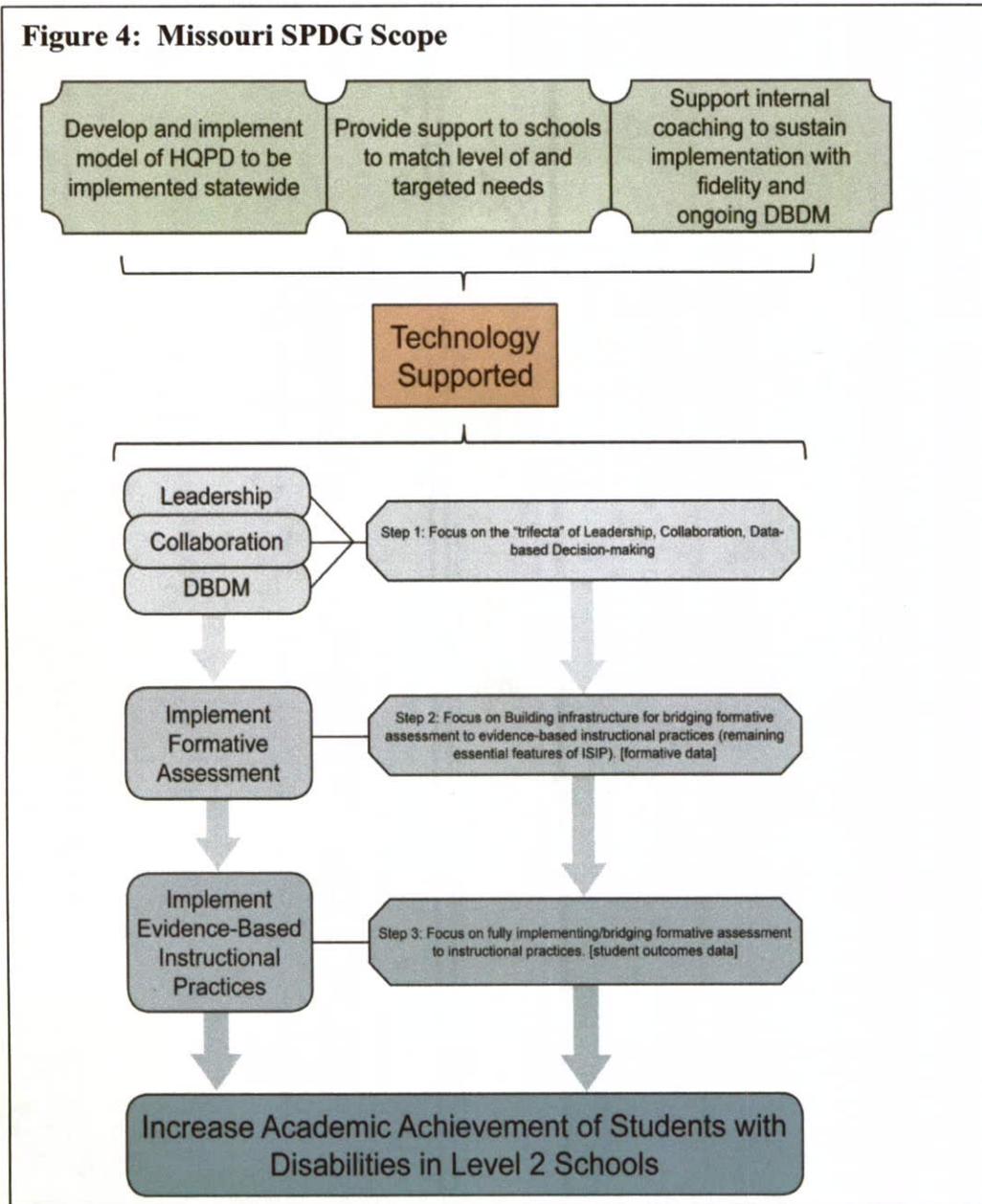


been re-conceptualized to ensure that all districts in the state have access to high quality professional development to support a data-based decision making process. Within the RPDCs, professional development is being consolidated and aligned with the Missouri Core Academic Standards and Teacher and Leader Standards to ensure that the professional development providers possess expertise within multiple initiatives and can guide schools with practices and processes that match their unique needs. Figure 4 shows the contribution of the SPDG to the Statewide System of Support (SSOS) by outlining the focus of SPDG work. Because the SPDG contributes to the Top 10 by 20 Plan currently adopted with widespread support from the State Board of Education, DESE leadership, and nine RPDCs throughout Missouri, it is evident that administrative support, buy-in and alignment are in place to maximize systems-change.

#### **Lessons Learned from the Missouri Integrated Model (SPDG 2007-12)**

For the 2012 SPDG, Missouri draws on lessons learned from prior work in school improvement and professional development. The 2007-12 Missouri Integrated Model (MIM) process was developed to improve student achievement and transform school culture through tiered layers of support. MIM integrated evidence-based components, or essential features of school improvement, with the goal of creating collaborative and effective schools where parents, community members, and school staff work together. With the support of a comprehensive coaching and leadership network, MIM schools and districts implemented evidence-based practices in both academic and behavioral areas. The MIM utilized a multi-tiered framework for schools to implement supports in both academic and behavioral areas. Instructional supports changed as students responded to the general curriculum, and movement between tiers was data-based. The MIM also supported participating schools to progress

**Figure 4: Missouri SPDG Scope**



through a multi-year systems-change process.

Implementation of the MIM was conceptualized as an ongoing process of continuous improvement, similar to that described by Dean Fixsen and colleagues at the National Implementation Research Network (NIRN). During the first half of year one, the planning year, schools completed an initial Self-Study to identify data resources and areas for improvement.

By the end of year one, participating schools developed Action Plans targeting their initial implementation priorities. With the Action Plan in place, schools progressed through stages of implementation. Schools in years two through four followed differing paths—each one individualized to unique strengths and needs determined by data—as they moved toward full implementation.

