

Summing Up 13 Years of Improving Teacher Quality in Michigan

A Synthesis of Findings and Lessons Learned about
Teacher Professional Development

A Report Based on an Analysis of Data Gathered through
the Cross-Site Review and Evaluation of the
Michigan Title IIA(3) Improving Teacher Quality Competitive Grants Program
2004 – 2017

Winter 2018

Prepared by the Michigan ITQ External Review and Evaluation Team:



**Science and Mathematics
Program Improvement**

WESTERN MICHIGAN UNIVERSITY

This report presents findings, lessons learned, conclusions, and recommendations of the SAMPI External Review and Evaluation Team and does not necessarily represent the views of the Michigan Department of Education or US Department of Education who funded the grant to conduct the review and evaluation of the Michigan Title IIA(3) Improving Teacher Quality Competitive Grants Program.

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Mallinson Institute for Science Education
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Many other individuals assisted with preparation of annual reports and other tasks related to the evaluation/review of the Michigan ITQ program from 2004-2017. Thanks!

About this Document

This report synthesizes the findings and lessons learned from the review and evaluation of the Michigan Department of Education (MDE) Title IIA(3) Improving Teacher Quality Competitive Grants Program conducted over 13 years from 2004-2017. The core report is a set of “Summing-Up Briefs” related to topics pertinent to teacher professional learning and the ITQ projects. It includes graphics illustrating the core implementation strategies and intended outcomes of the program; a concept map and narrative description of the evaluation/review components; and information about sources of these findings.

THANKS TO ALL WHO CONTRIBUTED TO THE MICHIGAN ITQ EFFORT

Many individuals and institutions contributed to the planning, implementation, and evaluation of the Michigan ITQ program over its multi-year life span. Special thanks go to Donna L. Hamilton, Michigan Department of Education ITQ Program Coordinator, for countless hours nurturing and guiding project directors, statewide evaluators, and MDE colleagues through the ITQ processes and procedures. Work well done!

The commitment of time, energy, and expertise of project directors and evaluators, faculty colleagues, and teacher participants has been impressive. Their collegiality, cooperation, and collaboration helped to make ITQ a statewide learning community.

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What's in this document?

This report is presented in four parts:

- 1) **Introduction** and background, including information about ITQ and a program logic model.
- 2) **15 “Insights”** about professional development (PD) summarized.
- 3) **“Summing-Up” Briefs**--findings and lessons learned on topics pertinent to the ITQ PD effort.
- 4) **Description of the review/evaluation** of the ITQ program

What are you interested in?

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SUMMING-UP BRIEFS

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A Note About the Source of Findings and Lessons Learned in this Document.

Sources of data used to develop this synthesis of findings included: project-level director/evaluator final reports, annual statewide data summaries, pre-post common cross-site teacher survey data analyses and reports, reports based on specific cross-project data collection efforts, topical reports developed from multiple ITQ data sources, and evaluation/technical assistance activity documentation. For more information on the sources, contact Mark Jenness (mark.jenness@wmich.edu).

SUMMING UP THIRTEEN YEARS OF IMPROVING TEACHER QUALITY IN MICHIGAN SYNTHESIS OF FINDINGS AND LESSONS LEARNED ABOUT TEACHER PROFESSIONAL DEVELOPMENT

From the Cross-Site Review and Evaluation of the Michigan Title IIA(3)
Improving Teacher Quality (ITQ) Competitive Grants Program—2004-2017

Winter 2018

Prepared by SAMPI—Western Michigan University

PURPOSE OF THIS REPORT

This report summarizes findings and lessons learned from the evaluation and review of the Michigan Department of Education Title IIA(3) Improving Teacher Quality Competitive Grants Program conducted over a 13-year period from 2004-2017. It includes background about ITQ, “15 Insights About Teacher Professional Learning,” a description of the evaluation/review, and a set of 16 “Summing-Up Briefs” that synthesize evaluation findings related to topics pertinent to professional learning and the ITQ projects. The Briefs are succinct stand-alone documents that can be used separately from the report.

The information in this report is organized and presented to inform and support the work of educational policy-makers, LEA and ISD school administrators, college faculty and other professional development providers, and teacher leaders. It should not be seen as a technical evaluation report about ITQ, but a user-friendly synthesis of findings and conclusions about teacher professional learning based on thirteen years of study of the Michigan ITQ program. Readers are encouraged to share the document with others who might find it useful.

ABOUT THE MICHIGAN ITQ PROGRAM

The Michigan Department of Education has funded teacher professional development projects through the Michigan Improving Teacher Quality (ITQ) Professional Development Competitive Grants Program—Title IIA(3) since 2000. Beginning in 2004, the Michigan ITQ program has supported a comprehensive evaluation/review through a contract with SAMPI at Western Michigan University. For each funding cycle, 2004-2017, 10-20 grants (depending on available funds) were awarded to Michigan institutions of higher education (IHEs). Grants have supported partnerships between IHEs and K-12 schools/districts (LEAs). Funding decisions were based on priorities and associated needs identified by the U.S. Department of Education (USDOE) and Michigan Department of Education (MDE).

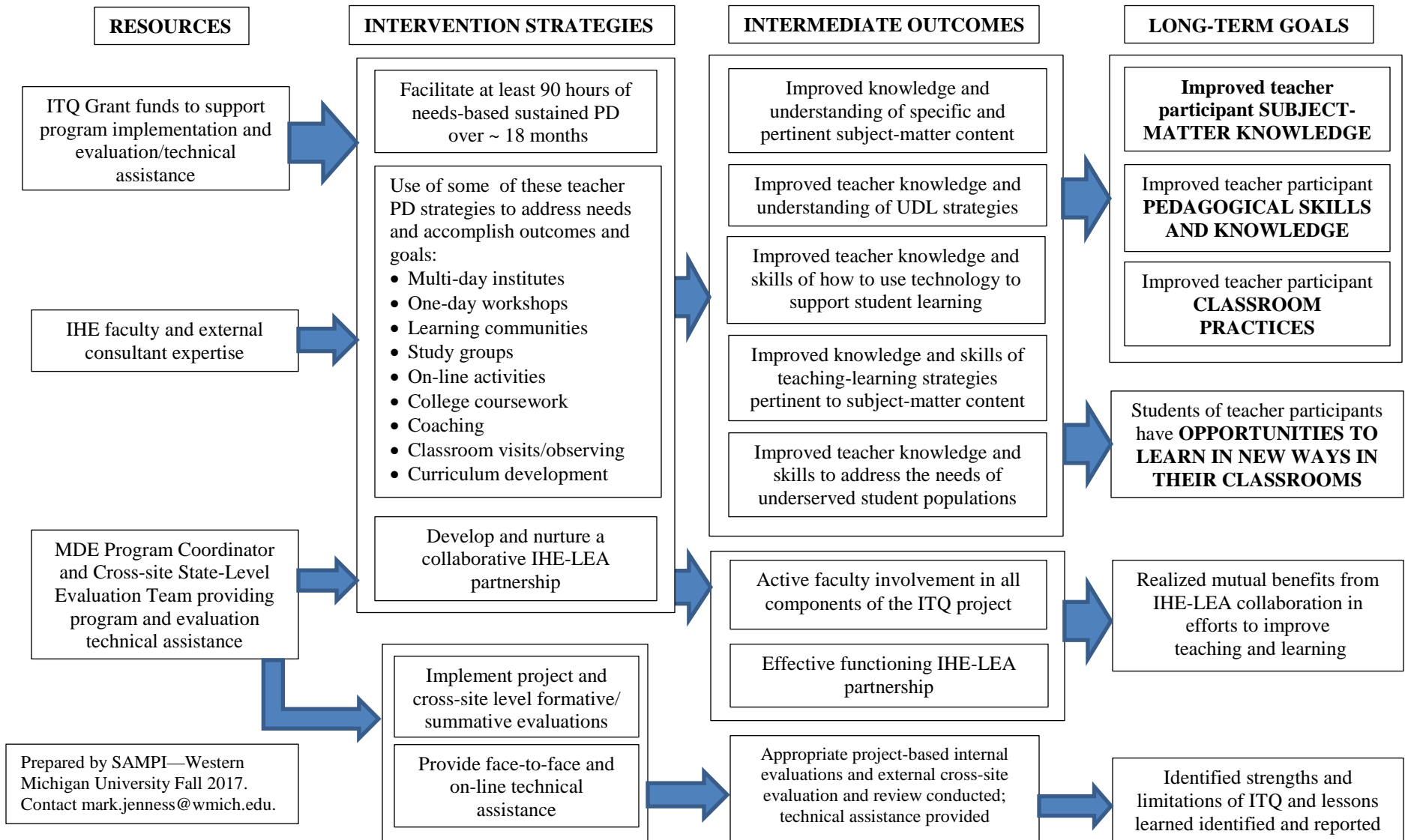
The goal of ITQ has been to improve the quality of teaching and learning, including improving teacher subject-matter knowledge, pedagogical knowledge and skills, and classroom practices. An underlying assumption of ITQ was that improvements in teachers’ knowledge, skills, and practices will improve student learning. All projects were expected to provide programming for educators from high needs schools as defined by USDOE and MDE. Funded projects offered a variety of sustained professional development (PD) in the areas of science, math, social studies, English language arts, or special education. Some projects also included administrators and/or paraprofessionals in their PD activities.

THEORY OF ACTION/LOGIC MODEL. To help the reader better understand the ITQ program, the next page provides a “Theory of Action-Program Logic Model” graphic—a “road map” showing relationships between project resources, core interventions, intermediate outcomes, and long-term goals.

THEORY OF ACTION--PROGRAM LOGIC MODEL

Purpose of the Michigan ITQ Program: The purpose of ITQ is to improve the quality of teaching and learning, including improving teacher subject-matter knowledge, pedagogical knowledge and skills, and classroom practices, with the assumption that changes/improvements in these areas will improve student learning.

Needs-Based Programming: ITQ is guided by overall statewide identified needs related to goals, as well as needs specific to the target audience of a particular ITQ project. Pre-proposal identified needs are used to plan the professional development project; emerging needs, identified as the project evolves, guide project revisions.



15 Insights About Teacher Professional Development

Summary Conclusions Based on Analysis of Findings and Lessons Learned from the External Review/Evaluation of the Michigan Improving Teacher Quality (ITQ) Professional Development Program 2004-2017

Prepared by the ITQ External Cross-Site Review/Evaluation Team—Winter 2018

SAMPI

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Introduction. This six-page summary of fifteen “Insights” about teacher professional development (PD) emerged from an analysis of data from the external evaluation of the Michigan Improving Teacher Quality (ITQ) Professional Development program—2004-2017. These conclusions focus on strengths and limitations of various aspects of planning, implementing, managing, and evaluating teacher professional development programming. Some conclusions are consistent with generally accepted ideas about teacher professional development; others may challenge these ideas. This is not an exhaustive list of PD ideas and issues, only those identified by the Michigan ITQ external review-evaluation team. These insights are a component of a more extensive summary of findings and lessons learned from the review/evaluation of the Michigan ITQ program.

A. How much professional development is enough? Teacher professional learning (PL) is a life-long pursuit— no specific end-point . . . a cumulative process . . . a progression of experiences over time. Professional development (PD) generally refers to more formal defined programming provided by facilitators.

Michigan ITQ required at least 90 hours of professional development activities for participating teachers over 18-month grant funding cycles, based on findings from national studies and standards. Project goals (and associated interventions) were organized around addressing a discrete set of subject-matter and pedagogical needs identified by partner schools and teachers. Projects were expected to provide a sustained PD effort using a variety of formats, such as institutes, workshops, on-line activities, learning communities, study groups, classroom observations, and between-session assignments. They were also expected to use instructional strategies designed to actively engage teachers in learning.

This configuration of PD allowed facilitators to provide substantive and sustained programming on a defined set of topics and issues. During intervals between scheduled sessions, teachers were able to try out activities and lessons in their classrooms based on what they learned in PD sessions and to share their experiences with colleagues at subsequent face-to-face and on-line sessions. Frequent PD sessions over the 18 months provided many opportunities for participating teachers to share, problem-solve, and network with each other. Based on feedback from end-of-session questionnaires and interviews, teachers clearly value the opportunities to network with their colleagues. Directors also reported that sustaining a focus on particular subject-matter, pedagogy, and associated classroom practices helped teachers develop a more in-depth understanding of the topics and issues and, thus, a greater likelihood of owning the ideas. It also allowed them time to more fully assimilate these ideas into their teaching/learning repertoire.

B. Professional learning: capacity-building or training? Assuming professional learning (PL) is cumulative over the life of a teacher, a primary purpose for PL is capacity-building. Individual capacity is concerned with

knowledge, skills, expertise, and understanding combined with an interest and determination to make something happen (in the context of ITQ, capacities are concerned with improving teaching and learning).

At the same time, professional development (PD)—providing formal programming—encompasses many kinds of experiences: institutes, workshops, coursework, learning communities and study groups, on-line learning, dissemination of materials, information sessions, training for specific skills/procedures, informal learning (travel, hobbies, media), etc. All of these experiences add to individual capacities (both positive and negative). PD includes 1) information distribution/dissemination; 2) training on specific skills, procedures, and techniques; and 3) sustained formal and informal facilitated capacity-building experiences. Across ITQ projects, the primary focus was on facilitated capacity-building programming to improve teaching and learning.

PD to build capacity requires a greater investment in time, expertise, and financial resources than information distribution and short-term training. However, the results of sustained PD efforts in the context of life-long learning (as reflected in what has been learned through the Michigan ITQ program) suggest that improved curriculum, instruction, and assessment lead to more opportunities for students to learn in more effective ways.

C. There is a commonly held assumption about the relationship teacher professional development and student learning?

A common assumption in education suggests that *high quality teacher professional development leads to improved/increased teacher knowledge, skills, and dispositions . . . which leads to positive changes in classroom practices (curriculum, instruction, classroom management and environment, etc.) . . . which leads to improved student learning.* Much work still needs to be done to confirm these relationships and attributions. It is not so difficult to establish links among particular elements of a professional learning effort and changes in teacher knowledge/skills and/or changes in classroom practices. Many examples of these links were identified among the Michigan ITQ projects. It is much more challenging, however, to establish a strong link between changes in classroom practices and improved student learning. If this is a credible assumption, PD providers (and evaluators) must proactively design, implement, and assess their programs to maximize these changes.

D. Why should teacher classroom practice be an important focus of professional development programs?

Changing classroom practice was both a short- and long-term goal of the ITQ program. Sustained changes in classroom practices are a core indicator of professional development success. These new practices can provide students with opportunities to learn in new ways. They are often an indicator that teachers have expanded their pedagogical repertoire to meet needs of diverse student learners. They reflect efforts to more fully engage students in learning.

Most directors agreed that measuring changes in classroom practices provided very good data about what was happening in classrooms, both to inform adjustments to program interventions and to assess the impact of the program on classroom practices. They did, however, identify various challenges in implementing this data collection strategy, including finding an appropriate existing protocol, training observers, arranging and conducting observations, and assessing the lessons. A common challenge across projects was implementing a credible pre-post data collection design so that observations were conducted prior to the beginning of project interventions and after the final professional development sessions.

E. Does a focus on subject matter and/or pedagogical knowledge and skills impact classroom practices?

In the realm of teaching, a strong link exists between subject matter and pedagogy. Knowledge of both is important for effective teaching and learning. A teacher with strong subject-matter knowledge without a robust repertoire of instructional and classroom management strategies will be less effective in engaging students in their own learning. The same is true for a teacher with strong pedagogical knowledge and skills, but inadequate subject-matter knowledge. ITQ projects were designed to improve/increase knowledge of subject matter AND pedagogy, focusing on the idea of *pedagogical content knowledge* (adequate, appropriate, and accurate subject matter knowledge for teaching). This suggests that a teacher needs enough subject matter knowledge and associated pedagogical knowledge and skills to actively engage students in their own learning.

To illustrate the subject matter-pedagogical connection, here is an example: A skilled teacher knows how to use effective questioning strategies (pedagogy) to engage students, encourage curiosity, and improve student learning. To ask questions requiring students to use higher order thinking skills, stimulate thinking, and motivate further investigation of a topic, necessitates a teacher having adequate subject matter knowledge for the situation. If the teacher's knowledge of

the subject matter is weak, it is difficult to ask questions that elicit thoughtful student response, improve student understanding, and encourage them to take ownership in their own learning.

F. What are the lasting effects of professional development in the context of ITQ

projects? Legacies, in the context of ITQ, are lasting impacts, both large and small, on 1) K-12 teachers, 2) K-12 students of participating teachers, and 3) IHE education and subject matter faculty. ITQ is a relatively short intervention. Resources for evaluation are generally limited to the time frames of the ITQ funding cycles, thus limiting follow-up to determine long-term impacts.

Another challenge relates to who was served by the ITQ program. Because ITQ primarily served only one or a few individual teachers from each of many different schools (in a few cases, all teachers from a single school were served), lasting impacts are most easily identified among project participating teachers, rather than their schools and districts.

It was possible to measure impacts on teacher subject-matter knowledge, pedagogical skills and knowledge, and classroom practices (core ITQ goals) using pre/post lesson observations, pre/post teacher tests, pre/post surveys, assessment of lessons and other products, and debriefing interviews. Without follow-up studies it is not possible to determine long-term and sustained effects. However, within the time frame of the funding cycle, data from the ITQ evaluations suggests improvements on the three core goal areas—improved/increased subject-matter knowledge, improved/increased pedagogical knowledge and skills, and improved classroom practices. Many teachers implemented new instructional strategies in their classrooms learned during PD session and made use of newly acquired subject matter knowledge.

Through surveys and interviews, effects on college faculty could be determined. Impacts identified included an enhanced understanding of the realities, challenges, and needs of K-12 teachers; increased awareness and implementation of teaching/learning strategies applicable to their own college classes; and increased communication and collaboration between subject matter and education faculty

G. In what ways might teacher professional development impact students? Efforts were made to assess ITQ project impacts on students, since an assumption among educators that improving/increasing teacher capacities results in changes in classroom practices and, thus, changes in student learning. Meaningful measurement of this change continues to be a major challenge for educators, researchers, and policy makers.

