schools Year 1 Introductory Meeting
Overview and Planning

Overview of Project

- 3 PD and 6 Partnership Schools
- Development and Facilitation of School-Based Leadership Teams for Math/Science
- Needs Assessment and subsequent in-school support informed by Needs Assessment
- Other support via:
    - ♦ CMSI PD
    - ♦ Cross-School Study Groups
    - ♦ Collaboration (visitation, joint meetings, etc.) with other project schools
- Development and Use of tools for teacher support and professional development

Plans for Next Steps

1. Conduct Introductory Interview with Principal.

2. Assemble a math or math/science leadership team and convene meeting.

3. Decide best approach for Needs Assessment.

4. Conduct kick-off meeting and administration of needs assessment with CEMSE support.

5. Principal (or school rep) at Project Steering Committee Meeting on December 4.

IBHE: UC & CPS
Partnership Schools Year 1 Introductory Meeting
Interview

Name: ____________________ Position: _______________________

School: ____

Instructions: The following information will be used to help us better understand the math needs in your school and tailor our support to those needs. (Later, we will have a similar conversation about science.) Please complete the following questions honestly and with as many details as you think will help us best understand your school.

2. What program(s) do you use to teach math? How long have you used this program?

3. What program(s) do you use to teach science? How long have you used this program?

4. Describe your school's needs in math.

5. How would you describe your school's readiness (e.g., available time, energy, and openness to outside help) to receive math and science support?

6. The grant calls for a school math/science leadership team. If you already have a team in place, please describe the membership of that team and its current role. If you do not have a team in place, let's talk about how we might best assemble a team for your school (Who? How often? Responsibilities?). [Note that teachers who participate on the leadership team will be paid stipends (from the project budget) for time spent in meetings outside of school hours.]

7. Do you have a math specialist? If so, please describe his/her duties in your school.

8. Please describe the types of collaboration that occur among your staff. Think about collaboration that happens among grade level teams, in cross-grade discussions, through mentor roles, etc.

9. The grant allocates for cross-school study groups to address issues of math and science instruction. What do you think are some good ways to engage your teachers in participating in these groups? [Note that teachers who participate in the study groups will be paid stipends (from the project budget) for time spent in meetings outside of school hours.]

10. The grant has budget to pay for teachers to attend CMSI PD for *Everyday Mathematics* this year. About how many of your teachers have attended any of these CMSI PD sessions? How might we encourage additional teachers to attend? [Note that teachers who participate on Saturday PD sessions will be paid stipends (from the project budget) for their time. For weekday PD sessions, the project will pay of the cost of substitutes.]

11. Please describe any other current of recent professional development initiatives in your building. This will help us understand what types of projects you are currently involved in and what types of professional development structures your teachers are accustomed to.

12. Is there anything else you would like us to know about your school or your math needs?

13. Do you have thoughts or preferences about which PD school you'd like to have as your primary partner?

Appendix E

Inter-visitation Request

UC/CPS IBHE Project

To be completed by requesting teacher(s) before visit

Teacher(s) making request: ________________________________

School and Grade/Position: ________________________________

CEMSE contact: ____

Describe any logistical/scheduling preferences you have for your visit. (Examples: a particular school, grade-level, lesson to observe, day of week, etc.)

Describe what specifically you hope to see or learn about as a result of your visit. (Examples: watch for pacing, see how games are incorporated into a lesson, understand how a teacher differentiates within the course of a lesson, etc.)

To be completed by requesting teacher and CEMSE contact together after visit

Describe follow-up steps and/or support from the visit.

<u>To be completed by CEMSE</u>

Teacher to be visited: ___________________________________

School and Grade/Position: ______________________________

Date & Time: _______________________________________

Lesson to be observed: __________________________________

Describe plans/focus topics for a pre-observation conversation, if applicable. (Examples: focusing questions, background information from classroom teacher, information about the lesson, etc.)

Describe plans/focus topics for a post-observation debrief, if applicable.

Other pertinent information/notes (pre- or post-visit)?