As a result of participation in the MIM, schools showed growth in student academic outcomes over time. When compared to other Missouri schools with similar geographical and student demographics (comparison schools), MIM schools increased communication arts achievement for students with IEPs at greater rates than their counterparts during the first year of MIM implementation (see Appendix A, Figure 5). The line graph (see Appendix A, Figure 6) shows the average percent of students that met proficiency on the communication arts state assessment prior to participating in the MIM (baseline 1) during the self-study year (baseline 2), and during the first year of implementation.

Similarly in math, when compared to other Missouri schools with similar geographical and student demographics, schools participating in the MIM increased mathematics achievement for students with IEPs at greater rates than their counterparts during the first year of MIM implementation and the achievement for all students showed continuous growth (see Appendix A, Figure 7). The line graph shows the average percent of students that met proficiency on the Missouri Assessment Program (MAP) Mathematics assessment prior to participating in the MIM (baseline 1) during the self-study year (baseline 2), and during implementation (See Appendix A, Figure 8).

Each year, the MIM Schools completed the School Staff Survey (Gaumer Erickson, Noonan, & Jenson, 2009). This survey gains input from all school staff (teachers, administrators

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and instructional staff) regarding the level of implementation of each essential feature in the classroom. Reliability analyses on this survey show that it is a strong measure of effective school-wide, classroom-level, and student-level practices, with a coefficient alpha of 0.96.

During the 2011-2012 school year, a total of 844 staff members from both the fourteen 2008-12 cohort schools and the eleven 2010-12 cohort schools completed the survey. The total number of responses for the 2008-12 cohort schools was 494, which represented a total of 338 teachers, 80 other certified staff, 49 non-certified staff, and 23 administrators. The total responses for the 2010-12 cohort schools was 349, which represented a total of 263 teachers, 48 other certified staff, 14 non-certified staff, and 19 administrators. The following table and graph show a summary of MIM Implementation for the 2008-2012 cohort over the past three years. These graphs reflect the average percentage of staff that reported high levels of implementation of indicators in each essential feature. As evident from the data, the level of implementation of each essential feature increased significantly through the MIM process.

Clearly, the Missouri Integrated Model was a successful improvement process for diverse Missouri schools, as schools showed implementation and improved outcomes over time. Project staff agreed that school improvement should center on the importance of a strong foundation of leadership, data-based decision making and collaboration. Additionally, high quality professional development should occur using adult learning principles that target instructional strategies.

**Table 6: Implementation of the Missouri Integrated Model: Results of School Staff Survey**

MIM Essential Features	2009-2010	2010-2011	2011-2012
Shared Vision & Commitment	69%	76%	81%
Leadership	51%	60%	63%
Collaborative Environment	66%	74%	78%
Professional Development	68%	78%	80%
Mentoring & Coaching	51%	64%	71%
Culturally Responsive Practices	68%	85%	87%
Resource Mapping	58%	71%	73%
Family & Community Involvement	55%	67%	71%
Evidence-Based Practices	59%	69%	72%
Data-Based Decision Making	58%	63%	68%
Monitoring of Student Progress	76%	79%	85%

Additionally, the MIM relied heavily on the RPDCs to provide a wide range of training and technical assistance to meet the needs of teachers, administrators, and school districts in their region (see Appendix A, Figure 9). RPDC staff members collaborated with the DESE staff and Implementation Facilitators (IF) to provide training and resources that supported school teams in completing their data-based Self-Studies and implementing Action Plans. RPDC representatives also served on the Implementation Team and Advisory Group of the MIM. Project staff continually identified the need for improved consistency and communication across the nine RPDC regions to increase the quality and consistency of professional

development in Missouri. Survey results in 2012 indicated that RPDC staff have a general understanding of the MIM (3.66 mean on a 5-point scale), knowledge of three-tiered models (4.03 mean on a 5-point scale), and high levels of collaboration with the Department offices (3.23 mean on a 5-point scale). It is our intention to take what we have learned through the 2007-2012 SPDG and embed critical concepts (e.g., buy-in, leadership, teaming, high quality professional development) in a statewide service system.

Despite these many successes, there were continued challenges with implementation of the Missouri Integrated Model.

1. Visualizing an integrated process required repeated exposure to professional development and re-conceptualization of roles.
2. Leading schools through a process of collecting useful data, analyzing data, using data to drive instructional decisions, and building a system to support the data-driven cycle was challenging for schools and for professional development providers.
3. Prioritizing changes to instructional practices based on data required intense professional development and ongoing on-site support.
4. Changing operational aspects of the school (i.e. scheduling, after-school opportunities, etc.) often clashed with the mindset of *“this is the way we’ve always done it.”*

The Project Design section provides more detail on how proposal builds on “lessons learned.”

### **Absolute Priority and Competitive Preference**

The ultimate goal of the proposed project is to improve academic achievement and post-school outcomes of students with disabilities by supporting the development of a Statewide System of Support (SSOS) that provides high-quality professional development to schools to implement effective teaching and learning practices. To assist schools in this process, the

DESE, along with a diverse group of stakeholders, including Missouri Parent Training & Information (MPACT), the Office of Vocational Rehabilitation, higher education, and school administration (see Appendix C, Letters of Support/Partnership), has embraced a systematic school improvement process that has been shown to facilitate educational improvement and systems change both nationally and within the state of Missouri. In order to have the largest impact through proven processes, the 2012-17 SPDG will contribute to Missouri's State Personnel Development Plan (also known as the Statewide System of Support) which addresses high quality professional development and principles of implementation science. SPDG work will contribute to the Missouri State Personnel Development Plan, as well as to Missouri's new Educator Evaluation System.