One of the goals of the ITQ program was to build teacher capacities to provide new and/or more effective ways to help students learn. In the realm of educational standards, this is often referred to as “Opportunities to Learn” or “Learning Opportunities.” They are recommended classroom practices considered effective in helping students learn. Identifying learning opportunities for students was one measure to assess the effects of ITQ projects on students:

General types of “opportunities” identified among ITQ projects included: 1) Learning experiences that engage students in active learning; activities requiring students to integrate and apply learning; experiences that illustrate strong real-world connections or have personal/community relevance; experiences that meet needs of individual students (differentiation of instruction); 2) Access to the knowledge and skills associated with the class subject matter; instructors with knowledge about the subjects they teach; equitable access to learning; access to a safe learning environment; and 3) Expectations and learning criteria are clear and known by students; assess student progress and success based on a variety of learning styles; assessment results used to inform instruction and curriculum. Specific examples of these opportunities were included in PD sessions and, subsequently, in lesson observations of many participating teachers.

ITQ project directors and evaluators used various assessment strategies to try to link the effects of project interventions on teachers with changes in learning among their students. Examples included: project-developed student tests, assessing lesson plans, standardized test scores (in a limited number of projects), lesson observations, evaluation of samples of student work, and teacher participant mini-case studies of a sample of their students.

H. How should the core components of a professional development project be aligned to be most effective?

Professional development is a cultural phenomenon, constituting a complex set of interactions between and among facilitators/providers, teacher participants, curriculum and instructional materials/equipment, and the learning environment. These components are all influenced by program goals/objectives, operational plans/interventions,

time constraints, and evaluation. This is true for a single PD session, PD sustained over time, and PD as life-long learning.

ITQ projects at the proposal stage, and later in the implementation phase, were required to show the coherence (or logic) of the project by defining the alignment of core elements with intended program goals as shown in the graphic below. Effective ITQ projects were those that articulated the connections and, subsequently, implemented them.



I. What purposes should drive professional development programming? There are various purposes for educational improvement projects, including 1) addressing identified needs of a target audience (teachers, students), 2) focusing on accomplishment of pre-determined objectives, 3) implementing research-based interventions, 3) trying out an innovative idea, 4) scaling-up a successful program, 5) developing educational materials to support teaching/learning, or 5) testing/evaluating the efficacy of an educational intervention or product. A program can address more than a single purpose.

The federal Title IIA(3) Improving Teacher Quality (ITQ) program identified a core set of overarching needs to be addressed by grant-funded projects: 1) improve teacher subject-matter knowledge, 2) improve teacher pedagogical knowledge and skills, 3) improve teacher classroom practices, 4) provide teacher pathways to gain highly qualified status, and 5) improve student learning.

ITQ projects identified needs specific to the teachers and schools targeted by the project. Needs data were gathered through teacher surveys, administrator feedback, student achievement levels, curriculum review, and school improvement plans. Those consistent with the overall ITQ goals served as a foundation for planning and implementing a project. Michigan ITQ projects were driven by identified needs combined with evidence-based programming and innovative interventions.

J. What does a learning community look like in the context of ITQ projects? Learning communities are designed to foster collaborative learning by people across a particular work group or setting. Educator learning communities take on a variety of forms, with participants meeting on a regular basis, sharing expertise, and working together to improve teaching and learning. These communities range from a few members to many; they meet face-to-face, on-line, or a blend of the two; form for a very specific purpose over a short period of time or continue over multiple years to address on-going topics and issues; membership can be limited to educators in a particular school/department or include participants from many institutions. Professional Learning Communities (PLCs) are a more formalized, generally used among school educators. PLCs are usually made up of teachers and administrators from a particular school that meet regularly and use a defined set of procedures/strategies to address teaching/learning issues of their school. In the context of ITQ, most of the forms of learning communities described above were represented across projects.

Learning communities, in the context of an ITQ project, were a programmatic intervention to advance the goals of the project. Thus, these project-based learning communities existed only as long as the project continued. They served a specific purpose during the project, which usually disappeared after funding ended. It should be noted, however, that remnants of the collaboration continued among some teacher participants long after the project ended. Some self-motivated teachers continued to collaborate informally after the ITQ project ended; some ITQ teachers provided leadership in their schools to encourage learning community activities; and some teachers continued to seek advice from ITQ faculty facilitators.

Based on a review of the various versions of ITQ learning communities, certain characteristics seem to be necessary for a successful effort. These include: 1) a well-defined purpose, 2) consistent and persistent leadership facilitating group

problem-solving, encouraging full participation, valuing all ideas, and efficiently managing available time, 3) regularly scheduled meetings, 4) concerted efforts to develop ownership by teacher participants in the learning community (participants recognize value and worth to them), and 5) some level of direct or indirect involvement of an outside expert familiar with the issues/problems being addressed by the learning community to stimulate creative thinking, encourage alternative solutions, and offer new ideas.

K. What are the benefits for teacher professional development of a strong partnership between institutions of higher education and local education entities? A core element of the theory of action for the Michigan ITQ program was that projects are partnerships between Michigan Institutions of Higher Education (IHEs) and Local Education Agencies (LEAs)—local schools and districts. The IHE Colleges of Education and Arts and Sciences (or other units with appropriate subject-matter expertise) collaborated with LEAs to facilitate the ITQ professional learning program.

One of the goals of the partnerships was to move beyond “cooperation” to “collaboration,” where an interactive relationship develops between the participants and the facilitators. Collaboration creates a community of shared interest to learn new knowledge, improve practice, and establish mutual support that ultimately benefits participants’ students.

The nature, strength, and quality of ITQ partnerships varied greatly, dependent, in part, on the commitment of the school administrators, teachers, and IHE faculty to strong and mutually beneficial collaboration. However, the identified benefits to schools/teachers and IHE faculty, including:

- Teachers indicated that the partnership provided substantive, relevant, hands-on activities; opportunities to engage with experts; participation in learning communities and networking with teacher colleagues; gaining access to on-line and print resources; and interacting with faculty during classroom visits.
- ITQ provided faculty with opportunities to serve K-12 schools and learn more about “front-line” teaching/learning issues, challenges faced by teachers and schools, and teacher needs and how to address them. Faculty indicated they developed stronger working relationships with their colleagues in other university/college units. They also gleaned ideas that would enhance their own college-level instruction, especially in teacher preparation courses.

L. Why should Universal Design for Learning (UDL) and “accommodation” strategies be incorporated in teacher professional development? Universal Design for Learning (UDL) is an instructional model based on research from the learning sciences that provides a framework for curricular/instructional development and implementation with a goal of creating a learning environment to accommodate individual learning differences among students. With an increasingly diverse student population and efforts to institute differentiated instruction, UDL is a useful framework for teachers to design and implement classroom strategies.

Among ITQ projects, a goal for sessions introducing UDL was to describe and illustrate core principles and how they could improve learning experiences for all students. Although participating teachers had some familiarity with UDL ideas, many lacked knowledge, understanding, and skills to incorporate, and then implement, them in their classrooms. Through the program, teacher participants were expected to identify UDL strategies and develop lessons designed to accommodate students with various learning styles and abilities.

For many faculty PD facilitators, there was a steep learning curve to fully understand the principles of UDL. Over time, they began to recognize the value and importance of UDL, and many identified effective ways to incorporate the principles in their PD sessions, as well as in their own college classes.

M. What can be a role for technology in teacher professional development and classroom practices? Digital technologies have become a pervasive element of modern societies. An emphasis in education has been on use of technology to support/enhance teaching and learning and to improve technological literacy. In this context, the term “technology” encompasses a broad range of equipment (hardware), software, learning support strategies, communication devices and venues, access to on-line information, product- and materials-development tools, scientific equipment, and data gathering/monitoring/analysis/use.

ITQ projects were expected to incorporate technology into their professional learning plans. Technology was to play at least two roles in projects: 1) Facilitate professional development activities and 2) Provide instruction on use of technology to support teaching and student learning in classrooms.

Although all ITQ projects incorporated technology use in their professional learning, the nature and extent of these activities varied considerably. Many factors affected the nature and extent of use of technology across projects: the purposes of the project and relevance to it, availability of appropriate hardware and software during the PD sessions and after teachers returned to their schools, skills/knowledge of PD facilitators, scheduling issues, and available project funds.

Sessions included instruction on use of hardware, software, on-line instructional materials, scientific instruments, calculators, 3-D printers, and many other technology applications. Project directors reported that teachers were generally very receptive to using technology to support teaching and learning. They were motivated to develop the necessary skills to master the actual technology. For many, however, the greatest challenge to the use of technology was having access to adequate hardware and software in their schools and classrooms.

N. What lessons have been learned by project directors and evaluators about teacher professional development projects? Much has been learned by project directors, PD facilitators, and evaluators from their experiences in planning, implementing, and assessing ITQ PD programs. Here are some of their ideas related to conceptual, PD environment, and learning culture elements.

- ✓ Organize professional development by taking the following strategies into consideration: learning communities, risk-free environment, collaboration, small group work, problem-solving approaches, inquiry-based learning, brain-based strategies, and use of manipulatives/hands-on materials and equipment.
- ✓ Professional learning should be organized around participants' identified needs, addressing them by using innovative, research-based, and/or practice-based strategies.
- ✓ Establish a trusting and relaxed atmosphere for professional learning sessions.
- ✓ Use a learning community approach that encourages collaboration among facilitators and participants.
- ✓ Design the program to intentionally build ownership in and commitment of participants to the project and its goals; make professional development relevant, practical, and useful.
- ✓ Link classroom practices and subject-matter content to pertinent learning expectations/standards in planning and implementing professional development.
- ✓ A primary focus of professional development should be to build teachers' capacities to plan, facilitate, and assess teaching and learning, rather than training on specific materials, curricula, instructional strategies, or activities.
- ✓ For teachers with limited subject-matter or pedagogical knowledge/skills, professional development should be a coherent program that includes subject-matter, classroom practices, and support materials. It is not enough to provide these topics separately and then expect teachers to effectively integrate them.

O. What are the roles for evaluation in professional learning? Educators promote the need to be evidence-driven in planning and implementing classroom practices, school operations, teacher professional learning, and other components of the education system. In the context of teacher professional development (and potential effects of it), good evaluation has both formative and summative dimensions. At the classroom and school level, formative evaluative data can be used to improve classroom practices (teaching) and student learning. Summative evaluation data (in combination with formative data) provides a way to determine lasting effects on teachers and students. All evaluation data can be used for decision-making at multiple levels in the education system. Evaluation of teacher professional development is important because PD is a significant investment in educational improvement efforts.

Roles for evaluation in ITQ PD include: 1) informing projects of strengths and weaknesses of their interventions and assess progress toward their project goals, 2) serving as a professional development intervention at the project-level (such as conducting lesson observations and then providing direct feedback to teachers), 3) building capacities of project staff to conduct more comprehensive and effective evaluations and use the data to improve programming, 4) providing systematic data to state-level policy-makers to inform decisions about teacher professional development efforts, 5) gathering systematic data to meet reporting expectations of funding agencies.

Summing-Up Brief #1

Synthesis of Findings and Lessons Learned About Teacher Professional Development
From the Cross-Site Review/Evaluation of the Michigan Title IIA(3) Improving Teacher
Quality (ITQ) Grants Program—2004-2017 Summing-Up Brief #1 of 16

SAMPI

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How has participating *teachers' subject-matter knowledge* been affected by the professional development program?

Context. A core teacher capacity for facilitating student learning is subject matter knowledge. This includes concepts, theories, facts, habits of mind/dispositions, principles, and processes associated with disciplines/subjects, such as science, mathematics, social studies, language, etc. K-12 teachers do not have to be trained mathematicians, scientists, or other experts. They do, however, need pedagogical content knowledge (adequate, appropriate, and accurate subject matter knowledge for teaching) to effectively engage students in learning.

Professional Development (PD) Strategies to Increase/Improve Subject-Matter Knowledge among ITQ Projects.

The list below represents the major types of interventions related to increasing/improving subject matter knowledge used by one or more ITQ projects. Some projects address multiple strategies.

- Sessions and activities designed to “unpack” pertinent subject-matter/content knowledge embedded in state and national curriculum standards.
- Teachers increase/improve subject-matter knowledge through use of content-rich resources: electronic resources, reference books/print materials, photographs and documents, art work, literature and trade books, manipulatives, objects and equipment, physical and illustrative models, and field trips.
- Teachers engage in hands-on activities to develop conceptual and factual subject matter knowledge.
- Interactive sessions with content faculty and other experts, practicing professionals, and technicians and tradespeople.
- Development of lesson and curriculum unit plans describing relevant subject-matter/content for teacher and students.
- Teachers receive evaluation feedback from tests, observations, lesson plan and project critiques, and coaches.

NOTE: *Most of these professional learning strategies integrate a focus on subject matter with a complementary focus on developing compatible pedagogical knowledge and skills, as well as improving classroom practices.*

Examples of Findings Related to Increased/Improved Subject Matter Knowledge among ITQ Teachers.

Increased/Improved subject matter knowledge was a core educational goal of ITQ. Various strategies were used to measure improvements in subject matter knowledge, including pre-post content tests, teacher self-report surveys, review of lesson/curriculum unit plans, lesson observations, and interviews. Below are examples of findings.

- ✓ **Teacher subject-matter/content tests.** Several ITQ projects used subject-matter tests as a tool to assess teacher disciplinary content knowledge. A math project used the *Learning for Mathematics Teaching (LMT)* protocol; an analysis of results from one project showed a statistically significant growth in pedagogical content knowledge. A science project used a modified version of the *Force Concepts Inventory* to assess an intensive summer session focused on physics concepts. Results recorded a seven percent increase in conceptual understanding (not statistically significant). A social studies project (history/geography) used *a project-developed test* based on the content of the professional learning sessions to assess participant subject-matter knowledge. Results showed a seven percent increase pre-to-post on the World Geography component and five percent increase on the World History section (neither increase was statistically significant). A math project created a test from released items from the *Michigan Test for Teacher Certification (MMTC)* in math. Results showed a statistically significant pre-post positive growth.

NEXT PAGE FOR MORE ABOUT SUBJECT-MATTER KNOWLEDGE

Summing-Up Brief #1 Continued . . .

✓ **Teacher subject-matter surveys.** All ITQ projects administer a **common ITQ statewide cross-site survey** developed by the external evaluation team. There are separate surveys for math, science, social studies, and English language arts. Some items are common across the four tests. For subject-matter items, however, each survey is different and based on the Michigan content expectations for the projects' subject-matter focus. Consistently, over multiple cadres of projects, analysis of pre-to-post scores showed an increase in knowledge of subject matter addressed in the professional learning sessions. Many of the changes were statistically significant.

Example of ITQ statewide cross-site survey results from an English language arts (ELA) project.

This project used a pre-post survey design to measure ELA subject matter/topics knowledge. Teachers were asked to rate their preparedness to teach the topics. For example, an analysis of the category of ELA subject matter, *Reading Standards for Literature and Informational Text*, showed a statistically significant positive change for all items in that category (Key ideas and details, Craft and structure, Integration of knowledge and ideas, and Range of reading and text complexity). Further analysis showed statistically significant positive changes for the other four categories of instruction (ELA content/subject matter), which included Reading Standards, Foundations, Writing Standards, Speaking and Listening Standards, and Language Structures Standards.

- ✓ **Familiarity with state-level content expectations.** The ITQ statewide cross-site survey included items regarding familiarity with state-level content expectations. All projects devoted at least some professional learning time to studying the standards pertinent to the disciplinary focus of the project. Analysis of standards-related survey item scores consistently showed statistically significant increases in teacher familiarity with the expectations.
- ✓ **Assessment of lesson plans.** Many projects used their own rubrics to assess various aspects of lesson plans produced by teacher participants, including subject matter. One English language arts (ELA) project, for example, assessed lesson plans periodically and analyzed resulting scores. Data showed that participants were creating plans that increasingly included instruction that aligned with grant pedagogy and instructional structure (ELA content/subject-matter). This was a statistically significant positive change from the first assessment to the final lesson product.

PD Facilitator Challenges to Increase/Improve Teacher Subject Matter Knowledge.

- ✓ **Subject-matter knowledge prior to PD.** Subject-matter/content knowledge varies widely across teachers. The challenge for all PD providers is to plan and implement appropriate programming to meet the needs of participants.
 - **Identifying subject-matter needs.** A variety of strategies should be used to identify disciplinary content knowledge needs. One challenge is to identify the needs of those teachers who will actually be served by the project. PD providers should not rely on vague universal needs. A pre-program needs survey of project participants can be developed and administered during the recruitment phase of the project. For subject-matter needs, these surveys can often be organized around grade-level disciplinary curriculum content standards that must be addressed by the participating teachers. In addition, needs can be identified through feedback from administrators, review of school improvement plans, and review of existing curriculum and instructional support materials.
 - **Prioritizing needs.** Several issues should be considered: 1) The purpose of the project will help determine the nature of subject-matter needs that can be addressed; 2) Availability of appropriate subject-matter expertise among PD providers must also be considered; 3) The extent of needs that can be addressed effectively in the program timeline. As the program proceeds, reassess subject-matter needs and adjust programming accordingly.
- ✓ **Teacher differences.** **Elementary teachers** are expected to teach multiple subjects and often have limited subject-matter knowledge in one or more disciplines. Some, for example, may have a math- or science-aversion. **Secondary teachers** may have a stronger subject-matter background, but not necessarily “knowledge for teaching.” In current school environments, teacher grade-level and subject area assignments are fluid. The target audience of a project will help determine which needs should be addressed. The depth and breadth to which a particular subject matter will be explored will be affected by the positions and needs of participating teachers. Providing an appropriate level of pedagogical content knowledge (knowledge for teaching) will be a major challenge for projects with participants from varying grade levels and subject-area assignments.

Summing-Up Brief #2

Synthesis of Findings and Lessons Learned About Teacher Professional Development
From the Cross-Site Review/Evaluation of the Michigan Title IIA(3) Improving Teacher
Quality (ITQ) Grants Program—2004-2017 Summing-Up Brief #2 of 16

SAMPI

Western Michigan University—Kalamazoo
Mallinson Institute for Science Education

How have participating *teachers' pedagogical knowledge and skills* been affected by the professional development program?

Context. *Pedagogical content knowledge*, and essential capacity for teachers, generally describes the combination of what is being taught (subject matter) and the associated teaching/learning strategies (pedagogy). The *knowledge* component includes understanding conceptual underpinnings of how people learn; knowledge of instructional approaches and how to use them in the classroom; and ability to use specific teaching/learning strategies that help students understand, remember, and apply what they are learning. The *skills* component relates to abilities to facilitate the teaching of subject matter and classroom management.

Professional Development (PD) Strategies to Improve Pedagogical Knowledge and Skills Across ITQ Projects.

Major types of interventions to improve pedagogical knowledge and skills used by one or more ITQ projects are listed below. Some complement strategies to increase/improve subject-matter knowledge.

- Sessions focused on particular instructional models and approaches. Examples: 1) inquiry-based teaching/learning, 2) scaffolding, 3) technology integration, 4) pre-/during-/post-lesson reading/writing, and 5) spatial thinking.
- Teachers learned specific practice- and research-based instructional strategies. Examples: 5E (Engage, Explore, Explain, Extend/Elaborate, Evaluate), Document-Based Questions (DBQ), 5 Practices protocol (Smith & Stein, 2011).
- Identified pedagogical strategies specific to state content expectations.
- Learned instructional strategies/activities specific to particular subject areas or topics
- Teachers developed lesson and unit plans, including descriptions of intended pedagogical strategies
- Used technologies and on-line materials to support curriculum and instruction; effective ways to integrate on-line resources (websites, tutorials, virtual tours, webcams, videos, etc.); learning to create on-line materials for student use
- Using manipulatives and objects, kits, tools, and equipment to support/enhance student learning
- How to devise, implement, analyze, and use formative assessment data to improve teaching and learning
- Identify strategies to meet needs of at-risk students and those from underrepresented populations
- Learning accommodations strategies for students with special needs
- Learning techniques to enhance teacher-student and student-student interactions in whole classes, small groups/pairs
- Sessions focused on classroom management to enhance student learning
- How to use community resources to support student learning (field trips, community experts, career role models, etc.)
- Sessions during which participating teachers share ideas and tips for improving instruction

Examples of Findings Related to Improved Pedagogical Knowledge and Skills among ITQ Teachers. A core goal of ITQ was to improve participants' pedagogical knowledge and skills. Below are examples of findings.

- ✓ **Lesson observations.** Summarizing their findings, one social studies project director said: "Observations of teachers' lessons provided evidence that they were implementing the strategies emphasized in the PD. Observers scored the lessons on 26 criteria in four history instruction categories. Although lessons demonstrated competence in each of the four areas, analysis of the data suggests there is still room for growth. At least for these lessons, teachers had not yet achieved sophisticated levels of application of the principles and practices focused on in the PD."

NEXT PAGE FOR MORE ABOUT PEDAGOGICAL KNOWLEDGE AND SKILLS

Summing-Up Brief #2 Continued . . .

- ✓ **Teacher surveys.** Despite the limitations of a self-report survey, results can provide insight into teachers' perceptions of their own pedagogical knowledge and skills. Post-program ratings of items from a common statewide cross-site survey over eight ITQ project cadres, 2007-2014, were analyzed to determine changes. Across nine inquiry-focused, student-centered teaching practices items, analysis of scores showed a positive change for combined subject areas for all strategies. Of those, five showed a statistically significant change over time, including 1) Organizing activities to facilitate student-student interactions, 2) Use of open-ended questioning strategies, 3) Requiring students to explain their reasoning when giving an answer, 4) Encouraging students to communicate in the language of the subject, and 5) Using formative assessment to find out what student know before and during a unit.
- ✓ **Lesson plans and other teacher products.** A review and assessment of lesson/curriculum unit plans is a source of information about effects on teacher pedagogical knowledge and skills. Many ITQ projects required development and classroom implementation of lesson plans. Using project-developed rubrics (including measures related to instructional strategies), project staff assessed the plans. For example, one science project used the *NGSS Lesson Screener* protocol to evaluate plans, requiring that the final lesson plan met all expectations.

Assessing effective incorporation of Universal Design for Learning (UDL) strategies in a lesson: An example. An English language arts project required participants to include an explicit section on UDL in their lesson plans. A review of these plans showed that teachers consistently incorporated choice of text activities, description of physical location for the activities, and whether the task was “working alone or with a partner.” Several teachers created anchor charts to share with students about different ways they could choose to read with a partner (such as chorally, taking turns, poems for two voices, both reading different copies of the same book).

- ✓ **Project Director Perceptions.** At the end of each grant cycle, project directors and evaluators participated in a debriefing interview. When asked about major successes, the most common responses were related to improved teachers' pedagogical skills and knowledge. Examples of successes identified: improved teaching method/pedagogy, more student-centered learning experiences, and increased use of accommodation strategies.

PD Facilitator Challenges to Increase/Improve Teacher Pedagogical Knowledge and Skills. Exposing teachers to a variety of instructional models, methods, techniques, and activities is a major element of teacher PD. Here are some insights from the review-evaluation of the ITQ program.

- ✓ **Capacity building vs training.** Teacher professional learning can have multiple overall purposes. However, the core goal of sustained professional learning should be capacity-building. For teachers, capacity encompasses disciplinary and pedagogical knowledge, dispositions (interest, persistence, curiosity, optimism, self-reliance), leadership to facilitate improvement, etc. This should be distinguished from “training,” which is learning a specific strategy, procedure, process, “that I can use in class tomorrow.” Training activities should be designed in the context of building capacity, not as a superficial quick fix.
- ✓ **Identifying subject-matter needs.** In collaboration with teachers and others, PD providers should use various methods to identify pedagogical needs of the teachers who will actually participate in the program. A variety of strategies should be used to identify disciplinary content knowledge needs. One challenge is to identify the needs of those teachers who will actually be served by the project. Pre-program teacher needs surveys, administrator input, review of existing curriculum and instructional support materials, and prioritizing curriculum expectations are ways to address this challenge. Avoid vague, global, and universal needs. PD interventions can be based on participants' needs; adjustment of activities can be made as needs are addressed and other needs are identified.
- ✓ **Availability of suitable instructional resources at school.** Teachers may learn new instructional strategies in PD sessions, but are unable to fully implement them in their classrooms because of lack of teaching/learning materials, equipment, and supplies. This can be particularly problematic for strategies requiring regular access to computers and other technology. PD providers should consider this issue as they plan interventions.

Summing-Up Brief #3

Synthesis of Findings and Lessons Learned About Teacher Professional Development
From the Cross-Site Review/Evaluation of the Michigan Title IIA(3) Improving Teacher
Quality (ITQ) Grants Program—2004-2017 Summing-Up Brief #3 of 16

SAMPI

Western Michigan University—Kalamazoo
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How have participating *teachers' classroom practices* been affected by the professional development program?

Context. Effective and appropriate application of subject-matter/content knowledge and pedagogical knowledge/skills is at the core of successful classroom practices. Practices are the instructional strategies, activities, use of materials and equipment, use of technology, classroom management for learning, etc. to achieve positive changes in student attitudes, dispositions, and academic learning. Teachers facilitate multi-faceted practices that offer students *opportunities to learn*, develop ownership in their own learning, and build capacities (knowledge and skills) to succeed in life.

Professional Development (PD) Strategies among ITQ Projects to Improve Classroom Practice. Improving classroom practices was a core educational goal of ITQ. A variety of strategies and activities were facilitated by PD providers. Major types of interventions that were used across one or more ITQ projects are described below.

- Sessions modeling best practices (lesson organization, instruction, management, conveying subject matter, etc.)
- Formal and informal lesson observations (in the classroom or from a video tape) with direct feedback to the teacher
- Customized on-line sessions between a PD provider and individual teacher to critique video-taped lessons
- Participating teachers' video-taping a lesson, then sharing with colleagues to receive feedback
- PD providers coaching in teacher participant classrooms (observing, modeling, providing feedback, problem-solving)
- Use student assessment data (formative/summative) to assess lessons or effectiveness of instructional strategies
- Sharing sessions among participating teachers
- Book study groups discussing selections focused on classroom practices

Examples of Findings Related to Improved Classroom Practices among ITQ Teachers. Improving classroom practice among participating teachers was a core goal of the ITQ program. Below are examples of findings.

- ✓ **Based on data from lesson observations.** It is evident from an analysis of lesson observation from ITQ projects in all four core subject areas that instruction and other classroom practices became increasingly more student-centered and inquiry-based. Over multiple years, evaluators saw changes in classroom practices, including **increased/improved 1) use of questioning strategies** by teachers (more open-ended, substantive, concept-focused, probing) that encouraged higher-order thinking; **2) teacher-student and student-student interaction** allowing students to make claims, provide evidence, draw conclusions, and generate their own questions; **3) use of formative assessment** to increase student understanding, knowledge, and skills; and **4) focus on real-world applications** of lesson concepts.

Lesson observation findings from a mathematics project: An example. “Over the course of the grant cycle, observations showed a growing commitment by teachers to include student-led discourse during mathematics lessons. Observers note this through: 1) an increase in lessons including Number Talk, a specific pedagogical strategy taught during the grant that fosters discourse; 2) a move from teacher-dominated discourse to that which included student voice; and 3) increase in opportunities within lessons that encouraged student-to-student discourse.” A second finding: “In classrooms of teachers who had invested themselves significantly in the grant, math lessons often had greater structure and organization in later observations than those early in the grant cycle.”

NEXT PAGE FOR MORE ABOUT CLASSROOM PRACTICES

Summing-Up Brief #3 Continued . . .

✓ **Teacher Participant Self-Report Pre-Post Program Surveys.** Pre-post program analysis of teacher participant surveys over three funding cycles (2011-2016) of all ITQ projects showed statistically significant positive increases for four items related to pedagogical goals: 1) Leading a class of students using investigative strategies; 2) Managing a class engaged in hands-on/project-based work; 3) Problem-solving activities among students; and 4) Making connections to real-world situations. This suggests a positive relationship between project interventions and teacher survey responses.

✓ **Analysis of Post-Survey Responses Across Eight Project Cadres.** Post-program ratings of survey items, 2007-2014, were analyzed to determine changes. Over that period statistically significant positive changes were identified across all subject areas for two items related to pedagogical goals: 1) Leading a class in using investigative strategies and 2) Making connections to real-world situations and three items related to classroom practices: 1) Use of open-ended questioning strategies; 2) Requiring students to explain their reasoning when answering questions; and 3) Encouraging students to communicate in the language of the subject.

Challenges to Improving Classroom Practices. ITQ directors-evaluators-teacher challenges are described below.

✓ **Challenges related to teacher participants applying what they learned in the PD sessions in their classrooms.**

- **Implementing improved or new strategies.** Teachers learn new instructional strategies through the PD program and are expected to implement them in their classrooms. Some teachers are quick to adopt/adapt them; others procrastinate or are timid; still others are restricted by rigid curriculum or other school-based expectations. A teacher may try out a strategy, be uncomfortable with it, and set it aside without adequate effort to work out glitches. A strategy they have worked into a lesson plan (during PD) is more likely to be implemented, but the strategy may or may not be applied in other lessons and circumstances.
- **Realities of schools and classrooms.** Student-centered inquiry-based strategies take more time than traditional approaches to teaching/learning. Stress from standardized test achievement expectations and other demands on classroom time can cause teachers to make test-taking and adherence to a rigid curriculum higher priorities than a focus on providing opportunities for substantive student learning.
- **Lack of adequate classroom resources.** Teachers may learn new instructional strategies in PD sessions, but not have access to appropriate/adequate classroom resources, especially for technology-based strategies and those requiring special equipment and renewable supplies. Thus teachers are forced to forgo use of the strategy or substitute less effective activities.

✓ **Challenges related to gathering lesson observation and other pertinent data.**

- **Lesson/classroom observations.** Whether formal or informal, for formative assessment, or to assess changes in classroom practices, lesson observations are time consuming and, thus, expensive. They also require a trained observer using a protocol with appropriate measures. One time (and money) saving strategy is to have teacher participants video-tape one of their own lessons, to be assessed later by a trained observer. This requires teacher access to appropriate technology. Also, observing a tape is not the same as an on-site observation experience. However, observations can provide useful information through systematic gathering of pre and post program data. This kind of data also helps PD providers assess the effects of their interventions. At the same time, a single pre and post observation may be inadequate to make a credible assessment of classroom activities.
- **Teacher discomfort with on-site observers.** Having faculty or other trained observers in the classroom can be intimidating for some teachers. Session arrangements and observer behavior must be designed to reduce teacher anxiety. One project director reported a successful observation effort: *“Over the course of the grant cycle, most teachers came to trust the classroom observers in such a way that they requested feedback and suggestions specific to their personal instruction and the learning of students in their classrooms,”*
- **Coaching in the classroom.** This is another way to assess classroom practices, but is time consuming and expensive. Also, well qualified coaches may not be available. Coaches can do both informal and formal observations, as well as provide direct feedback about lessons to teachers. Issues around observation training and protocols apply to a coaching model, as with stand-alone observations.
- **Reliance on teacher self-report.** Often evaluators must rely primarily on teacher self-report data collection strategies to measure classroom practices. Perhaps a more rigorous plan would be a mixed methods approach including on-site or video-taped lesson observations and teacher self-report.

Summing-Up Brief #4

Synthesis of Findings and Lessons Learned About Teacher Professional Development
From the Cross-Site Review/Evaluation of the Michigan Title IIA(3) Improving Teacher
Quality (ITQ) Grants Program—2004-2017 Summing-Up Brief #4 of 16

SAMPI

Western Michigan University—Kalamazoo
Mallinson Institute for Science Education

What have been the nature, extent, purpose, and effects of learning communities in the context of the ITQ projects?

Context. Learning communities are designed to foster collaborative learning across a particular work group or setting. Educator learning communities take a variety of forms, with participants meeting on a regular basis, sharing expertise, and working together to improve teaching and learning. These communities range from a few members to many; they meet face-to-face, on-line, or a blend of the two; form for a very specific purpose over a short period of time or continue over multiple years to address on-going topics and issues; membership can be limited to educators in a particular school/department or include participants from many institutions. Professional Learning Communities (PLCs) are a more formalized community, generally used among school educators. PLCs are usually made up of teachers and administrators from a particular school that meet regularly and use a defined set of procedures/strategies to address teaching/learning issues of their school. In the context of ITQ, most of the forms of learning communities described above were represented across projects.

Nature, Extent, and Purpose of Learning Communities among ITQ Projects.

- ✓ Most projects considered their institutes, workshops, and other PD sessions as meeting venues for a whole group learning communities that continued over the course of the project. Some referred to this format as a “community of learners.” Within this context, whole groups and/or subgroups addressed issues of teaching and learning. These group activities were seen as core interventions to accomplish goals and objectives of the ITQ project.
- ✓ One project, implemented over multiple funding cycles, used coaches to facilitate learning communities at school sites of participants. Project participants included both returning teachers and those new to the project. Coaches spent time in classrooms on a monthly basis and then facilitated learning community sessions with those teachers to discuss issues and needs identified by the coach and teachers during classroom observation sessions.
- ✓ Some projects used lesson study as a learning community format. Subgroups of participants organized as study groups, using lesson study procedures to improve their own classroom practices. These small groups met together periodically to address common issues and topics, as well as assess their own progress toward project goals, sometimes with an ITQ project facilitator and at other times on their own.
- ✓ Several projects organized “book clubs” in which either the whole group or subgroups met to discuss a specific book and extract ideas pertinent to topics and issues being addressed by the project. These book sessions were conducted during part of a regular PD session or as a separate session outside the project PD schedule.
- ✓ A few ITQ projects organized on-line learning communities with varying degrees of success. Various classroom management platforms, email, and other on-line communications strategies were used. One project used real-time face-to-face electronic interactions between project facilitators and participating teachers. They were regularly scheduled PD activities during the school year with one teacher and PD facilitator or a facilitator with a small group of teachers. Each session had specific tasks to discuss issues around classroom practices. These occasions also provided teachers with opportunities to ask questions and get advice from the project faculty facilitators.
- ✓ As part of the statewide review/evaluation, technical assistance sessions were conducted as webinars three times each funding cycle (there were also two face-to-face sessions scheduled). Both project directors and evaluators participated in the sessions. The three-hour webinars were usually organized around two major tasks, plus “house-keeping” chores related to the ITQ program. Specific pre-webinar tasks and exercises were assigned for which

NEXT PAGE FOR MORE ABOUT LEARNING COMMUNITIES

Summing-Up Brief #4 Continued . . .

participants completed an *ideas* form. During the webinar, roundtable sharing of ideas was facilitated. Similarly, agendas for face-to-face sessions addressed pertinent topics and included opportunities for whole and small group discussions and interactive sharing, participant descriptions of strengths and limitations of their projects, presentations by guest experts, and critiquing of evaluation/research findings related to the ITQ projects.

Strengths, Limitations/Challenges, and Effects of Learning Communities Across ITQ Projects.

- ✓ Learning communities, in the context of an ITQ project, were a programmatic intervention to advance the goals of the project. Thus, these project-based learning communities existed only as long as the project continued. They served a specific purpose during the project, which usually disappeared after funding ended. It should be noted, however, that remnants of the collaboration continued among some teacher participants long after the project ended. Some self-motivated teachers continued to collaborate informally after the ITQ project ended; some ITQ teachers provided leadership in their schools to encourage learning community activities; and some teachers continued to seek advice from ITQ faculty facilitators.
- ✓ In some situations, such as when lesson study was used as an organizer for a learning community, teachers continued to work together after the ITQ project ended. The intensity of lesson study (with the sustained group effort to design, implement, and critique research lessons) may have fostered greater participant ownership in the collaboration as teachers recognized the value of this work to their own teaching and were willing to take the time to interact.
- ✓ A few projects were able to work with a single school with all teachers participating. This provided optimal conditions for organizing and facilitating a more formal Professional Learning Community (PLC) that included all teachers in the school. In whole group and sub groups (often grade-level clusters), a PLC-like community was established during the project to address common school-, grade-, and/or classroom-level issues. IHE partner faculty launched the PLC, encouraged local leadership, and provided on-going expertise to help teachers problem-solve. When the grant funding cycle came to an end, the school continued to support the PLC.
- ✓ Based on a review of the various versions of ITQ learning communities, certain characteristics/attributes seem to be necessary for a successful effort. These include: 1) a well-defined purpose, 2) consistent and persistent leadership (facilitating group problem-solving, encouraging full participation, valuing all ideas, efficient management of available time), 3) regularly scheduled meetings, 4) concerted efforts to develop ownership in the learning community by teacher participants (teachers recognize its value and worth to them), 5) some level of direct or indirect involvement by an outside expert familiar with the issues/problems being addressed by the learning community (stimulates creative thinking, encourages alternative solutions, offers new ideas).
- ✓ Learning communities of all varieties can be an important professional learning strategy, but should not be thought of as the only strategy to be used. Although learning communities are one of a broad repertoire of PD strategies, they can also serve as a framework for comprehensive teacher PD in which workshops, institutes, IT-based programming, curriculum/instructional development, book clubs, field trips, project-based learning, coaching, classroom observations, and other PD approaches can be organized. Comprehensive professional development practices for teacher learning, like classroom practices for student learning, must follow principles of Universal Design for Learning--multiple means of representation, multiple means of expression, and multiple means of engagement.