#### **Absolute Priority 2.1: The Missouri State Personnel Development Plan**

To help achieve *Top 10 by 20* goals, State Performance Plan targets, and other state and federal requirements, the DESE has developed a Missouri State Personnel Development Plan called the Statewide System of Support (SSOS). The SSOS includes the state education agency (SEA) and nine RPDCs to provide personnel development to local education agencies (LEAs).

The SSOS provides personnel development supports to all districts through guidance documents, training webinars, technical assistance, tools designed to help implement mandated and/or best practice activities (including successful strategies from Reward Schools), access to focused research, access to state and local data, and other areas where data indicate support would be beneficial to help districts/schools improve student outcomes. The system also includes regional staff who have been trained by the state on state products—primarily products associated with effective teaching and learning practices, data-based decision-making, formative assessments, collaborative teams, Missouri Core Academic Standards, and Teacher and Leader Standards—who

then provide consultation, technical assistance, training and follow-up support to LEAs. To ensure that the information provided to districts across the state is accurate and consistent, training materials will be developed and/or vetted by DESE.

Goals for the SSOS are the same as those of the Department's Top 10 by 20 Plan:

GOAL 1: All Missouri students will graduate college and career ready.

GOAL 2: All Missouri children will enter kindergarten prepared to be successful in school.

GOAL 3: Missouri will prepare, develop, and support effective educators.

GOAL 4: The Missouri Department of Elementary and Secondary Education will improve departmental efficiency and operational effectiveness.

**Competitive Preference Priority: Targeting teachers' professional development needs based on student growth.**

As mentioned earlier, Missouri's ultimate goal is to be in the Top 10 on multiple indicators of student performance by 2020. As such, everyone in the system must be accountable for this improvement. To accomplish one aspect of this, the DESE has recently adopted a set of teacher and leader standards and will be implementing a teacher evaluation system based in part on student performance. Multiple measures of growth in student learning—a positive change in student achievement between two or more points in time—will be included as a significant part of the evaluation process. Measures of growth in student learning may include, but are not limited to: common, benchmark and formative district-generated assessments; peer-reviewed performance assessments; mutually developed student learning objectives by evaluator and teacher; student work samples such as presentations, papers, projects, and portfolios; individualized student growth objectives defined by the teacher; and valid, reliable, timely, and meaningful information from standardized testing. By school year

2014-2015, all districts in Missouri will be using an evaluation process that incorporates the essential evaluation principles. This evaluation process is used for all teachers, including teachers of students with disabilities, and includes the following principles:

- Measures educator performance against research-based proven practices associated with the improvement of student performance.
- Uses multiple ratings to differentiate levels of performance.
- Highlights a probationary period of adequate duration to ensure sufficient induction and socialization support for new teachers and leaders.
- Uses measures of growth in student learning as a significant part of the evaluation of professional practice at all levels and ensures that a proficient or distinguished rating cannot be received in educator performance if student growth is low.
- Provides ongoing, timely, deliberate, and meaningful feedback on performance relative to research-based targets.
- Requires standardized, periodic training for evaluators to ensure reliability and accuracy.
- Utilizes the results and data to inform decisions regarding policies regarding personnel and employment determinations.

Ratings of educator effectiveness will guide district decisions regarding determinations, recognition, development, interventions, and policies that impact the extent of student learning in the system. As a result of the evaluation system, districts are empowered to recognize and utilize highly effective educators to improve student learning. Highly effective educators may serve their system in ways such as:

- Serving as mentors, peer observers, and coaches for less effective educators,

- Contributing through key leadership roles,
- Assisting with the challenges of high-need students in high-need locations, and
- Assuming other critical additional duties contributing to school system's overall success.

Ineffective educators are those demonstrating sustained periods lacking desired growth, as documented by unsatisfactory evaluations. These educators receive targeted interventions and support to encourage ongoing formative development. Established timelines will be articulated through local policy and provide further clarification in terms of duration of interventions and the nature of additional support. If sustained demonstration of unacceptable performance occurs, a local dismissal protocol can be enacted.

In addition, results of the evaluation process will be used by districts to guide decisions about professional development and employment determinations. In this way, the results of the evaluation process identify and address the specific needs of the teachers. All districts will use the state model growth guides created to develop effective practice. Growth guides contain three professional frames. One of these is called the Impact Frame, and it includes measures of growth in student learning in order to move a teacher's practice across the continuum to higher levels of performance, resulting in higher levels of student learning. Professional development is targeted to address specific indicators and will focus on increasing a teacher's commitment, practice, and impact relevant to the performance element articulated in that indicator. In 2012, Missouri is conducting a pilot year for the teacher evaluation system. For more information, see: <http://dese.mo.gov/eq/ees.htm>.

### **Overview 2012-2017 Missouri SPDG**

As noted above, the 2012-17 SPDG will contribute to Missouri's State Personnel Development Plan (also known as the SSOS) which at all times incorporates overarching Missouri State Personnel Development Grant (CFDA 84.323A)

components of: high-quality professional development, principles of implementation science and efficient use of technology.

**High-quality professional development.** SPDG work will contribute to the Missouri State Personnel Development Plan, as well as Missouri's new Educator Evaluation System. Throughout the five years, the Missouri SPDG will focus efforts on developing training tools, structures and processes that will ensure high quality professional development statewide. We understand that conventional forms of professional development (i.e., one-shot workshops and conferences) do not provide the support needed to modify teaching practices (Asayesh, 1993; Guskey & Huberman, 1995). The current prevailing view of effective professional development is that it needs to be authentic and ongoing (Boudah, Blair & Mitchell, 2003; Trivette, Dunst, Hamby & O'Herin, 2009). Furthermore, professional development should address adult learning methods to ensure effectiveness through levels of instruction (i.e., introduce, illustrate, practice, evaluation, reflections, and mastery). In this project, high quality professional development incorporating adult learning methods will be implemented as well as evaluated at all levels: state, regional, and local.