VIGNETTE: Teacher Learning Community/Collaboration Effective PD

An ITQ English language arts project used learning communities as a core professional development strategy in multiple PD formats. Quoting from the project report, “At one partner LEA, teachers met regularly in PLCs to support effective teaching and to evaluate and plan for student learning. In surveys and interviews, teachers reported strong increases in the effectiveness of their [school-level] collaborative efforts. However, progress was not as significant at a second LEA partner school where PLC meetings were less consistent and often were used for purposes other than focusing on student learning.” The same ELA project (in a different PD format), reported: “During classroom learning labs (CLLs) teachers observed and commented on each other’s teaching. One teacher veteran remarked that CLLs were the most powerful PD she’d ever participated in . . . learned more in this experience than any other PD in my entire professional life.” Beyond the CLLs, teachers had many opportunities to work with their peers as they engaged in project activities. Exit interviews confirm that teachers perceived collaboration as the most important and successful strategy of the grant program.”

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Summing-Up Brief #5

Synthesis of Findings and Lessons Learned About Teacher Professional Development
From the Cross-Site Review/Evaluation of the Michigan Title IIA(3) Improving Teacher
Quality (ITQ) Grants Program—2004-2017 Summing-Up Brief #5 of 16

SAMPI

Western Michigan University—Kalamazoo
Mallinson Institute for Science Education

In what ways have projects included Universal Design for Learning (UDL) strategies in their ITQ professional development activities?

Context. Universal Design for Learning (UDL) is an instructional model based on research from the learning sciences that provides a framework for curricular/instructional development and implementation, with a goal of creating a learning environment to accommodate individual learning differences among students. The Harvard CAST project (Rose, DH & Meyer, A, 2002) articulated three core principles for UDL curriculum: 1) Multiple means of representation--give students various ways of acquiring information/knowledge; 2) Multiple means of expression--provide students with alternative ways to demonstrate what they know; and 3) Multiple means of engagement--stimulate students' interests, appropriately challenge them, and motivate them to learn.

Examples of Using UDL Strategies in ITQ Projects. ITQ projects were expected to include UDL strategies in proposed professional development (PD) plans in order to receive funding. In a review of project proposals, two major UDL-related strategies were discussed: 1) how UDL practices would be used for facilitating PL sessions and 2) ways sessions would focus on how participating teachers can use UDL in their classrooms. Below are specific examples of how these UDL strategies were implemented during ITQ projects, as reported by project directors and evaluators.

- ✓ **Facilitating teacher professional development sessions incorporating UDL strategies.** A goal for sessions introducing UDL was to describe and illustrate the core principles and how they could improve learning experiences for all students. Project facilitators introduced various research-based UDL strategies. A primary technique involved project staff modeling/demonstrating UDL strategies during a PD session with teachers, incorporating the methods in tasks, investigations, exercises, and presentations. Teachers received sample lessons and activities integrating UDL principles to try out in their own classrooms. Teacher participants were expected to include UDL strategies in their professional learning projects, such as lessons, curriculum units, and formative assessments. Some projects offered specific UDL sessions conducted by a specialist; one used a blended learning approach with on-line modules and face-to-face demonstrations and discussions. Sessions devoted to teachers' sharing ideas and experiences in using UDL strategies were part of the professional learning sequence.
- ✓ **Conduct sessions focused on how participating teachers can use UDL in their classrooms.**
 - Teacher participants were expected to develop lessons and curriculum materials designed to accommodate students with various learning styles and abilities.
 - Many ITQ projects required teachers to prepare lessons for implementation in their classrooms. During the development process staff worked with teachers to help them incorporate UDL strategies. When lessons were actually tried out in classrooms, staff would observe activities and offer feedback about the effectiveness of UDL elements. For example, in a math project, lessons were to include multiple representations and problem-solving approaches to enhance student understanding of the concept or procedures.
 - Because there were many ITQ teacher participants were from "high needs" schools, teachers brainstormed ideas with project facilitators about how to adapt UDL strategies to accommodate students with diverse learning styles and cultural backgrounds.

NEXT PAGE FOR MORE ABOUT UDL STRATEGIES

Summing-Up Brief #5 Continued . . .

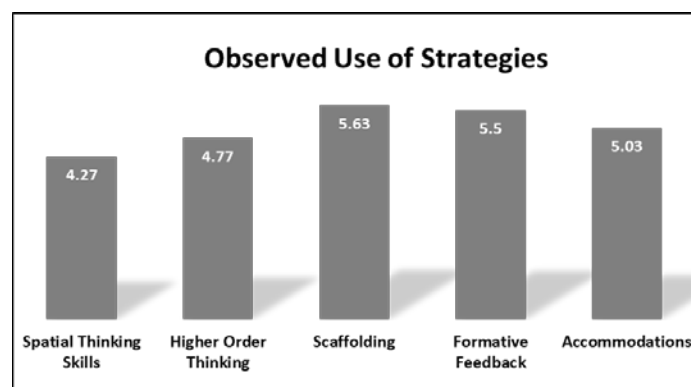
- Several projects used lesson observation (video-tape and on-site) to evaluate the nature and extent of use of UDL strategies in the classroom. This provided teachers with practical feedback on ways to improve/increase use of UDL principles in their teaching.
- In an ELA project, facilitators tailored the content of PD sessions to address the three core UDL principles. Multiple forms of representation were addressed by showing teachers ways to work with various texts that fit the needs of students and various technologies to support lessons. For multiple means of engagement, teachers learned how to focus on cultural relevancy and create a classroom environment where students are encouraged to work both collaboratively and independently. To address multiple means of expression, PD facilitators demonstrated ways teachers could observe, assess, and monitor student progress and adjust lessons based on these observations.
- Another ELA project demonstrated strategies during PD sessions designed to help students read and write for real audiences as a means to express their knowledge.
- Projects trained teachers on use of various technologies to incorporate UDL principles in lessons. For example, projects helped teachers to learn to use iPads for alternative sources of text, as well as a means to engage students. In a social studies project, teachers learned how to use ArcGIS programming to develop on-line materials to expand/enhance the range of student geography, history, and political science activities.

Challenges in Helping Teachers Learn to Use UDL Strategies.

- For many faculty facilitators, there was a steep learning curve to fully understand the principles of UDL. This was evident in the weak narrative sections of their proposals in which they were to describe the specifics of how they would address UDL issues and incorporate these strategies into the professional learning agenda. Over time, they began to recognize the value and importance of UDL, and many identified effective ways to incorporate the principles in their sessions.
- Although participating teachers had some familiarity with UDL ideas, they lacked knowledge, understanding, and skills to incorporate, and then implement, them in their classrooms. At the same time, as they became more aware of UDL strategies, some recognized that they were already using specific UDL techniques. The ITQ PD sessions did help teachers incorporate and facilitate UDL to support student learning.

VIGNETTE: Observing UDL in Geography/History Lessons

This project reported results of observations designed to identify and assess use of UDL and strategies based on contemporary brain research in classrooms of participating teachers. From their report: “UDL encourages teachers to think about how to provide options for students. Curriculum materials take information typically taught in lectures or readings and present them in graphic form, offering activities for learning from the material. Observations were conducted in classrooms of participating teachers to identify and evaluate effectiveness of use of UDL and other strategies introduced during project activities. Observers rated five strategies on a 7-point scale, 1 = low and 7 = high. These results suggest a relationship between UDL-related strategies introduced during PD and use of them by participating teachers.



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Summing-Up Brief #6

Synthesis of Findings and Lessons Learned About Teacher Professional Development
From the Cross-Site Review/Evaluation of the Michigan Title IIA(3) Improving Teacher
Quality (ITQ) Grants Program—2004-2017 Summing-Up Brief #6 of 16

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What has been the role of technology in supporting teacher professional development and classroom practices in ITQ projects?

Context. Digital technologies have become a pervasive element of modern societies. An emphasis in education has been on use of technology to support/enhance teaching and learning and improve/increase technological literacy. In this context, the term “technology” encompasses a broad range of equipment (hardware), software, learning support strategies, communication devices and venues, access to on-line information, product and materials development tools, scientific equipment, data gathering and monitoring, and data analysis and use.

Use of Technology to Facilitate Teacher Professional Development (PD) and Improve Instruction and Other Classroom Practices. ITQ projects were expected to incorporate technology into their professional learning plans. Technology was to play at least two roles in projects: 1) Facilitate professional learning activities and 2) Provide instruction on use of technology to support teaching and student learning in classrooms.

Examples of Technology Use to Facilitate PD. Examples were reported by project directors.

✓ **Communications Among Teacher Participants**

- Some projects used standard email for communications; others used software to support real-time on-line interaction; some used platforms like *Blackboard* and *Google docs* to share PD materials, lesson plans, and other products. Software to facilitate common lesson planning and other project/materials development were also used.

✓ **Use of various hardware to support professional development**

- Among math projects, graphing calculators were used to help teachers learn math content and pedagogical skills.
- In many science projects, teachers used equipment from college and local business labs, as well as hand-held computerized probes, monitors, and other tools to learn science concepts and content, as well as how to adapt them to classroom activities.
- During PD sessions, facilitators used multi-media interactive smartboards for PD topics, as well as showing teachers how use of this equipment could enhance student learning.

✓ **Use of various software to support professional development**

- In social studies projects, teachers used software including Google Earth, ArcGIS Online, Michigan Geographical Alliance World History and Geography materials, and other on-line resources to develop technology-based instructional materials for classroom use.
- All projects incorporated websites to enhance teacher subject-matter and pedagogical content knowledge: sites related to Common Core and other curriculum expectations were highlighted and used during and between PD sessions; teachers learned how to use digital photo and other archives, library and museum websites, live streaming sites, government agency on-line materials, and on-line resources from educational and scientific organizations.
- Most projects facilitated opportunities for teacher participants to 1) explore the internet for useful websites and share them and 2) share websites with which they were already familiar.
- Many projects provided instruction on using spreadsheets and databases to: organize, enter, analyze, and present data (graphs, charts, etc.) from various kinds of investigations.

NEXT PAGE FOR MORE ABOUT TECHNOLOGY USE

Summing-Up Brief #6 Continued . . .

✓Use of hardware and software for formative and summative evaluation.

- Many projects facilitated teacher participant video-taping of lessons in their own classrooms, then sharing them with others in the project. Evaluators and project directors conducted formal and informal lesson observations using video-tapes prepared by teachers. Commercial and teacher-produced video tapes were used during PD sessions to illustrate learning strategies and other pedagogical skills.
- Several projects used specific software to analyze and report on lesson observation data, including SIOP, GoReact, and other analysis tools.

Examples of Activities to Help Teachers Use Technology to Support and Improve Classroom Practices. It should be noted that the technologies described above for use in PD sessions can also be adapted for use with students in classrooms.

✓Activities on ways to use various kinds of hardware.

- Teachers in several projects across the four core content areas (mathematics, science, social studies, English language arts) of ITQ projects, learned to use iPads, iPhones, and other portable devices to support student learning, both directly with students and to develop their own knowledge and skills.
- Some science/engineering-focused projects devoted PD sessions on how to use 3D printers for student engineering design activities. Teachers also learned how to enhance learning with calculators, probes, monitors, and robotics.
- Teachers learned strategies and programs for whole group use of mobile laptops and school computer labs, as well as individual student and small group activities using a single computer.

✓Specific software to support/enhance teaching and learning.

Teachers learned various software packages for direct use in classrooms.

- Excel and other spreadsheets, databases such as Access, and other data management software for student use during investigations.
- Teachers learned various mapping software to use with individual students, small groups, and whole groups.

✓On-line sites to access curricular, instructional, and student learning resources.

By the end of most projects, teachers had identified and accessed numerous websites for their own use, as well as for students, specific to the subject areas of the project. Examples of the types of websites used are discussed on the previous page.

Strengths and Limitations/Challenges of Using Technology to Support Teacher and Student Learning Across ITQ Projects.

- Although all ITQ projects incorporated technology use in their professional development, the nature and extent of these activities varied considerably. Many factors affected the nature and extent of use of technology across projects: the purposes of the project and relevance to it, availability of appropriate hardware and software during the PD sessions and after teachers returned to their schools, skills/knowledge of PD facilitators, scheduling issues, and available project funds. When these issues were adequately addressed, teachers did make more use of technology.
- Project directors reported that teachers were generally very receptive to using technology to support teaching and learning. They are motivated to develop the necessary skills to master the technology. For many, the greatest challenge is having access to adequate technology in their schools and classrooms. Although most teachers have a “teacher” computer, they often do not have classroom sets that they can use as needed. If there are mobile sets of laptops, for example, they likely must be shared with several other classrooms, thus preventing optimal and timely use of the equipment to support lessons. School computer labs are often used for regular formal computer science instruction, thus creating scheduling problems for other classrooms. Effective use often requires access to computers on two or more consecutive days to complete an assignment/activity. Student absences also create problems of “catch-up.” Inadequate tech support at the school level is also a problem for many teachers—no one to trouble-shoot problems or maintain equipment and software. These issues were heard frequently by project directors.
- Technology can serve as one of many enhancements to support effective teaching and learning. Technology should not be seen as a replacement for face-to-face teaching/learning. Many instructional strategies must be used appropriately to realize maximum learning. Technology is not a “silver-bullet.” Teachers and students must develop technology literacy to help them make best use of available technologies.

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Summing-Up Brief #7

Synthesis of Findings and Lessons Learned About Teacher Professional Development
From the Cross-Site Review/Evaluation of the Michigan Title IIA(3) Improving Teacher
Quality (ITQ) Grants Program—2004-2017 Summing-Up Brief #7 of 16

SAMPI

Western Michigan University—Kalamazoo
Mallinson Institute for Science Education

In what ways have student “opportunities to learn” improved as a result of their teacher’s participation in an ITQ project?

Context for Learning Opportunities. One of the goals of the ITQ program was to build teacher capacities to provide new and/or more effective ways to help students learn. In the realm of educational standards, this is often referred to as “Opportunities to Learn” or “Learning Opportunities.” They are recommended classroom practices considered important/effective in helping students learn math, science, social studies, English language arts, or other subjects. Identifying learning opportunities for students was one measure to assess the effects of ITQ projects on students:

Nature of Opportunities for Student to Learn in New Ways. General types of “opportunities” identified among ITQ projects included:

- Learning experiences that engage students in active learning; activities requiring students to integrate/apply learning; experiences that illustrate strong real-world connections or have personal/community relevance; experiences that meet needs of individual students (differentiation of instruction).
- Access to the knowledge and skills associated with the class subject matter; instructors with knowledge about the subjects they teach; equitable access to learning; access to a safe learning environment.
- Expectations and learning criteria are clear and known by students; assess student progress and success based on a variety of learning styles; assessment results used to inform instruction and curriculum.

Nature of Opportunities for Student to Learn in New Ways: Examples from ITQ Projects. This list is based on an analysis of teacher and project staff feedback, lesson observations, and review of lesson plans.

- ✓ Teachers learned and implemented a variety of inquiry-based strategies to engage students, such as experimentation and investigation, argumentation, drawing conclusions and justification, and real-world applications.
- ✓ Teachers used “accommodation” strategies for all students, often with a particular focus on special needs students.
- ✓ Strategies designed to help teachers differentiate instruction was a focus of many ITQ sessions; teachers used these ideas to better meet the needs of the diverse student populations they were serving.
- ✓ Scaffolding was a common strategy, especially in language arts classrooms.
- ✓ Teachers learned “multiple representations” strategies for use in their classrooms. For example, one social studies project focused on how to help students create pictures, murals, and cartoons to represent their knowledge of history
- ✓ Many projects encouraged teachers to implement project-based activities for individual students and small groups as a way to encourage greater ownership in their learning.
- ✓ Strategies from the “Real Talk” instructional program were used to increase student engagement in language and literature lessons.
- ✓ Using spatial thinking brain research, one ITQ project helped teachers integrate geography-history topics into lessons, using maps, images, charts, and data (rather than just narratives) to help students identify connections and patterns.
- ✓ Science-focused projects helped teachers learn to identify student misconceptions of science ideas at the start of a unit and then design lessons to correct misconceptions.
- ✓ One social studies program organized their project around developing teachers’ skills to create on-line lessons and units using Arc GIS software. Teachers tried out their lessons in their own classes; some teachers helped their high school students do history projects using the same software.

NEXT PAGE FOR MORE ABOUT STUDENT OPPORTUNITIES TO LEARN

Summing-Up Brief #7 Continued . . .

- ✓ An instructional program, *Document-Based Questions (DBQ)*, was a core element of a social studies project that helped teachers learn to use photos, maps, historical documents, and other print artifacts to create lessons to actively engage students.
- ✓ Many projects facilitated PD sessions on the effective use of questioning skills to stimulate student thinking and engagement. Teachers used higher order questioning strategies with individual students, in small groups, and in whole groups, designed to correct misconceptions and promote student ownership in their understanding of concepts and processes.

Other Student Accomplishment Measures Used by ITQ Projects. ITQ project directors and evaluators used various assessment strategies to try to link the effects of project interventions on teachers with changes in learning among their students. This proved to be very challenging. Below are some examples of techniques that were tested, with varying degrees of success linking student learning with project interventions.

- ✓ From a social studies project, a staff-developed student test related to geography and history was used with middle and high school students of teachers participating in the program. Pre-post analysis of results showed improvements among students (although not necessarily statistically significant changes).
- ✓ Several projects required teachers to develop lesson plans for implementation in their classrooms. Project staff assessed the plans based on a scoring rubric; some projects then observed the lessons being implemented in the classroom.
- ✓ In a few ITQ projects that worked with the teachers in a single school, it was possible to use standardized test scores to look at changes in student learning (although direct attribution to the professional learning was not possible). In one ELA project, a small comparison group study showed that students of participating teachers outperformed peers in comparison to classrooms on state-level measures of literacy.
- ✓ Pre-post classroom observations provided systematic data to document changes in practices. Observers found, in some cases, strategies learned in PD sessions were effectively being used to actively engage students in learning. In an ELA project, observations and other feedback to project staff showed that SIOP guidelines (a focus of the PD sessions) were being used in implementing lessons. In another project, observers noted teachers were using topics/strategies consistent with those addressed in PD sessions.
- ✓ Analysis of student work helped teachers assess change. They gathered work from early and late in the school year. Using a scoring rubric, changes in the students' work was assessed. It was most effective in assessing changes in student writing. Student artifacts were also gathered in math and science projects as a way to assess student accomplishment. This procedure is time-consuming but did help teachers identify student strengths and weaknesses.
- ✓ In one project, teacher participants conducted mini-case studies on one or more of his/her students using a common project protocol to assess change from beginning to the end of the school year. Teachers said they benefitted from this exercise because they became more skilled at identifying student progress.

Thoughts on Measuring Effects of ITQ Professional Learning on Students of Participating Teachers.

- ✓ The primary purposes and goals of the ITQ program were to improve subject-matter knowledge, pedagogical knowledge and skills, and classroom practices of participating teachers. An underlying assumption of ITQ and many other teacher professional learning efforts is that improving/increasing teacher capacities results in changes in classroom practices and, thus, changes in student learning. Meaningful measurement of this change continues to be a major challenge for educators, researchers, and policy makers.
- ✓ There are many factors that influence student learning in addition to improved classroom practices including 1) Life experiences, activities, and interactions outside the school setting; 2) Natural student maturation and brain development; 3) Family-related factors (economic, social, health, etc.); and 4) Popular media. Nurturing student growth and learning is a multi-faceted proposition. Formal education is only one element of that effort.
- ✓ Multiple strategies were used to measure impacts of ITQ programming on teacher participants, including some that showed attribution of changes to specific professional learning interventions. However, impacts of professional learning are cumulative, occurring over many years and influenced by teacher maturation, and school and life experiences. Each professional learning intervention adds to a teacher's capacity over time to affect student learning.
- ✓ A factor influencing effective measurement of ITQ impacts on students is the time frame of an ITQ grant cycle. Although it is possible to measure changes in teachers, it is much more difficult to measure changes in students, since the 18-month grant cycle usually overlaps at least two school years and, thus, different classes of students.

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Summing-Up Brief #8

Synthesis of Findings and Lessons Learned About Teacher Professional Development
From the Cross-Site Review/Evaluation of the Michigan Title IIA(3) Improving Teacher
Quality (ITQ) Grants Program—2004-2017 Summing-Up Brief #8 of 16

SAMPI

Western Michigan University—Kalamazoo
Mallinson Institute for Science Education

What have been the *nature and effectiveness of IHE-LEA ITQ partnerships?*

Context. A core element of the theory of action for the Michigan ITQ program was that projects are partnerships between Michigan Institutions of Higher Education (IHEs) and Local Education Agencies (LEAs)—local schools and districts. The IHE Colleges of Education and Arts and Sciences (or other units with appropriate subject-matter expertise) collaborate with LEAs to facilitate the ITQ professional learning program. Faculty with expertise in the pertinent subject matter and pedagogy coordinate and conduct sessions to provide the required minimum 90 hours of professional development (PD). Other external experts from the professions, business, trades, cultural institutions, and government agencies may also be involved as consultants and presenters.

Nature of IHE-LEA ITQ Partnerships. Partnerships are characterized through roles of partners and interactions of people in those roles. Below is a summary of findings from an analysis of partnership-related data from multiple funding cycles.

✓Roles of IHE Faculty/Staff in the Projects.

- Provide subject-matter and pedagogical content through facilitation of various engaging PD experiences.
- Share subject-matter and teaching/learning knowledge and expertise from research and best practice.
- Provide participating teachers with opportunities to engage with subject-matter and pedagogical experts, as well as use cultural and educational resources.
- Spend time in teacher participant classrooms observing, modeling, and providing feedback.
- Gather pertinent needs data, before and during the project, then collaborate with LEAs to provide appropriate professional learning opportunities.
- Coordinate and manage the sustained PD effort. Project grant funding was equitably dispersed across the three primary partners—IHE Education, IHE Arts and Sciences, and LEAs.
- Provide opportunities for teachers to receive college credits or accreditation/certification units.

✓Roles of LEAs and Teachers in the Projects.

- School/district administrators assisted in recruiting teachers to participate in the project; provided release time for them to participate; provided venues for participating teachers to share what they are learning in the program; became actively involved in proposal and program planning.
- Teachers and administrators identify teaching and learning needs of their schools and classrooms, at the time of proposal development, as well as over the course of project implementation.
- Teachers assist in planning professional learning activities, co-facilitate sessions with faculty, and present lessons and other information to project colleagues.
- Schools may provide meeting space and other logistical support.

Strengths, Limitations/Challenges, and Effects of the IHE-LEA ITQ partnerships.

- There was great variation in the nature, strength, and quality of ITQ partnerships, dependent, in part, on the commitment of the school administrators, teachers, and IHE faculty to strong and mutually beneficial collaboration.

NEXT PAGE FOR MORE ABOUT PARTNERSHIPS

Summing-Up Brief #8 Continued . . .

- Teacher attendance was consistently high across most projects; feedback from end-of-session questionnaires indicated high satisfaction with 1) PD programming; 2) substantive, relevant, hands-on activities; 3) opportunities to engage with experts; 4) participation in learning communities and networking with teacher colleagues; 5) gaining access to on-line and print resources; and 6) interacting with faculty during classroom visits.
- ITQ projects offered schools and districts opportunities to provide their teachers with high quality professional learning experiences and to address teaching/learning needs.
- Teachers consistently reported that it is important to have their administrators show a strong commitment to the project by participating in activities, providing release time, time to implement what they were learning in the PD in their classrooms, and financial support in obtaining necessary instructional materials. The level of involvement is a reflection of the value the administrator places on the project and teachers' commitment to improve teaching/learning in their schools. The record was mixed as to the degree of participation by administrators. Evaluators recognize that demands on administrators' time is a contributing factor to limited participation.
- Some faculty indicated they developed stronger working relationships with their colleagues in other university/college units. One subject matter partner said, *"I felt like a partner and not just a consultant being asked to come in on these hours or days. There was so much discussion back and forth. Project staff asked for my input and I would make modifications to things after running it by project staff to ensure what I was doing served the teachers' needs."*
- ITQ provided faculty with opportunities to serve K-12 schools and learn more about "front-line" teaching/learning issues, challenges faced by teachers and schools, and how to address teacher needs.
- Faculty also gleaned ideas that would enhance their own college-level instruction. One said, *"I improved my own teaching. I really had to think clearly and carefully about what I was doing in each of those lessons and to explain it to people who would be teaching it. I then went back and clarified the lessons I use for my own [university] students. I became a better teacher and, at a broader level, working with the teachers throughout the year, I learned from them."*

Collaboration Within and Across ITQ Projects. One of the goals of the ITQ project partnerships was to move beyond *cooperation* to *collaboration*, where an interactive relationship develops between the participants and the facilitators. Collaboration creates a community of shared interest to learn new knowledge, improve practice, and establish mutual support that ultimately benefits participants' students. Collaboration was an underpinning of effective ITQ partnerships, as well as the networking between directors and evaluators across projects.

✓ **Collaboration within the projects.** As part of a small study of the nature of collaboration at the project-level, several projects in the 2015-16 funding cycle agreed to administer a survey to get feedback from teachers about the effectiveness of collaboration in the context of their ITQ partnerships. Analysis of results of the survey indicated that teachers and project staff were comfortable working with each other and that teachers sought help from facilitators between PD sessions. Teachers also said they shared their learning in the ITQ program with colleagues not involved in the project. They suggested on-going PD support was necessary to strengthen teachers' content knowledge and practice to facilitate learning for their students. Below are thematic categories of comments from survey respondents about how collaboration increased the effectiveness of their ITQ projects.

COLLABORATION . . .

- Helped teachers work out common issues, while highlighting the strengths and remediating weaknesses.
- Facilitated combining the experiences of seasoned teachers with fresh perspectives of newer teachers.
- Through lesson evaluations and examination of student data, teachers were able to identify what worked and what needed to change.
- Created an environment for everyone to contribute ideas and expertise.
- Was an effective way to reflect on one's own classroom practices when working together and studying other teachers' lessons.
- Helped participants learn that other teachers had similar successes and challenges.
- Analysis of grade-level student data allowed teachers to adjust curriculum and instruction as needed to improve student learning.

NEXT PAGE FOR MORE ABOUT PARTNERSHIPS

Summing-Up Brief #8 Continued . . .

- In an on-line environment allowed sharing of materials/resources that helped teachers to improve lesson plans.
- Helped teachers align their curriculum.
- Helped teachers analyze different learning techniques, lessons, and assessment.
- Helped improve teachers' content knowledge.
- Allowed teachers to receive feedback, share knowledge, and exchange ideas in a risk-free environment for both challenging and successful strategies.

✓ **Collaboration Across ITQ Projects.** Both formal and informal collaborations flourished among project directors, evaluators, and staff across cadres of projects. Formally, they met for two one-day face-to-face technical assistance sessions and three 3-hour on-line webinars over the course of the funding cycle. The purpose of the sessions was to provide a forum for learning about and assessing evaluation strategies, sharing information about intervention activities, and discussing educational issues relevant to teacher professional development. The goal of these interactions was to strengthen both project interventions and evaluation of the effects of programming, and build capacities of project directors and evaluators to implement and evaluate teacher professional learning. As directors and evaluators became more familiar with other projects in the cadre, informal communications and on-line sharing of ideas by individual project staff increased.

VIGNETTE: IHE-LEA Partners Improve Teaching/Learning of History: Spinoffs from the Collaboration

A core purpose of this project was to develop and implement a history curriculum consistent with state content expectations, but with a local focus. Teachers created lessons using authentic local historical resources, such as documents, photos, artifacts, actual locations, and local community members to support engagement of students in investigations and activities of real local history.

IHE team members had a track record of history education collaborations prior to this project, which were strengthened through the planning and implementation of this specific history project. Participating teachers successfully created innovative inquiry-based lessons. In the process the partnership among participating teachers and project staff strengthened significantly. This resulted in several “spinoffs” and continued collaboration after the formal project ended.

Participating Teachers.

- The project PI and a first-grade teacher collaborated on projects related to her revision of an elementary social studies methods textbook.
- Two teacher participants collaborated in a separate project with the PI related to project-based instruction in first grade (participating in focus groups reviewing sample curricular materials).
- A first grade teacher was a guest lecturer in the PIs Literary Methods course.
- The PI has begun preliminary groundwork for exploring whether the partner school might be a site for an IHE internship in the future.

Project Faculty/Staff.

- At the National Council for the Social Studies, three staff members were accepted for a paper related to the project.
- One team member conducted her practicum study with four project participants to identify instructional approaches to meet needs of diverse learners.
- A history department faculty member involved in the project, who prepares preservice teachers in social studies, brought issues and tasks from this project into his classes for students to discuss and analyze. He is continuing to have preservice teachers critique a major lesson from one of the teachers in this ITQ project.
- A history department team member consulted during and after the project with individual teachers in need of primary sources and professional advice on lessons they were planning. He connected one with an IHE Archives project on Civil War letters. In another instance, he directed a teacher to National Archives resources to obtain the service jackets of Civil War soldiers for a cemetery project.

NEXT PAGE FOR MORE ABOUT PARTNERSHIPS

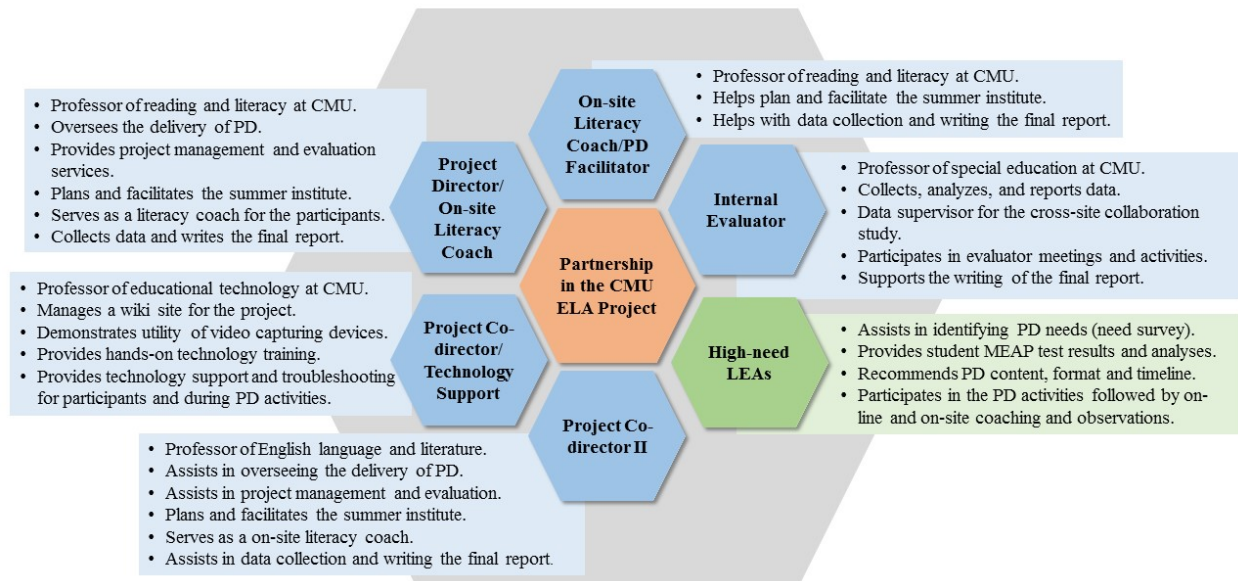
Summing-Up Brief #8 Continued . . .

VIGNETTE: IHE-LEA Partnership Designed to Improve English Language Arts Teaching and Learning

Prepared by Qi Zhang, Graduate Research Assistant and Mark Jenness, Ed.D., Senior Researcher
SAMPI—Western Michigan University - July 2017

This Michigan Improving Teacher Quality (ITQ) English Language Arts (ELA) project, implemented over an 18-month period in 2014-15, served two high-need rural schools in central lower Michigan with high proportions of students from low-income families. With the introduction of new state curriculum content expectations and the implementation of a new associated student assessment system in all Michigan schools, administrators and teachers were facing challenges to adopt and implement new classroom practices and prepare for the new student evaluation. Previous experiences by the IHE faculty indicated that teachers in high-risk rural schools had several barriers to addressing state mandates, including limited access to teacher professional development, lack of expertise, limited time to devote to improvement, and inadequate instructional and curriculum resources. Using a variety of professional learning and technical assistance strategies, the project partners designed a sustained intervention to address the identified needs and strategies to help prepare teachers to implement the ELA content expectations in their classrooms and schools. Five university professors, in collaboration with LEA partners, proposed, implemented, and evaluated the project.

Project directors believe that the success of this ITQ project was the strength of the partnership between the IHE and the local school districts. The graphic below shows the roles of partners and associated collaborative strategies identified by the project partners.



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Summing-Up Brief #9

Synthesis of Findings and Lessons Learned About Teacher Professional Development
From the Cross-Site Review/Evaluation of the Michigan Title IIA(3) Improving Teacher
Quality (ITQ) Grants Program—2004-2017 Summing-Up Brief #9 of 16

SAMPI

Western Michigan University—Kalamazoo
Mallinson Institute for Science Education

What has been learned about planning and implementing a successful needs-based professional development program?

Context. Educational improvement projects have various purposes, including 1) addressing identified needs of a target audience (teachers, students), 2) focusing on accomplishment of pre-determined objectives, 3) implementing research-based interventions, 4) trying out an innovative idea, 5) scaling-up a successful program, 6) developing educational materials to support teaching/learning, or 7) testing/evaluating the efficacy of an educational intervention. A project can address more than a single purpose.

The federal Title IIA(3) Improving Teacher Quality (ITQ) program identified a core set of overarching needs to be addressed by grant-funded projects: 1) improve teacher subject-matter knowledge, 2) improve teacher pedagogical knowledge and skills, 3) improve teacher classroom practices, 4) provide teacher pathways to gain highly qualified status, and 5) improve student learning.

The Michigan ITQ program required IHE/LEA partners to develop and propose projects designed to address specific needs of the project's targeted audiences (recruited teachers). Specific needs were to be related directly to overarching needs of the Title IIA ITQ grants program. Proposals were to show an alignment of needs, primary project goals, primary interventions/activities, intended results/outcomes, and a plan for evaluating program effects.

Identifying and Addressing Needs of Participating Teachers. Projects were required to identify needs of the specific teachers/LEAs participating in the proposed project prior to proposal submission and during implementation.