Research from numerous sources has identified nine characteristics of high quality professional development. These characteristics with supporting research are outlined below.

1. **Alignment with school, state, and district standards and with other professional learning activities:** Built-in to the larger school reform effort vs. isolated activities (Penuel, Fishman, Yamaguchi, & Gallagher, 2007). Teachers find PD content and the delivery relevant to their needs and in sync with their school's goals (Hord, 1997).
2. **Focus on core content and modeling of teaching strategies for the content:** Teachers try classroom practices learned in a PD setting (Snow-Renner & Lauer, 2005; Desimone,

Porter, Garet, Yoon, & Birman, 2002; Penuel et al., 2007). Content is a top priority for further PD (Wei, Darling-Hammond, & Adamson, 2010).

3. ***Active learning so teachers make sense of the content in meaningful ways:*** Analysis of current teaching practices in relation to professional standards. Comparison of what students are learning to all students (Ingvarson, Meiers, & Beavis, 2005).
4. ***Provision of opportunities for collaboration among teachers:*** Professional learning communities result in lower rates of absenteeism and dropout and increased achievement in the core academic areas (Newmann & Wehlage, 1995).
5. ***Inclusion of embedded follow-up and feedback:*** PD that produces gains in student learning includes extended follow-up and continued feedback (Daley & Kim, 2010).
6. ***Intensive, ongoing, and connected to practice:*** PD activities that are intensive, ongoing, and sustained over time with coaching (Corcoran, McVay, & Riordan, 2003; Darling-Hammond, Wei, Richardson, Andree, & Orphanos, 2009; Garet, Porter, Desimone, Birman, & Yoon, 2001).
7. ***Focus on student learning:*** PD including applications of knowledge to planning and instruction has a much larger chance to influence teaching practices and lead to improvements in student learning (Knapp, 2003; Desimone et al., 2002; Weiss & Pasley, 2006). Teachers should analyze student performance data and work samples in order to identify common misunderstandings (Little, 2003).
8. ***Job-embedded and connected to teaching and learning:*** PD occurs in real settings and centers around issues of actual practice and the current work of the school (Croft, Coggshall, Dolan, & Powers, 2010). PD should utilize the existing knowledge in the school (Wei, Darling-Hammond, Richardson, Andree, & Orphanos, 2009). It includes

mentoring, coaching, action research, peer observation, examining student work, and virtual coaching (Rock, Gregg, Gable, & Zigmond, 2009).

9. ***Sustainable and school-based:*** Sustainable, intensive, school-based PD is more effective than short-term, truncated approaches (Wei et al., 2010). Teachers who receive school-based coaching apply preferred teaching practices more frequently and appropriately than teachers who received traditional PD (Neufeld & Roper, 2003).

More specific to the training, Joyce and Showers (2002) illustrate that high-quality professional development cannot be achieved without several training components. Knowledge of content, skill implementation, and classroom application all increase with the addition of presentations/lectures, demonstrations, practice, coaching, administrative support, and data feedback. It is critical that statewide professional development in Missouri incorporates these effective practices to change teacher practice in the classroom.

**Adherence to principles of Implementation Science.** This project will include principles of implementation science throughout. As identified by NIRN, the effectiveness of intervention *and implementation* are equally important because “students cannot benefit from innovations they do not experience” ([www.scalingup.org](http://www.scalingup.org)). To ensure effective implementation, the proposed SPDG has been designed to continually expand the implementation within each driver. This framework organizes the complex processes associated with implementing effective practices. Fixsen and his colleagues at NIRN have synthesized implementation research from a wide range of fields (Fixsen, Naoom, Blase, Friedman, & Wallace, 2005) to arrive at a list of core implementation components and stages of implementation (see also Fixsen, Blase, Naoom, & Wallace, 2009). The components are: staff selection, pre-service and in-service training, ongoing coaching and consultation, performance assessment, systems intervention, facilitative

administration, decision support data systems, technical leadership, and adaptive leadership (Fixsen, et al., 2005, p. 29).

Fixsen and colleagues (2005) have also isolated six recursive, nonlinear stages of implementation: exploration/adoption, installation, initial implementation, full operation, innovation, and sustainability (p. 15). Successful implementations do not necessarily proceed from one state to the next in a linear fashion; rather, a given implementation may ebb and flow based on countless contingencies (e.g., funding, staff turnover). Fixsen, et al. (2009) noted that none of these components is novel, but “what is new is the realization that the stages and components are highly integrated parts of a whole new thing that is identifiably ‘implementation’” (p. 8). Thus, in order to arrive at sustainable implementation, none of the components can be neglected. Under the NIRN model, coaching is supported by a “purveyor,” defined as “an individual or group of individuals representing a program or practice who actively works to implement that practice or program with fidelity and good effect” (Fixsen, et al., 2005, p. 14). Purveyors’ long-term involvement with given interventions and programs provides them with accumulated knowledge about potential problems and barriers to successful implementation. The 2012 Missouri SPDG project will work closely with expert consultants from NIRN to ensure that principles of implementation science are adhered to throughout the project. Already, project goals and activities have been aligned with the six recursive, nonlinear stages of implementation.

**Technology.** In an examination of Professional Development trends in the United States, there has been a serious decline in the intensity of PD—states and districts appear to offer PD that is short-term and abbreviated (Wei et al., 2010). Few teachers have access to regular opportunities for intensive learning (Blank, 2007); while 83% of US teachers engaged in PD

focused on academic content, it was not intensive learning—in most cases it lasted no more than two days (Wei et al., 2009). Conversely, research shows that effective professional development is intensive, ongoing, and connected to practice; focuses on the teaching and learning of specific academic content; is connected to other school initiatives; and builds strong working relationships among teachers (Darling-Hammond et al. 2009). Technology provides avenues for HQPD to occur when time or distance barriers get in the way of teachers having access to the professional learning experiences they need. For example, online communities of practice and other online learning tools make it possible for teachers to learn from one another without having to meet outside of the building, and more importantly without having to meet outside of the classroom where the actual teaching practices are taking place.

The benefits to incorporating technology into HQPD are:

- Easy, on-demand access to: shared resources (i.e. content, lesson plans, and assessments), collaborative environments, online communities of practice, and tools to promote high-level thinking (i.e. databases, discussions, spreadsheets, etc.);
- Universally designed, collaborative: material development, multiple forms of communication, multiple forms of media (i.e. text, audio, video, animation, and interactivity), dissemination of resources and feedback to/from schools, active learning, connects teachers with mentors, coaches, and 24/7 support centers, online collaboration (even face-to-face); and
- Integrated supports: electronic record-keeping, self-assessments, supports a range of learning styles, exposure to new knowledge, skills, and strategies.

For the 2012 Missouri SPDG project, technology including web conferencing, teleconferencing, videoconferencing, and social networking will be used in situations where

distance and time become issues for schools when working with RPDC consultants and to facilitate RPDC/DESE communications. For example, Eluminate is a scalable software system that is easy to use, requires minimal installation and training and can be setup in just a few minutes. This software includes session creation and scheduling, configurable email invitations, content preloads, multiple meeting types, authentication, etc. with open access licensing. In addition, users can interact with one another using features such as a whiteboard, application sharing, polling, and may be recorded for sharing at a later time. This type of software allows for the types of interactions needed when working with data, and other topics where visuals are required. The whiteboard allows the users to collaborate and work together on a document, table, spreadsheet, etc. instead of just a “static” image and/or presentation. This could be particularly helpful when working with specific types of data, creating forms, collaborating on a presentation, etc. Furthermore, using technology in place of face-to-face meetings can also be a cost-effective way to provide technical assistance and professional development.

U.S. teachers, unlike many of their colleagues around the world, bear much of the cost of their professional development (Darling-Hammond et al. 2009). While most teachers were given some time off to pursue professional learning opportunities, fewer than half received reimbursement for travel, workshop fees, or college expenses. Technology would eliminate the need for travel on both sides (for RPDCs and schools). Furthermore, U.S. teachers spend about 80 percent of their total working time engaged in classroom instruction, as compared to about 60 percent for these other nations’ teachers (Darling-Hammond et al. 2009). Professional development is most effective when teachers engage actively in instructional inquiry in the context of *collaborative professional communities*, focused on instructional improvement and student achievement. Technology for collaboration will be used in this project through

mechanisms such as: bulletin board discussion groups, course management software, asynchronous text-based collaborations like wikis and blogs, and videoconferencing software (Carle'n & Jobring 2005; Charalambos & Michalinos 2004; Sorensen & Murchu 2004).

### **SPDG-supported work**

Missouri is currently focusing efforts on aligning initiatives cross-departmentally for maximum impact, such as *Top 10 by 20*, *Teacher and Administrator Standards and Evaluation*, and *ESEA Flexibility Waiver*, as well as *IDEA State Performance Plan*. To enact positive and sustainable improvements within targeted schools based on need, the SPDG will narrow efforts around the core components of school improvement which are: (a) school-wide collaborative culture, (b) data-based decision making, (c) formative assessments, and (d) effective teaching and learning practices. Through this project, the SPDG management team will collaborate with RPDC consultants to develop and implement research-based professional development trainings, resources, and procedures for ongoing support related to formative assessment, effective teaching and learning practices, core academic standards, and data-based decision making aligned to Missouri teacher and leader standards. Using National Staff Development Council's professional development standards, professional development will be job-imbedded with facilitated improvements that meet student learning needs through school learning communities.

**Collaborative Teaming & Data-based Decision-Making in Schools.** Teachers, principals, and related school professionals have become more aware of the importance of data collection, data analysis, and data-based decision making. Data-based decision making is described as “a process in which school personnel engage in ongoing analysis of data from multiple sources to provide a comprehensive picture of a school's strengths and challenges and develop a plan to prioritize and address challenges” (Feldman & Tung, 2000, p. 4). Through this

process, teachers and their principals learn to engage in systematic investigation of data, interpret data, and evaluate their teaching practices and student achievement. Skalski and Romero (2011) asserted that using data to determine the extent to which teaching practices impact students' learning is essential to improve teachers' instructional practices and professional development. Data-based decision making has been considered a crucial component in monitoring teacher practice, promoting evidence-based educational interventions, and building learner-centered leadership.

Researchers continuously suggest that data-based inquiry and decision making based on student data can improve educational practice (Feldman & Tung, 2000; Skalski & Romeo, 2011; Wayman, Midgley, & Stringfield, 2006); however, efficient use of data is challenging for teachers and other school professionals. Stringfield, Rynolds, and Schaffer (2001) found that the use of student data at the school level was an extremely difficult task because few teachers and school personnel have adequate technical supports. Feldman and Tung (2001) also noted it was difficult for teachers to use the existing data because they did not have sufficient knowledge of how to interpret the data.

In order to use data to inform classroom instruction, data-based decision making requires that: (a) school staff must decide whether they have the "right" data, (b) principals need to work with their staffs to decide which data they must investigate and perform a thorough examination on all sources of collected data, (c) both principals and related staff members need to confirm the data are directly related to teacher practices, (d) schools need to provide professional training for teachers to learn about the data, and then (e) professional collaboration must occur so staff can share ideas and discuss teaching strategies (Skalski & Romero, 2011).