✓ **Preparing for Proposal.**

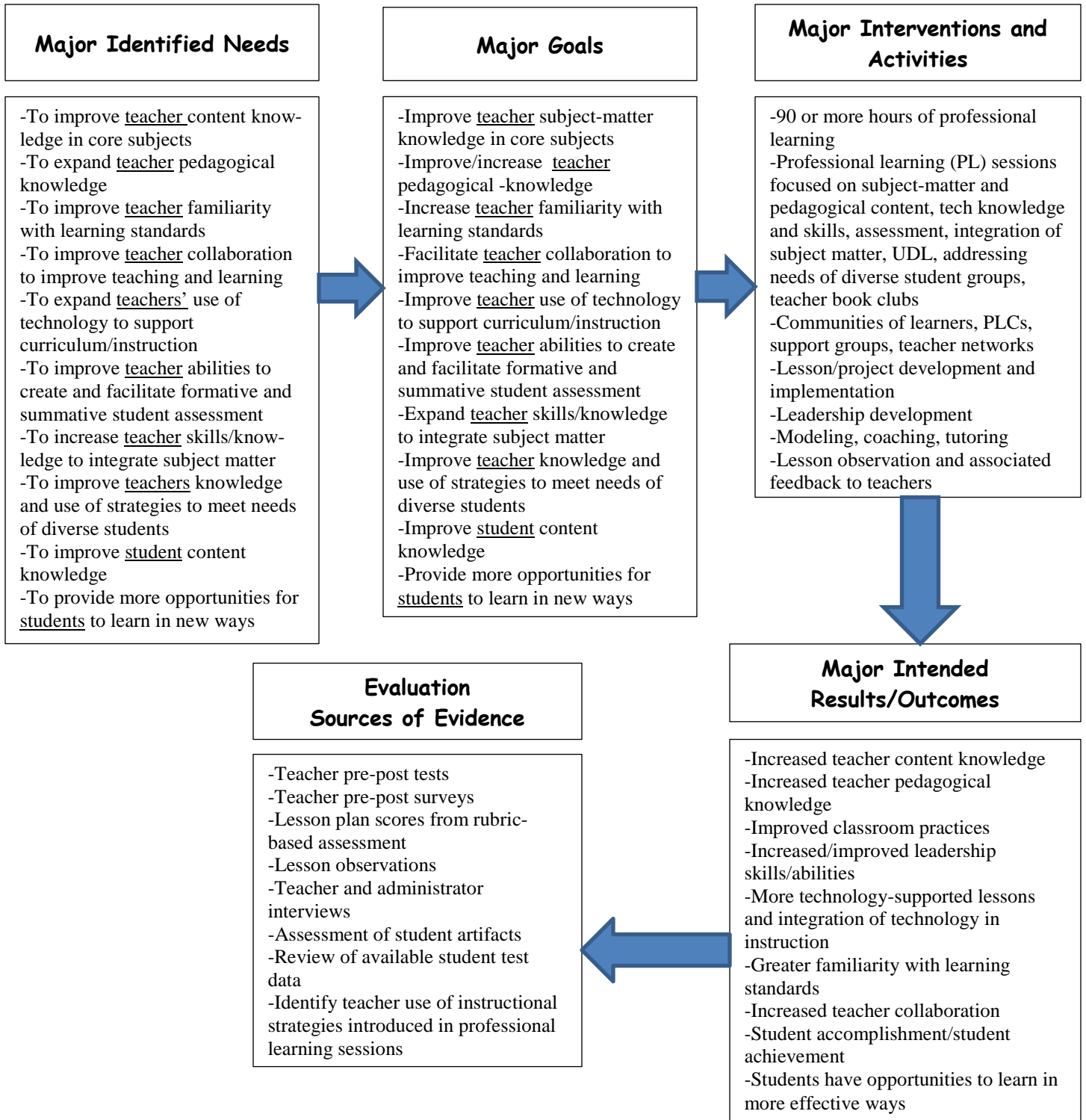
- Use common ITQ needs survey of the teachers committed to participating in the project (required).
- Summary of LEA standardized test scores (required).
- Administrator-identified needs (required).
- Pertinent needs based on school improvement plan priorities (suggested).
- Curriculum and instructional needs based on review of pertinent materials/documents (suggested).

✓ **Assessing/Identifying Needs During Implementation of the Project.** As funded programs began, project directors were expected to review the identified needs to be addressed and make adjustments as appropriate. As projects evolved, and as needs were met or new needs identified, projects modified interventions. They used various formative assessment procedures, including formal end-of-session questionnaires, informal feedback from teachers and LEA partner administrators, review of evaluation data, assessment of relevant teacher artifacts, and review of progress toward goals by project staff.

Connecting Identified Needs, Project Goals, Interventions/Activities, Intended Results/Outcomes, and Evaluation Strategies. As part of technical assistance activities during several funding cycles, each project director-internal evaluator team participated in an exercise to identify and graphically show the alignment of needs, goals, interventions, outcomes, and evaluation strategies relevant to their project. Then items by component were compiled and categorized. The chart on the following page shows an example of synthesized linked components for one funding cycle (eleven projects).

NEXT PAGE FOR MORE ABOUT NEEDS-BASED PD

ADDRESSING NEEDS: A SYNTHESIS OF CONNECTED COMPONENTS



Note: Not all projects had the same set of needs; lists include all major needs identified across the eleven projects in this funding cycle.

Summing-Up Brief #10

Synthesis of Findings and Lessons Learned About Teacher Professional Development
From the Cross-Site Review/Evaluation of the Michigan Title IIA(3) Improving Teacher
Quality (ITQ) Grants Program—2004-2017 Summing-Up Brief #10 of 16

SAMPI

Western Michigan University—Kalamazoo
Mallinson Institute for Science Education

What has been the nature, extent, and value of faculty involvement in the ITQ projects?

Context. As part of the IHE-LEA partnership, both education and subject matter faculty from the project's lead higher education institution were to be actively involved in the project (faculty from collaborating IHEs and individual faculty consultants were involved in some projects). Faculty involvement to support K-12 teachers was a core element and goal of the ITQ program. Other purposes for faculty involvement were to 1) increase higher education partners' awareness, knowledge, and appreciation for the needs of K-12 teachers, 2) provide opportunities for faculty to learn instructional strategies that could be implemented in their own classrooms, and 3) develop on-going working relationships with K-12 schools and teachers.

Nature and Extent of Faculty Involvement Across ITQ Projects.

✓**Roles for Faculty.** Faculty roles were varied and numerous both over the 13 ITQ funding cycles and across individual projects in a cycle. Below is a list of roles played by education and/or subject-matter faculty.

- Project Director or Co-Director
- Project Coordinator/Administrator
- Course Instructor
- Workshop Presenter
- Professional Learning Facilitator
- Guest Speaker
- Advisor on Content and/or Pedagogy
- Coaching Coordinator
- Curriculum and/or Instruction Consultant
- Teacher Mentor
- Workshop Materials Developer
- Consultant to School Partners
- Coordinate Proposal Planning/Development
- Recruitment of School/Teacher Participants
- Liaison Between IHE and LEA Partners
- Technology Support and Instruction
- Project Evaluator
- Classroom Observer
- Presenters on Various Educational Topics, including Inquiry-Based Learning, UDL, Assessment, Instructional Design and Strategies, Differentiation, Technology Use, Classroom Management, Disciplinary Content

✓**Faculty Participation Levels.** The table below shows total faculty participation levels from the 2006 to 2017 funding cycles. A total of 120 projects were funded during this period.

IHE Faculty	Total Number	Total Hours of Involvement
Subject-Matter Faculty	290	42,391
Education Faculty	223	38,500

✓**Other Staff and Experts.** Many ITQ projects enlisted non-faculty IHE staff, graduate students, specialists and technicians from ISDs and other educational organizations, school personnel, government agencies, and the business community. There were a total of 302 in this category in funding cycles from 2006 and 2017. Their total hours involved in ITQ programming was 35,336.

NEXT PAGE FOR MORE ABOUT FACULTY INVOLVEMENT

Summing-Up Brief #10 Continued . . .

Value of Faculty Involvement.

✓**Benefits for Faculty.** Faculty partners have indicated the following benefits:

- Developed working relationships with schools and teachers; some have continued their interactions with LEA partners after ITQ funding ended.
- Increased understanding of teaching/learning issues faced by K-12 teachers.
- Adjusted professional learning strategies to better meet the needs of teacher participants.
- Gained insights about new ways to organize and make assignments, present lessons/investigations to their own college-level students, and make changes in instruction in their own classes, including teacher preparation courses.
- Proposal writing skills have improved.
- Administrative and project coordination skills have improved, including strategies for recruitment and retention of participants.
- Become more aware and knowledgeable of evaluation strategies to show the impact of their projects.

✓**Benefits for Teacher Participants.**

- Faculty facilitators provided opportunities for teachers to hear directly from experts and interact with them in career-related, natural, and cultural settings. Teachers also received teaching/learning resources.
- Participating teachers were able to collaborate and interact with experts in their own subject-matter area.
- Faculty: 1) introduced/updated teachers on current subject-matter knowledge; 2) introduced and developed skills in the use of instructional strategies to improve student learning; 3) introduced them to new technologies to support teaching and learning.
- Faculty helped teachers “unpack” state content expectations and helped them design curriculum/lessons to effectively address the standards.
- For teachers seeking college credits toward their advanced degrees, certifications, or job review PD credits, faculty could provide necessary programming through the ITQ project to meet requirements.

VIGNETTE: Middle/High School Social Studies Project: Subject-Matter Faculty Partners' Reactions

At the end of the program, internal evaluators asked faculty participants to respond to questions about their experiences in working on the ITQ project. Sample responses from the subject-matter faculty included the following:

- Asked about the nature and quality of collaboration among faculty partners, one said, *“The amount and quality of communication was really high. I felt like a partner and not just a consultant being asked to come in on these hours or days. There was so much discussion back and forth. Project staff asked for my input and I would make modification to things after running it by project staff to ensure what I was doing served the teachers’ needs. I felt like the project was smoothly implemented.”*
- Asked how they benefited from being in the project, one said she really enjoyed “connecting with the teachers” and it was a worthwhile “targeted service” experience. The other said he had become a better instructor as a result. He explained, *“It improved my own teaching. I really had to think clearly and carefully about what I was doing in each of those lessons and to explain it to people who would be teaching it. I then went back and clarified the lessons I use for my own [university] students...I became a better teacher and at a broader level, working with the teachers throughout the year and learning from them.”*
- Both content partners gained a greater awareness of the needs of middle and high school social studies teachers. One said, *“[I became aware of] the range of student abilities that they face in a classroom. For example, the multiple special education needs students they have, and have to reach, those students as well as college-bound students in the same classroom.”*

Similar comments were received from faculty across many of the ITQ projects.

Summing-Up Brief #11

Synthesis of Findings and Lessons Learned About Teacher Professional Development
From the Cross-Site Review/Evaluation of the Michigan Title IIA(3) Improving Teacher
Quality (ITQ) Grants Program—2004-2017 Summing-Up Brief #11 of 16

SAMPI

Western Michigan University—Kalamazoo
Mallinson Institute for Science Education

What are the legacies of ITQ professional development identified by project directors and evaluators?

Context. Legacies, in the context of ITQ, are lasting impacts, both large and small, on 1) K-12 teachers, 2) administrators, 3) schools with participating teachers, 4) K-12 students of participating teachers, and 5) IHE education and subject matter faculty. Legacies often are related to capacity building: Individual (knowledge, skills, expertise), Organizational (interaction, communication, collaboration within a system, such as a school), Structural (policies, curriculum), and Materials (lessons, instructional equipment/supplies).

Identified Legacies of the ITQ Projects and Programs. As part of the statewide cross-site evaluation, project directors from the final cadre, were asked to reflect on “legacies” of the program. Responses are summarized below.

✓ **Lasting Impact on Participating K-12 Teachers**

- Changes in classroom practices and improved pedagogical skills/knowledge
 - Facilitating teacher-improvement of lessons, instructional activities, assessments
 - Rewriting curriculum and then implementing it
 - Incorporating new teaching-learning strategies into teachers’ professional repertoire
 - Inquiry-based teaching and learning
 - Technology use (for students and teachers)
 - UDL/differentiation
 - Aligning classroom practices with state academic standards
 - Scaffolding to support student learning
 - Using new materials/resources to support instruction and student learning
- Improved knowledge and understanding of subject-matter content
 - Develop and enhance content knowledge in the context of state academic standards
 - Teacher interaction with IHE subject-matter experts enhances content knowledge
- Strengthened collaboration among teachers and IHE partners
 - Enhanced teacher disposition toward collaboration and networking through PD programming
 - On-going networking, collaboration, and communication beyond grant funding period
- Improved skills/knowledge to use data to inform curriculum/instruction
 - Use of formative assessment; Analysis of formal test data
 - Increased disposition toward and use of formal/informal reflections on teaching/learning by individuals and groups

In their own words . . . Directors of an ELA project listed legacies of their project: 1) Increased use of ELA Evidence-Based Practices; 2) Greater responsibility to be self-reflective practitioners; 3) Increased use of UDL/differentiation strategies; 4) Collaboration between grade levels/vertical team work, making important connections across grade levels

✓ **Lasting Impact on Administrators**

- Administrators supporting teacher participants
 - Provided substitutes to allow teachers to participate in school-day PD activities
 - Arranged for use of portion of district-level PD days by the ITQ project
 - Provided instructional materials, including technology
- Administrators who attend PD sessions are more likely to support/encourage teachers to improve teaching/learning

NEXT PAGE FOR MORE ABOUT ITQ LEGACIES

Summing-Up Brief #11 Continued . . .

- Teacher participation in a project increases when administrators participate in or are knowledgeable of PD activities
- Administrators provide formal opportunities for participating teachers to share what they are learning with colleagues

In their own words . . . From a math project: “Those administrators who attend PD session are more supportive and encouraging of participating teachers.” From an ELA project: “Administrators supported the grant activities in their individual buildings and encourage teachers to share their learning with other teachers.”

✓Lasting Impact on Schools with Participating Teachers

- Encouraging teacher collaboration
 - ITQ provides a forum for interaction of teachers from different schools during PD
 - PLC/support group for participating teachers from the same school during and after PD
 - Potential for scale-up--participating teachers interacting with non-participant colleagues
- Through ITQ teacher PD, updating/supporting schools implementing programs to address state-level academic standards
- Long-term collaborations between schools and IHEs
 - Sites for pre-service teacher practicums
 - School/teacher access to IHE expertise

In their own words . . . Comments from an ELA project director: “Returning and new teachers are working together in the project. To expand learning among non-participants, school administrators have encouraged grant participants share their learning through their PLCs, providing access to materials created for and presented during PD activities.”

✓Lasting Impact on Students of Participating Teachers

- Opportunities for students to learn in new ways, based on teacher learning during PD, such as . . .
 - Using UDL/differentiation strategies
 - Integrating science and math with engineering
 - Incorporating technology to support student learning
 - Using inquiry-based learning strategies
 - Using models, maps, simulations
 - Encouraging teachers to use real-world experiences for students (field trips, projects, visiting experts)
- Effective implementation of state academic provides students with a coherent alignment of curriculum, instruction, student learning, and assessment

In their own words . . . A science project reports: “Teachers have repeatedly indicated how their students have been excited to learn about physical science through engineering. Many teachers have specifically reported that students who do not traditionally perform well seem to be more engaged in learning.”

✓Lasting Impact on IHE Education and Subject-Matter Faculty Partners

- Recognition by IHE faculty to share responsibility for the PD with participating teachers—collaborate on the PD
 - Faculty and participating teachers identify curriculum, instruction, assessment, and other needs
 - Faculty/teachers (and partner administrators) work together to plan and implement the PD based on identified needs
- IHE faculty with an enhanced understanding of the realities, challenges, and needs of K-12 teachers
- IHE faculty have identified/implemented teaching/learning strategies applicable to their own college classes
- Increased communication and collaboration between subject matter and education faculty

In their own words . . . A math project director said, “There are closer ties between the subject-matter faculty and education faculty; Greater cooperation in writing new grants; Shared responsibility now for a pedagogy practicum course; Use of partner schools as pre-service student practicum sites.” From a science project: “Faculty working with elementary and middle school instructors through the ITQ project has helped ground them in the daily realities and on-going changes in pK-8 classrooms. Those experiences have resulted in significant changes in the ways they work with preservice teachers. “

Summing-Up Brief #12

Synthesis of Findings and Lessons Learned About Teacher Professional Development
From the Cross-Site Review/Evaluation of the Michigan Title IIA(3) Improving Teacher
Quality (ITQ) Grants Program—2004-2017 Summing-Up Brief #12 of 16

SAMPI

Western Michigan University—Kalamazoo
Mallinson Institute for Science Education

What lessons were learned about planning and implementing effective teacher professional development projects?

Context. Much has been learned by project directors and PD facilitators from their experiences in planning, implementing, and assessing ITQ PD programs. Several directors had multiple grants over several funding cycles, allowing them to reflect on what they learned and apply those ideas to later ITQ grants. These “lessons learned” are practice-based and serve as general guidelines for designing and implementing PD programs.

Checklist of Lessons Learned About Effective Teacher Professional Development. ITQ project directors and evaluators shared lessons learned as their projects neared completion. Below is a checklist of ideas.

Conceptual/Environment/Learning Culture Elements.

- ✓ Consider these strategies: learning communities, risk-free environment, collaboration, small group work, problem-solving approaches, inquiry-based learning, brain-based strategies, and use of manipulatives/hands-on materials.
- ✓ Professional learning should be organized around participants’ identified needs, addressing them by using innovative, research-based, and/or practice-based strategies.
- ✓ Establish a trusting and relaxed atmosphere for professional learning sessions.
- ✓ Use a learning community approach that encourages collaboration among facilitators and participants.
- ✓ Design the program to intentionally build ownership in and commitment of participants to the project and its goals—make professional learning relevant, practical, and useful.
- ✓ Link classroom practices and subject-matter content to pertinent learning expectations/standards in planning and implementing professional development.
- ✓ A primary focus of professional learning should be to build teachers’ capacities to plan, facilitate, and assess teaching and learning rather than only training on specific materials, curricula, instructional strategies, and activities.
- ✓ For teachers with limited subject-matter or pedagogical knowledge/skills, professional learning should be a coherent program that includes subject-matter, classroom practices, and support materials. It is not enough to provide these topics separately and then expect teachers to effectively integrate them.

Logistical Elements.

✓ Recruitment/Retention/Commitment

- Build strong working relationships with LEAs to help facilitate access to teacher participants and build ownership in and commitment to the project.
- PD providers should conduct face-to-face visits with teachers and administrators to discuss needs and the benefits of participation. Maintain regular communications during the implementation of the project.
- Offer incentives, such as stipends for after-school, weekend, and summer sessions. This recognizes the importance of the program and associated learning, honors the value of teachers’ time, and treats teachers as professionals. Provide other kinds of incentives, such as college credits/certification/job review credits or instructional resources.
- Principal, department head, or curriculum director support is important because they can facilitate teacher release time; recognize a teacher’s participation as valuable to students and the school. Grant-funded professional learning expands resources administrators can use to strengthen teaching and learning in their schools.

NEXT PAGE FOR MORE ABOUT PLANNING/IMPLEMENTING PD
Summing-Up Brief #12 Continued . . .