Wayman's (2005) case studies on data use showed the relationship between use of data

and teacher collaboration is “reciprocal” because use of data helps teachers and related school professionals facilitate positive collaboration. One of the current trends in education shows that the vast majority of educators would like to become “more reflective practitioners,” but few have the skills to perform sufficient data collection, analysis, and decision making based on the data. Even in a supportive, highly engaging school environment, efficient data use is difficult to begin without proper training (Weyman, 2005). In summary, systematic data-based decision making will lead educator teams to implement the most effective practices but, in order for this to happen, educators need extensive PD and supports in the collection, analysis, and use of data to make the best instructional decisions.

**Formative Assessment.** Formative assessment delivers necessary information while teaching and learning are simultaneously occurring (Garrison & Ehringhaus, 2007). During that time, formative assessment informs teachers about their students’ understanding of learning and about which teaching practices can be used to improve outcomes. The nature of formative assessment has been described as an academic process designed to provide feedback on curricula and students’ learning to improve both students’ academic achievement and teachers’ instructional practices (Council of Chief State School Officers [CCSSO], 2007). According to Baroudi (2007), formative assessment is defined as a variety of activities used by the teacher to diagnose a student’s level of mastery and possible improvement for the future. During the assessment, the teacher’s feedback and ongoing instruction must be aligned with “remediation or the provision of further learning opportunities” (p. 39). The primary goal of conducting formative assessment is to guide a curriculum process while in progress so that the assessment can be utilized to help teachers make up-to-date decisions about student progress, and see whether their curriculum has a long-lasting impact on student achievement (Moir, 2004).

Black and William's (1998) synthesis of the literature on formative assessment provided evidence that formative assessment has positive effects on students' learning. Formative assessment is directly connected to teachers' instruction and learning and is significantly embedded in students' work with the teacher. The need for developing efficient and applicable formative assessment has been continuously growing over time. For teachers, the need of assimilating instruction with assessment has steadily been increasing due to the fact that frequent and accurate measurement of their students' learning not only provides encouragement and motivation but also minimizes the gap between their current academic standpoint and a reference level. Throughout the process of formative assessment, teachers view themselves in a multitude of roles (i.e., instructors, facilitators, mentors, and researchers), all of which are keenly concentrated on meeting their students' needs. The assessment system serves as the cornerstone of educational development.

Formative assessment is used in elementary schools as a guide to make decisions based on data. Formative assessment occurs when teachers monitor students' progress and provide necessary feedback to students in ways that motivate students to perform better. Research shows that high-quality formative assessment has a strong impact on student learning (Caffrey, 2009). In their meta-analysis, Black and William (1998) found that studies of formative assessment showed a range of effect sizes between 0.4 and 0.7—larger effects than any given educational intervention. The authors also recognized that formative assessment was highly effective for students who were low achievers, which later minimized the gap between low and high achievers and increased the overall mean of students.

Fortana & Fernandes (1994) conducted a large-scale study in which they provided training to elementary teachers in implementing self-assessment strategies (as a part of formative

assessment) with their students. The strategy was implemented across all subjects at the 7<sup>th</sup> grade level. The authors examined the effects of formative assessment on the students' academic performance in mathematics and on their locus of control. The findings revealed that the students who went through the self-assessment showed a 50% improvement on their math tests over the control group.

To serve students' needs, it is crucial that teachers first gather all necessary information about their students and engage in effective instructional practices designed to maximize the students' achievement (Baron, 2004). For beginning teachers, this task can be daunting. Professional development for beginning teachers on how to embed formative assessment has been demonstrated to improve the quality of classroom practices over time (Gless, 2004). Training on formative assessment provides a guide to teachers and school-related professionals on how to understand formative assessment, identify the needs of students, and meet professional standards. Facilitating effective teaching practices on formative assessment is critical, especially when teachers are to advance their teaching and classroom practice.

Formative assessment systems can result in the successful development of curriculum for classroom practice. The use of formative assessment will allow teachers to observe students' learning, present knowledge, cognitive skills, and analytical reasoning. It also will enable teachers to evaluate their own instructional practices and promote professional development.

**Effective Teaching and Learning Practices.** Each student has different learning skills, motivation, and goals; thus, utilization of effective teaching practices is needed to fulfill student needs. Research shows that the ways in which teachers promote ways of thinking through teaching practices can enhance students' information processing, motivation for learning, and cognitive development (Ames & Archers, 1988). Mercer and Mercer (1998) emphasized the

importance of professional teacher training in learning practices: “Helping teachers create an instructional environment that effectively assists students to master their learning and do problem solving is important for early school successes and provides a basis for expanded school demands” (p. 528). For teachers and educators, creating an academic environment based on learning practices is crucial to students’ learning. Effective educational interventions must be developed and implemented to enable teachers and educators to support their targeted student population.

With the 2009 publication of *Visible Learning*, John Hattie’s meta-analysis of the factors contributing to or detracting from learning, we have clearer guidance as to the types of strategies and contexts that have a positive impact on learning. This rigorous meta-analysis encompassed 52,637 studies and approximately 240 million students to result in a comprehensive array of instructional factors organized by effect size. The effect size provides a relative metric for comparing the potential impact of an instructional practice (i.e. reciprocal teaching) or context (i.e. class size). The ways in which Hattie shares the results of his meta-analysis in his books *Visible Learning* and *Visible Learning for Teachers* has prompted a growing movement among educators to reflect on the effectiveness of their instructional practices (*Visible Learning Plus*, [www.visiblelearningplus.org](http://www.visiblelearningplus.org)). Through professional development, educators learn how to implement and combine effective practices, as well as self-monitor effectiveness by computing effect sizes and consider fidelity of implementation. This MO SPDG will draw from the guidance provided by *Visible Learning*.

### **Effective Systems**

Effective systems are critical to the success of implementing evidence-based instructional practices. Effective systems provide the infrastructure for implementation with

fidelity and data-driven problem-solving. There are numerous educational initiatives to inform school-wide systems change. In Missouri, these have been School-wide Positive Behavioral Supports (SW-PBS), Response to Intervention (RtI), and Professional Learning Communities (PLC). The commonalities among these, thus lending ideally to an aligned project design, are the essential features listed earlier in the discussion of lessons learned from the prior Missouri SPDG (Missouri Integrated Model). Additionally, the growing work of the State Implementation and Scaling-Up Educational Practices (SISEP) Center has provided useful information for state-wide systems change of the educational system. According to Fixsen, Blase, Horner, & Sugai (2010),

*“Currently, it is common practice for SEAs to use pilot programs to demonstrate the usefulness of an intervention. However, research indicates that pilots are insufficient for laying the foundations for going to scale statewide with an effective intervention. Thus, States are left with isolated islands of excellence and no framework to scale up success.”*

The significance of evidence-based instructional practices and systems is that practices and systems must align. Furthermore, policies must be in place in order to give direction and support for practices and systems. The SISEP and National Implementation Network researchers describe the role of policy influencing practices and visa-versa: Policy-Enabled Practice and Practice-Informed Policy (Fixsen, Blase, Horner, & Sugai, 2009). It is through this cycle that sustainable, statewide systems-change occurs.

### **C. Quality of Project Design**

The design of the Missouri SPDG incorporates current content and implementation research, works within an existing statewide infrastructure, involves numerous state and

national partners with specific expertise, and is tailored to address a statewide commitment to improving the achievement of all students, but especially students with disabilities. High quality professional development (HQPD) is referenced throughout the design as having three components: training, technical assistance, and coaching. When HQPD is mentioned, it can be assumed that all three components are addressed.

The Missouri SPDG is designed to address two goals: (a) improved student achievement through the development of content-specific professional development delivered within a standardized HQPD protocol and (b) development and implementation of Missouri Teacher Learning Network (Mo-TLN) as a web-based system for enhancing professional development. Implementation occurs at all levels (SEA, regional, LEA) and is designed in a series of steps beginning with a focus on increased knowledge and skills and moving toward continuous quality improvement. Supporting this work is SPDG Management Team Statewide System of Support, Implementation Advisors, Content Development Teams, and other advisory partners.

### **Specific & measurable goals, objectives, and outcomes**

Missouri's SPDG is designed to address two goals and related objectives. This section outlines the goals, objectives, and anticipated outcomes. Overall, the impact on student progress and achievement will be:

- Improved student achievement on academic measures,
- Increased access to the general education curriculum/environment,
- Increased levels of appropriate behavior, and
- Progress toward college and career readiness.

Measurement of the progress toward achieving project goals and objectives is outlined in the evaluation section of this proposal. These goals will be achieved through improved teaching and

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learning practices being implemented as a result of HQPD in targeted, critical areas of educational practice.

The SPDG will prioritize professional development to elementary schools demonstrating achievement gaps between students with disabilities and students without disabilities. The SPDG will prioritize work at the PK-8 education levels, in 378 elementary schools that have been identified as meeting the above criteria.

**Goal 1: Improve the educational achievement of all students, but especially students with disabilities through the development, implementation, & evaluation of a targeted system of professional development, which includes training, technical assistance and coaching.**

The approach to addressing Goal 1 recognizes the importance of working at all levels of the system: SEA, regional support system, and LEAs. At each level are anticipated professional development outcomes. A lesson learned through implementation of the prior SPDG and the Missouri Integrated Model (MIM) was the critical role each level plays in supporting progress or posing challenges. Learning across all levels of the system of common topics/concepts, as well as ownership for data and progress monitoring is critical to sustainable systemic change.

- *Objective 1.1:* Enhance the capacity of the DESE to align the results of local and regional data and teacher/leader evaluation with professional development focused on selected Missouri Teacher and Leader Standards.[SEA Level]
- *Objective 1.2:* Enhance the capacity of the Regional Professional Development Centers (RPDC) to provide effective, evidence-based high quality professional development.[Regional Level]
- *Objective 1.3:* Enhance the capacity of LEAs demonstrating achievement gaps between students with disabilities and students without disabilities to implement an integrated school

improvement process focused on effective academic and behavioral support systems in schools. [LEA Level]

**Goal 2: Increase the use of technologies to support implementation of professional development and use of data for effective, teaching and learning decision-making.**

Similarly, the Goal 2 objectives are designed to focus on anticipated outcomes at state, regional, and local levels. The purpose of Goal 2 is to maximize the benefits of technologies for increasing the effectiveness of professional development.

- *Objective 2.1:* Enable the SSOS Network to use technology to increase opportunities for HQPD through the development and implementation of the Missouri Teacher Learning Network (Mo-TLN): a web-based network for enhancing PD through reliable resources, shared learning, frequent collaboration and support, structures for organizing materials, and consistent and ongoing use of data. [State and Regional Levels]
- *Objective 2.2:* Enhance LEAs' use of technologies through the Mo-TLN. [District/building Level].

Specific strategies and activities for addressing these goals and objectives are detailed later in this section.

**Implementation design**

This State Personnel Development Grant (SPDG) builds on the successes experienced and is informed by the challenges addressed through the prior SPDG grant cycles. Over the past five years, the Missouri SPDG has focused on the development and implementation of the Missouri Integrated Model (MIM). MIM was designed to integrate the essential features of evidence-based models forming a foundation for implementation of tiered levels of academic and behavior supports. The process of integrating “what works” resulted in the development of Missouri State Personnel Development Grant (CFDA 84.323A)

a school improvement process of using data to determine current reality, developing a plan of action to address areas of need, using data to continuously monitor implementation as well as student progress, and continuing the cycle of data-action each year. Through implementation of this data-driven-cycle focused on the essential features of “what works,” numerous lessons learned emerged to inform this SPDG application.