✓ **Staffing.**

- The following team should be considered in organizing and coordinating the professional learning team: a) identify subject-matter and pedagogical experts who complement each other; b) team members must be effective in working with teachers and possess good interpersonal skills; c) all team members should be able and willing to contribute to professional learning session planning and implementation; d) planning meetings must be collaborative and include all facilitation team members.
- Professional learning facilitators/staff must be aware of the context in which teacher participants teach, the students they serve, their access to instructional materials and equipment, and the school/district curriculum expectations to make professional learning more relevant and effective.
- No one person can provide all the subject matter or pedagogical content that may be needed for a professional learning program. Facilitators should identify and recruit individuals with specific expertise to address particular topics.
- Spend time with potential facilitators/presenters in discussing the intended professional learning effort before selecting the project team. Be sure they can meet project needs and know what is expected of them.

Instructional/Intervention Strategies.

- ✓ Share goals, objectives, and intended outcomes of the project and professional learning sessions with teacher participants.
- ✓ Engage participants in activities that are classroom-applicable, inquiry-based, hands-on, technology-supported, project-based, real-world, authentic, and accommodation-focused to develop subject-matter knowledge and pedagogical knowledge and skills.
- ✓ Provide subject-matter content and content-rich resources to support teachers in addressing selected needs-based topics, but don't try to do too much.
- ✓ During professional learning sessions, classrooms visits, and coaching sessions, project facilitators should model best practices that teachers should be using. Have participating teachers model strategies for their project colleagues in-person or through videos.
- ✓ Small teacher teams should work together to develop lessons, activities, and/or assessments. This provides collegial support, encourages accountability, and builds ownership in the products.
- ✓ Have teachers video tape a lesson, self-critique, and share/debrief with facilitators or colleagues, focusing on both strengths and limitations.
- ✓ Conduct sessions that strengthen teachers' skills to plan, implement, and use results from formative assessments to improve teaching and learning.
- ✓ Provide opportunities for teachers to network with each other during and between professional learning sessions. Schedule time for teachers to talk, work, and plan together.

Summing-Up Brief #13

Synthesis of Findings and Lessons Learned About Teacher Professional Development
From the Cross-Site Review/Evaluation of the Michigan Title IIA(3) Improving Teacher
Quality (ITQ) Grants Program—2004-2017 Summing-Up Brief #13 of 16

SAMPI

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Mallinson Institute for Science Education

What were the strengths and limitations of the statewide cross-site and individual project evaluation efforts (common evaluation strategies and reporting)?

Context. The core purposes of the state-wide cross-site evaluation were to determine 1) the impact of the program on teacher subject-matter knowledge, pedagogical knowledge and skills, and classroom practices; 2) nature and effectiveness of the IHE-LEA partnership; 3) impact on students of participating teachers; and 4) strengths and limitations of the ITQ initiative. A multi-site evaluation was designed with two levels of evaluation: 1) project-level and 2) state-wide cross-site. Elements of cluster evaluation, incorporating a strong technical assistance and collaboration component (consistent with Kellogg Foundation guidelines) provided the core framework for the ITQ evaluation. Each project had a dedicated internal evaluator who worked with the project director and staff to carry out their proposed evaluation. This was coordinated with state-level evaluation expectations. State-level evaluators provided assistance to projects as needed, helped coordinate cross-site technical assistance, and collaborated with the Michigan ITQ program officer.

Nature of the ITQ Evaluation Effort. Key functions of the evaluation component of the ITQ teacher PD were to:

- Synthesize data from project-level and state-level evaluation efforts
- Document/describe the nature and extent of project professional development activities and interventions
- Identify effects of programming on participating teachers and their students
- Compile information on schools and teachers served by the project
- Analyze project director and evaluator assessments of their projects
- Assess strengths and limitations of the ITQ effort
- Identify issues related to project procedures and facilitation
- Report findings to stakeholders

Associated with the evaluation was a sustained technical assistance (TA) effort described in another Summing-Up Brief. TA was a venue for building project capacities to implement comprehensive evaluations of their professional learning efforts and to collaboratively assess their projects and the impacts of the entire ITQ program on teachers and students.

Overall Purpose of Evaluation.

- ✓ The ITQ evaluation had both formative and summative elements. It was expected that evaluation results at the project-level would be used as appropriate to make adjustments to programming to better meet needs of participating teachers and schools. At the state level, formative evaluation data informed decision-making related to improving evaluation and technical assistance efforts. Each project gathered impact, program description, and participation data, using a common cross-site reporting template. Data from individual project reports, along with common evaluation information gathered by the state-level evaluators, was synthesized at the end of a funding cycle. These reports included a variety of impact, participation, and program descriptions.
- ✓ All projects were required to administer a common cross-site pre-post teacher participant survey, conduct pre-post lesson observations, measure changes in teacher content knowledge, and document project activities and participation. Across all projects, a variety of other data collection strategies were used, including interviews, end-of-session questionnaires, lesson review, teacher and student artifact assessment, teacher tests, and peer assessment.

NEXT PAGE FOR MORE ABOUT EVALUATION

Summing-Up Brief #13 Continued . . .

Values of Project-Level and Cross-Site Evaluations. The following values of evaluation were identified by project directors, internal evaluators, state-level evaluators and program officers.

- ✓ Evaluation data can inform projects of strengths and weaknesses of their interventions and assess progress toward their project goals.
- ✓ Evaluation can serve as a professional learning intervention at the project level. Examples: 1) conducting lesson observations, then provide direct feedback to teachers about ways to improve classroom practices; 2) teachers develop lessons, receive critiques from staff and colleagues, revise, then implement in the classroom (project staff may also observe lesson implementation and provide feedback); 3) peer reviews of lesson plans and/or video-taped lessons.
- ✓ A common project-level reporting protocol allowed compilation, analysis, and reporting of comparable data about the Michigan ITQ program. At the same time, projects could supplement reports with evaluation information about unique aspects of their projects.
- ✓ The cross-site evaluation provides a structure for individual projects to collaborate on evaluation efforts and learn from each other.
- ✓ Evaluation efforts built capacities of project staff to conduct more comprehensive and effective evaluations and use the data to improve programming. This included data collection design and implementation, training on the use of observation protocols, and appropriate procedures for analyzing data.
- ✓ Evaluation provides systematic data to state-level policy-makers to inform decisions about teacher professional learning efforts.
- ✓ Gather systematic data to meet reporting expectations of US Department of Education funding agencies.

Limitations/Challenges of the Evaluation Effort. The issues below were identified by project directors and evaluators, state-level evaluators, and Michigan ITQ program officers.

- ✓ There were many different interventions across the more than 150 funded ITQ projects in mathematics, science, English language arts, social studies, and special education. As a consequence, many different evaluation strategies/measures of accomplishment were used to assess the impact of the interventions. One challenge for the state-level cross-site evaluators was how to synthesize the diverse data in a way that provided findings with enough specificity to make them useful in policy- and decision-making.
- ✓ Although program evaluation was important and required, it was also important to not over-burden teachers and other participants with evaluation tasks. Likewise, it was important that project directors could devote their time primarily to planning and implementing the program interventions. Efforts were made to incorporate some of the teacher evaluation tasks into the actual interventions (particularly formative assessment activities) as a way to reduce the burden on them. Evaluation responsibilities of project directors were significantly reduced by having dedicated internal evaluators. Since many project directors were faculty actively conducting research in the context of the ITQ project, evaluation and research efforts could sometimes be combined.
- ✓ Individual ITQ projects were serving between 30 and 40 teachers during a funding cycle. The credibility of some statistical analyses was weakened because of small sample sizes. The ability to draw strong conclusions about impact on teachers was often limited.
- ✓ Conducting comparison studies was also challenging because of significant time and financial resource commitments, and the problem of identifying potential comparison groups. Some projects funded over multiple years were able to make comparisons on some measures between returning teachers and those new to the project.
- ✓ Perhaps the most challenging evaluation strategy was planning, organizing, and conducting lesson observations. Finding an appropriate existing protocol, training observers, arranging observations, conducting observations, assessing the lessons, and preparing reports was challenging and time-consuming. Most directors agreed it provided very good data about what was happening in classrooms, both to inform adjustments to program interventions and to assess the impact of the program on classroom practices. Various techniques (with varying degrees of success) were used to reduce the time commitment, including selecting a sample of teachers for lesson observations, reviewing video-taped lessons, and training project coaches to conduct the observations.
- ✓ Another evaluation strategy successful in some situations was use of teacher and student artifacts as a source of data to assess impact. Some projects used teacher-produced lesson plans to assess impact of their programs with some success. A few attempted to use student work as a tool to look at improvement, but found it time-consuming, hard to get a consistent sample of student work, and difficult to create credible scoring rubrics.

Summing-Up Brief #14

Synthesis of Findings and Lessons Learned About Teacher Professional Development
From the Cross-Site Review/Evaluation of the Michigan Title IIA(3) Improving Teacher
Quality (ITQ) Grants Program—2004-2017 Summing-Up Brief #14 of 16

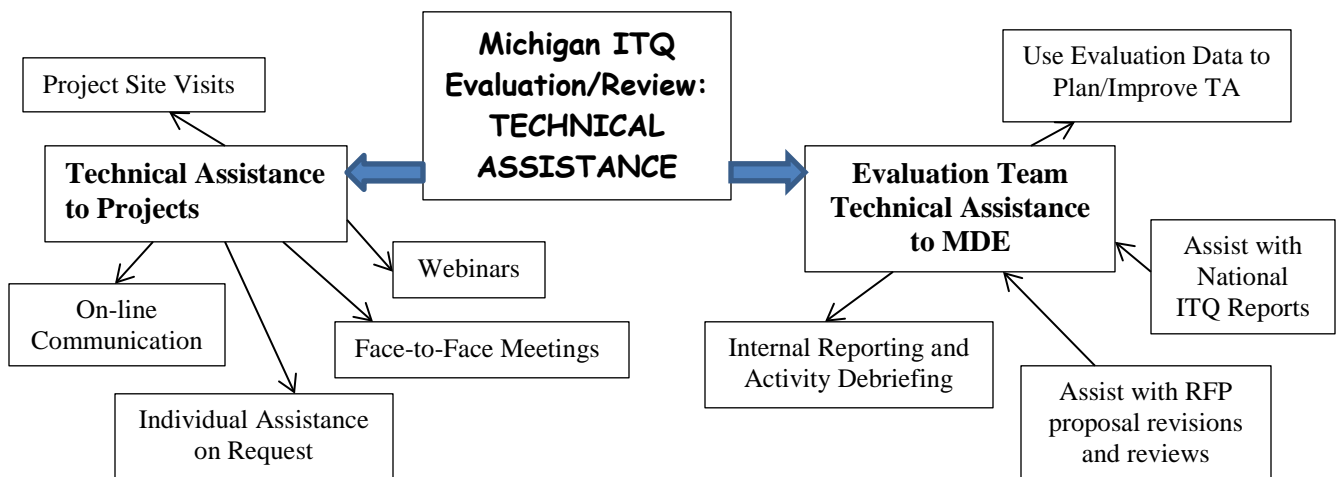
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What was the nature, extent, and value of the *technical assistance provided to funded ITQ projects?*

Context. Technical assistance (TA) in the context of ITQ served as an important strategy for facilitating collaboration among projects. Each funding cycle had five TA sessions—three webinars and two face-to-face meetings—co-planned and facilitated by the MDE program officer and the state-level evaluation team. Another component of TA was designed to support the monitoring and project coordination efforts of the Michigan Department of Education ITQ program officer. The chart below shows the nature of ITQ technical assistance.

Nature of the Technical Assistance.



Overall Purpose and Value of the Technical Assistance.

- ✓ Technical Assistance was a capacity-building strategy for project-level directors, staff, and evaluators, as well as the program office and state-level evaluators. It was designed to encourage and enhance collaboration across projects.
- ✓ TA was a venue for sharing evaluation ideas; training on the use of evaluation strategies; sharing purposes, plans, and activities of individual projects; identifying and discussing pertinent problems and issues; providing insights; analyzing common data and drawing conclusions.
- ✓ The state-wide evaluation team also collaborated with the Michigan Department of Education ITQ program officer to provide: 1) TA around reporting, budgeting, and compliance with state and federal rules; 2) TA session planning and implementation; 3) assistance with proposal revisions and reviews; and 4) conducting site visits to funded projects.
- ✓ Separate TA sessions related to new funding cycle Requests for Proposals were facilitated by the MDE program office and assisted by the state-level evaluation team. Anyone planning to submit a proposal was expected to attend a session. In conjunction with proposal submission, projects had to conduct a needs assessment of the targeted partner schools and teachers to identify perceived subject-matter, instructional, and curricular needs. As part of this effort, the state-level evaluation team prepared and processed teacher needs surveys for use when preparing proposals.

NEXT PAGE FOR MORE ABOUT TECHNICAL ASSISTANCE

Summing-Up Brief #14 Continued . . .

- ✓ Over the course of several funding cycles, significant improvement in the quality of reporting was apparent. Evaluation data, project descriptions, and conclusions presented were more complete, in-depth, and pertinent to project goals.
- ✓ It was very clear from proposal reviews that those proposals submitted by faculty who attended Request for Proposal TA sessions generally received higher ratings—they had more complete applications with more attention to the requirements of the project.

Examples of Topics Addressed in Technical Assistance Sessions

✓ Evaluation-Related

- Student Opportunities to Learn as an Indicator of Success
- Assessing Effects of Learning Communities
- Using Teacher and Student Artifacts as a Measure of Program Effectiveness
- Comparison Groups

✓ Education Topics

- Identifying Lessons Learned (such as, about Increasing Teacher Subject-Matter Knowledge)
- Attention to the Achievement Gap
- Reaction to “School Reform Fails the Test” Article
- Identify Legacies of ITQ

✓ Administrative Topics

- Proposal Development Suggestions
- Evaluation and Reporting Expectations
- Expenditure Rules and Procedures

Strengths, Limitations, and Challenges of the Technical Assistance Effort.

✓ Perspectives from project directors and evaluators

- Webinars and face-to-face meetings provided dedicated time for networking
- Opportunity to share ideas and problems with other project directors and evaluators
- Opportunity to collaborate with projects working in the same subject areas
- Learn about state and federal requirements
- Receive instructions on MDE reporting requirements
- Hear about current education issues from experts
- Receive information and assistance from state-level evaluators
- Opportunity to be involved in identifying effective professional learning programs and strategies

✓ Limitations and weakness of TA

- Some directors/evaluators felt too much time was devoted to technical assistance for such a short funding period
- The degree of preparedness to actively engage in the TA topics varied across directors/evaluators
- Finding ways to work around time conflicts related to faculty schedules

✓ Challenges

- Keeping TA session activities fresh and current for all participants. Some directors were experienced TA participants from previous funding cycles, others were new to ITQ. Designing sessions to address the needs of both groups was sometimes challenging.
- Devising in-depth activities that engaged all participants
- Being mindful of not overburdening participants with too much pre-session preparation
- Technology for establishing connections among webinar participants was sometimes unreliable

Summing-Up Brief #15

Synthesis of Findings and Lessons Learned About Teacher Professional Development From the Cross-Site Review/Evaluation of the Michigan Title IIA(3) Improving Teacher Quality (ITQ) Grants Program—2004-2017 Summing-Up Brief #15 of 16

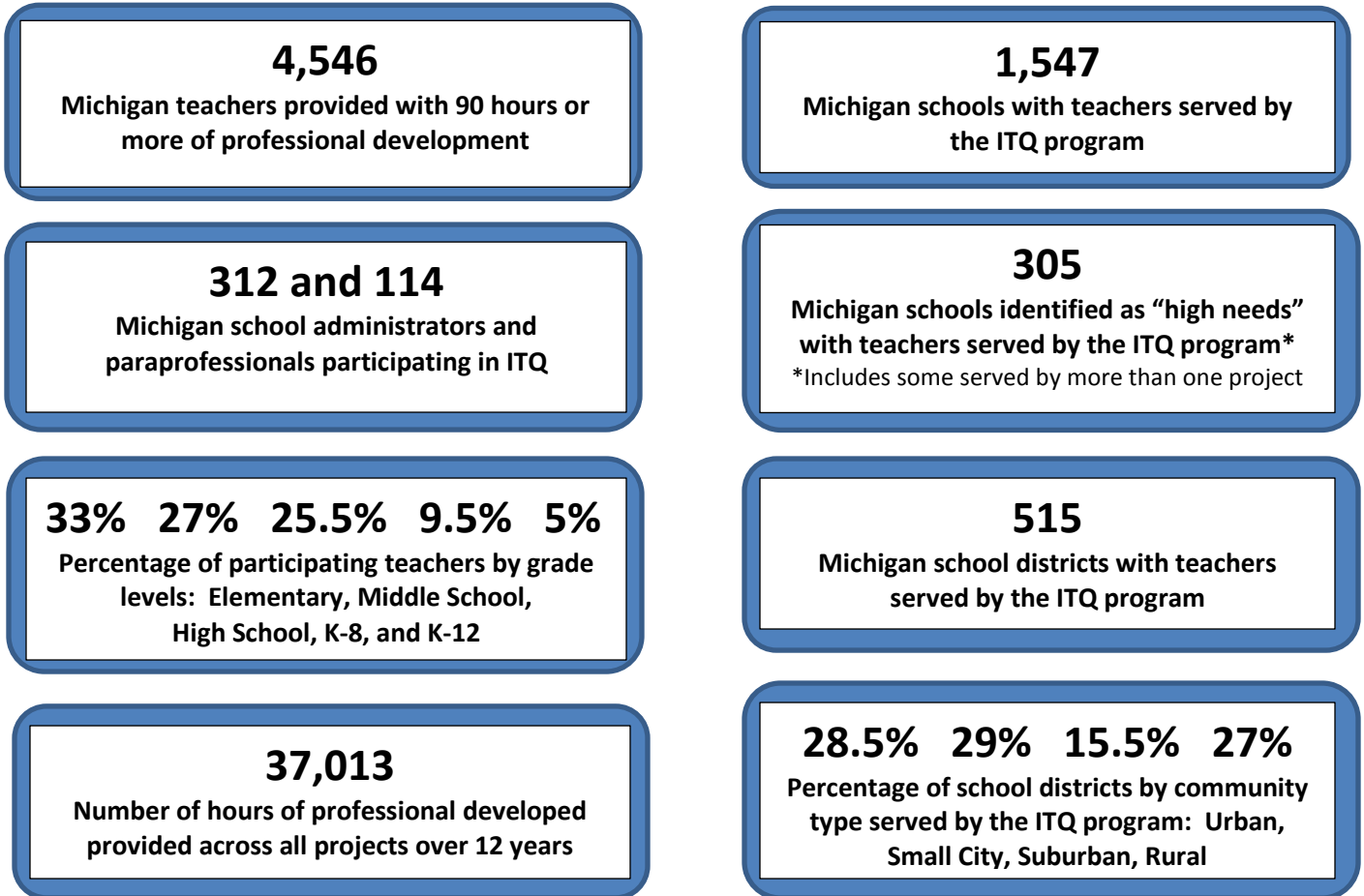
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Who has participated in the ITQ projects and to what extent?

Context. The goal for each ITQ project was to recruit enough teacher participants so that a minimum of 30 would complete at least 90 hours of professional development over the 18-month funding cycle. Projects usually recruited from 30-40 participants. At least some of the teachers had to be from an identified high need regular or charter public school (based on U.S. Dept. of Education and Michigan Dept. of Education criteria); the rest could come from any other Michigan school, including charters. Teachers from private schools in the same service areas as the public schools being served had to be invited to participate. Only a small proportion of teachers from private schools chose to participate in ITQ projects. Administrators and/or paraprofessionals from the partner schools could also participate. The graphic below provides ten-year totals for various participation-related categories. They were compiled from final project reports.

A SUMMARY TEN-YEAR PROFILE: 2006-2017



NEXT PAGE FOR MORE ABOUT PARTICIPATION

Summing-Up Brief #15 Continued . . .

388,264

Approximate number of students impacted by the ITQ program*

*Students of ITQ participating teachers from 2007-2017—10 funding cycles

149

Grants awarded through the ITQ program 2006-2017

31.5%, 12%, 13%, 43.5%

Proportion of schools served by the ITQ program by percentage of minority students: More than 75%, 50-75%, 25-49%, and less than 25%.

16 (13 public, 3 private)

Different Michigan colleges and universities receiving ITQ grants*

*Most received more than one grant over the 13-year period, 2006-17

584

Number of subject-matter and education faculty involved in ITQ programming*

*Duplicate count because many of the same faculty are involved in multiple grant cycles

54, 33, 38, 21, 10

Number of math, science, ELA, social studies, and special education grants awarded*

*Some focused on more than one topic

89,181

Hours of involvement of subject-matter and education faculty in ITQ programming

\$185 - \$225K

Average range of grant award for a funding cycle (~18 months)

~\$30.5 Million

Total funds awarded across all grants from 2006-2017*

*Does not include supplemental funding

Summing-Up Brief #16

Synthesis of Findings and Lessons Learned About Teacher Professional Development From the Cross-Site Review/Evaluation of the Michigan Title IIA(3) Improving Teacher Quality (ITQ) Grants Program—2004-2017 Summing-Up Brief #16 of 16

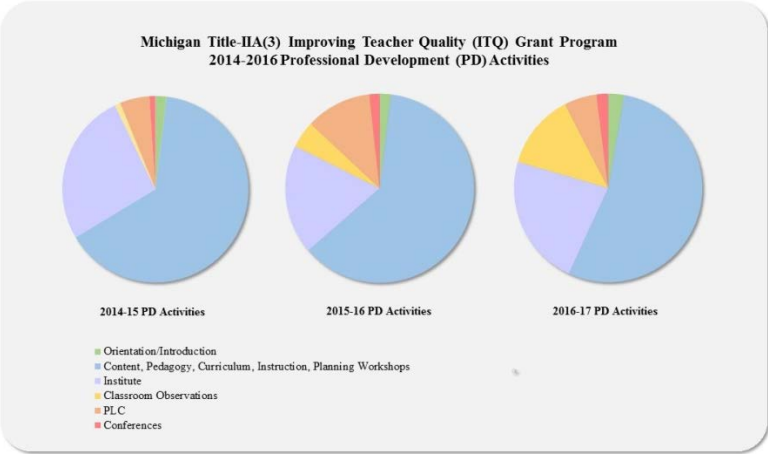
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What has been the nature and extent of professional learning formats and strategies used by ITQ projects?

Context. All funded proposals had to include a plan for providing at least 90 hours of scheduled and substantive professional development programming, sustained over the 18-month period of the grant. The 90 hours was based on national studies and standards that indicated at least this much time was needed for teachers to gain necessary knowledge, skills, and dispositions to design and implement changes in curriculum, instruction, and associated classroom practices. It was also expected that a variety of types of professional learning opportunities in a coherent sequence would be provided over the course of the grant—institutes, workshops, PLCs, on-line activities, classroom observations, etc.

Nature and Extent of Professional Learning Formats and Strategies. ITQ projects designed and implemented many types of PD sessions to address identified needs related to content knowledge, pedagogical knowledge and skills, classroom practices, dispositions about teaching and learning, addressing needs of diverse learners, use of technology to support student learning, curriculum development, real-world connections, and Universal Design for Learning strategies.

- ✓ **Session Designs.** Across projects, sessions were designed to actively engage teachers and help them develop ownership in the ideas, strategies, and materials offered by the ITQ projects. Sessions provided opportunities for teachers to interact with subject-matter and pedagogical experts, as well as experienced practitioners.
- ✓ **Session Formats.** Each project used a customized organizational framework and sequencing of activities to reach overall ITQ goals, as well as goals and objectives unique to the project. There were several common strategies, including summer institutes (multiple days), workshops (1/2 to 1 day), college course work, whole- and small-group learning communities, study groups, on-line activities, and curriculum development. Specialized strategies for some projects included lesson study, coaching, action research, conference attendance, classroom site visits, and field trips.
- ✓ **Amount of Time Devoted to PD Activities.** The pie charts below display proportions of the six major types of PD activities for three of the cadres. The table following shows number of hours for each type of PD provided.

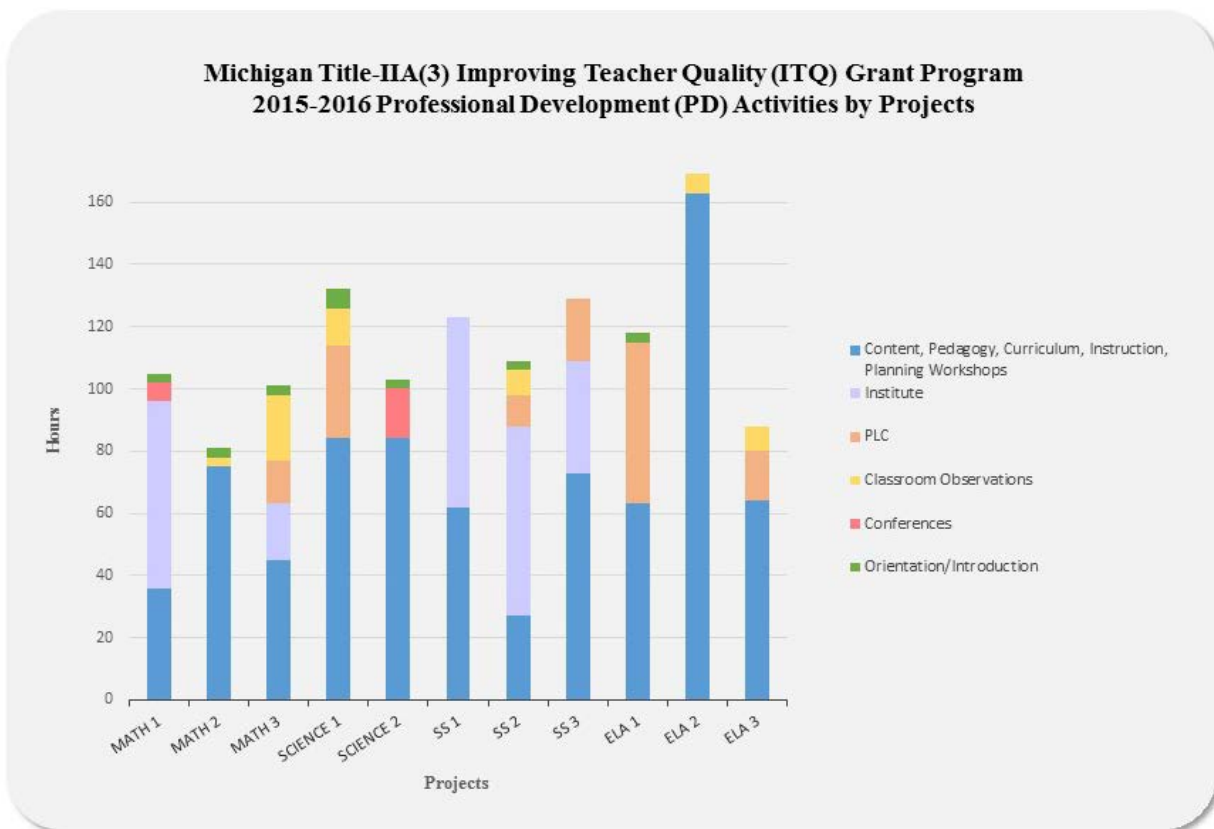


NEXT PAGE FOR MORE ABOUT PROFESSIONAL LEARNING FORMATS AND STRATEGIES

Summing-Up Brief #12 Continued . . .

	Hours of PD Activity for Three Cadres					
	Orientation, Introduction	Content, Pedagogy, Curriculum, Instruction, Planning Workshops	Institute	Classroom Observations	PLC	Conferences
2004-15	26	865	356	12	69	14
2015-16	24	776	236	58	142	22
2016-17	30	599	250	143	62	22

✓ **Proportions of Major PD Types.** The stacked bar-graph below show proportions of the six major types of PD activities for ONE cadre, the 2015 – 2016 grant cycle. These graphs allow the reader to see the differences in emphasis across one cadre of projects. The colors represent the same types of PD as for the larger pie charts above.



✓ **Total Number of Hours of Types of PD Provided Across All Projects in All Cadres from 2005-06 to 2016-17.**

Cadre	Summer Institutes	Workshops	Course-work	Lesson Study	Curriculum	Learn Comm	Study Groups	E- Learn	Coaching	Other
2005-2017 Projects = 159	8011	7190	3584	584	1115	3101	943	632	1980	1938

Professional Development Activities Calendars: A Sample from One Grant Cadre. Projects submitted detailed calendars of their professional development activities in their grant cycle. The calendar on next pages shows specific PD activities by month with hours devoted to each for a representative sample of projects from the 2015-16 cycle.

NEXT PAGE FOR MORE ABOUT PROFESSIONAL LEARNING FORMATS AND STRATEGIES

SAMPLE PROFESSIONAL LEARNING ACTIVITIES CALENDAR FROM SELECTED PROJECTS—2015-16

University or College/Subject	May 2015	June 2015	July 2015	August 2015	September 2015	October 2015	November 2015	December 2015
MATH 1	Kick off (0.5 day)			Summer Workshop (5 days)	PD (1 day)	Oct 14, 21 Half of group comes on each day (1 day)		PD (0.5 day)
SCIENCE 1		Introduction meeting Pre-Surveys			Content, materials. Expectations Lesson Plans (7 hours)	Lesson Plan Presentations iPads/materials (7 hours)	MDSTA/ DACTM Conference (8 hours)	Lesson Plan Presentations (7 hours)
		Content/ Process Skills (7 hours)				Lesson Plan Presentation (7 hours)		
SOCIAL STUDIES 2	Teacher Recruitment Planning June Institute	Content/ Pedagogy Institute – 3 days, 22.5 hours Local History Historical Inquiry Project Workshop- primary sources, compelling questions Historical Inquiry Project Presentations		Content/ Pedagogy Institute – 3 days, 22.5 hours Oral History Collection Universal Design of Learning Writing Arguments in Historical Inquiry	PLC Meetings 1 (2 hours)	Content/ Pedagogy Institute – 1 Day, 7.5 hours	PLC Meetings 2 (2 hours)	
						PLC Meetings 1 (2 hours)		
ENGLISH LANGUAGE ARTS 3				CCSS-ELA (6 hours) content workshop	Pedagogy workshop Reading Workshop (6 hrs)	Content/Pedagogy workshops on assessment and guided reading (7 hours)	Content/Pedagogy workshops on guided reading, technology, independent and shared reading (8 hours)	Content/Pedagogy workshops on technology and conferring (2 hours)
						PLC (2 hours)	PLC (1.5 hr)	PLC (1. hr)
						Modeling/Observation (1 hr)	Classroom Modeling/Observation (1 hr)	Classroom Modeling/Observation (1 hr)
MATH 3				Orientation (3 hrs)		Professional Development (6 hrs)	Professional Development (6 hrs)	Professional Development (6 hrs)
					PLC (2 hrs)	PLC (2 hrs)	PLC (2 hrs)	
					Classroom Visitation (2)	Pre Observation (2) Classroom Visitation (2)	Classroom Visitation (2)	

University or College/Subject	January 2016	February 2016	March 2016	April 2016	May 2016	June 2016	July 2016	August 2016	September 2016
MATH 1	Half of group comes on each day (1 day)	Half of group comes on each day (1 day) Math in Action Conference	PD (0.5 day) Half of group comes on each day (1 day)					Summer Workshop (5 days)	
SCIENCE 1	Lesson Plan Presentations (7 hours)	Lesson Plan Presentations Lessons learned from classroom observations (7 hours)	MSTA Conference 8 (hours) Lesson Plan Presentations Lessons learned from classroom observations (7 hours)	Lesson Plan Presentations Lessons learned from classroom observations (7 hours)	Lesson Plan Presentations Lessons learned from classroom observations (7 hours)	Post Tests, Final Dialogue, Lessons Learned, Project Wild (14 hours)			
SOCIAL STUDIES 2	Content/Pedagogy Institute – 1 Day, 7.5 hours Assessment Examining Student Work	Lesson Study PLC Meeting 3 (2 hours) Observations	Lesson Study Observations	Lesson Study Content/Pedagogy Institute – 1 Day, 7.5 hours Observations	PLC Meeting 4 (2 hours) Observations	Content/Pedagogy Institute – 2 Days (15 hrs) Historical Inquiry Sustaining PLCs			
ELA 3	Content/Pedagogy workshops on assessment conferring and fluency (4.5 hours) PLC (2 hours) Classroom Modeling/Observation (1 hr)	Content/Pedagogy workshops on fluency, technology, CCSS for writing (4.5 hours) PLC (2 hours) Classroom Modeling/Observation (1 hr)	Content/Pedagogy workshops on writing workshop (4.5 hours) PLC (2 hours) Classroom Modeling/Observation (1 hr)	Content/Pedagogy workshops on writing assessment, writing range and conferring (7 hours) PLC (2 hours) Classroom Modeling/Observation (2 hrs)	Content/Pedagogy workshops on writing for different purposes, reading to support writing (6.5 hours) PLC (3 hours) Classroom Modeling/Observation (2 hrs)			Content/Pedagogy workshops on reading and writing workshop (6 hrs)	
MATH 3	Professional Development (6 hrs) PLC (2 hrs) Mid Observations (1) Class Visits (2)		2 day Professional Development (12 hrs) PLC (2 hrs) Classroom Visits (2)	Professional Development (6 hrs) PLC (2 hrs) Post Observation (2) Classroom Visits (2)	Summer Institute 1 (6 hrs) PLC (2 hrs) Classroom Visits (2)	Summer Institute 2 day (12 hrs) Classroom Visits			Classroom follow up if needed

KEY:

Orientation/Kick-off/Introduction
Content/Pedagogy Workshop, Follow-up/drop-in Session, Lesson Plan Presentations
Institute
Classroom Observations
PLC/After-School Dinner Meetings
Conferences

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ABOUT THE MICHIGAN ITQ EXTERNAL REVIEW/EVALUATION

The ITQ Review/Evaluation had two major components: 1) Statewide Cross-Site Review/Evaluation of the Michigan ITQ Initiative and 2) Technical Assistance to ITQ Grant-Funded Projects and the Michigan Department of Education. The concept map on the next page shows the connections among the core elements of the review and evaluation.

Statewide Cross-Site Evaluation. Key functions of the statewide evaluation component of the Michigan Improving Teacher Quality (ITQ) Professional Development program were to:

- Synthesize available data and draw conclusions about the effects of programming on participating teachers and their students
- Identify the nature and extent of project professional development activities and their interventions
- Compile information on schools and teachers served by the project
- Analyze Project Director and Internal Evaluator assessments of their projects
- Assess strengths and limitations of the ITQ effort
- Identify issues related to project procedures and facilitation
- Report findings to stakeholders

Summary of Major Evaluation Activities Over the Thirteen Years of the ITQ Initiative

- Conducted cross-site analysis of annual reports to identify impacts on teachers, schools, students for each grant cycle
- Compiled and analyzed project director/internal evaluator reports on impact of project related to intended outcomes for each grant cycle
- Compiled participant/participation data from reporting projects; compiled all professional development program data for each grant cycle
- Facilitated administration of beginning and end-of-grant cycle cross-site surveys of participating teachers; compiled/analyzed data; prepared reports for individual projects; prepared aggregate reports
- Prepared end-of-cadre summary reports based on cross-site analysis of project reports and other available data (total of thirteen)
- Prepared a variety of reports based on specific data collection efforts related to technical assistance session activities, lessons learned exercises, director debriefing interviews

Technical Assistance to ITQ Projects and MDE. Core elements of the technical assistance provided by the statewide cross-site evaluation team in collaboration with the MDE ITQ Project Coordinator are summarized in the list below.

- Helped plan and facilitate two face-to-face and two-three webinar technical assistance sessions per project cadre
- Provided one-on-one assistance with project-level evaluation and programming; maintaining on-line communications
- Prepared reports from TA sessions
- Assisted ITQ project directors and evaluators with completion of end-of-grant reporting
- Assisted with revisions to RFP and proposal scoring rubrics; assisted with RFP announcement/TA sessions
- Developed and assisted with administration of teacher needs assessment instruments as part of the grant proposal process
- Assisted with review of ITQ proposals
- Provided training of project staff on use of lesson observation protocols

REVIEW/EVALUATION CONCEPT MAP

The concept map below shows the primary elements of the Michigan ITQ program evaluation. It includes the two major components—project-level internal evaluation and statewide cross-site external evaluation and associated technical assistance. This graphic explanation is designed to show readers the nature, extent, and connections of the ITQ evaluation and technical assistance (TA) effort.