A school-wide culture of continuous school improvement requires leadership capacity to facilitate systems change and school-wide commitment to sustaining a collaborative culture. Leadership involves the educators with administrative titles as well as educators without titles but who take on leadership roles within the school. School leaders benefit fully understanding principles of adult learners and strategies for facilitating systems change. School teams benefit from professional development that assists them in establishing collaborative protocols, practicing collaborative teams, and guiding them through a reflective process that sustains school-wide collaboration.

Team fluency in using data to drive decision-making requires professional development. Building and district level teams benefit from guidance helping them to focus data collection, collaboratively review data, and translate results into implementing effective teaching and learning practices.

The guidance needed for translating results into improved instructional practices needs to be systematic, structured, and focused. Implementation of formative assessments and effective teaching and learning practices should be data-driven. Professional development supporting collaboration, facilitative leadership, and fluency in using data can assist in the development of an infrastructure. However, educators need focused professional development to further complete the trajectory of moving from processes to outcomes.

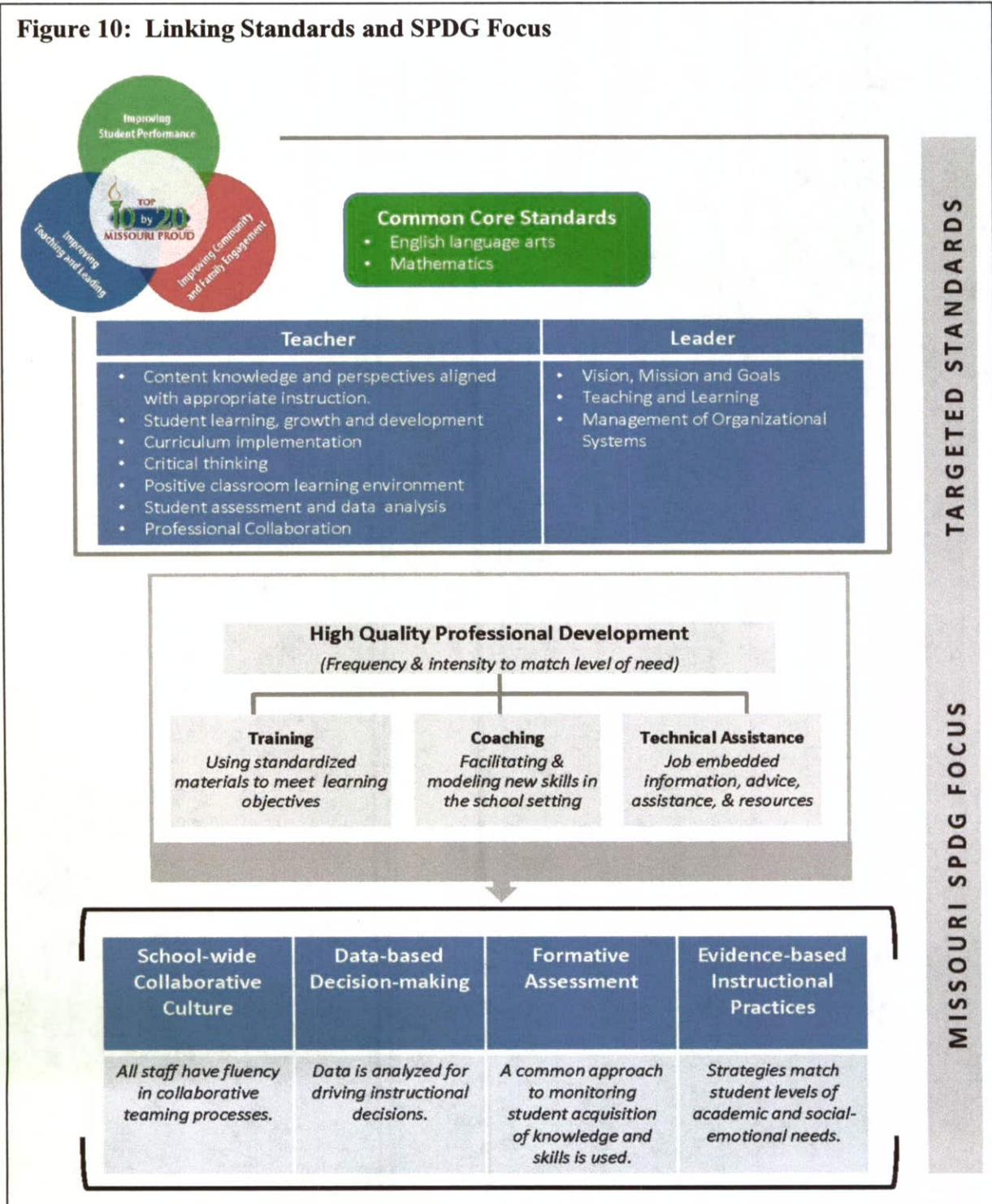
The Missouri SPDG is designed to focus on the elements identified above: leadership, collaboration, data-based decision-making, formative assessment, and teaching and learning practices. Figure 10 illustrates the focus of Missouri's SPDG, having grounding in the standards and focusing on these identified elements of effective systems and practices.

Statewide System of Support. The Missouri Statewide System of Support (SSOS) is a regional approach to providing targeted professional development across the state. As outlined in the recently approved ESEA Waiver, Missouri has detailed a plan for how the RPDCs will match levels of support to levels of needs in schools. Because the RPDC is the mechanism for ongoing, targeted professional development to districts and buildings, the RPDC will be directly involved in all aspects of implementation of SPDG. In addition to the direct role with providing professional development to districts and buildings, the RPDC team members will also be engaged in developing a statewide model of professional development as well as being recipients of professional development provided by the DESE. Figure 11 shows how the RPDC has a central role (a) in providing professional development to districts and buildings, (b) receiving professional development to build expertise and fluency necessary for providing high quality professional development, and (c) for informing state as to resources/expertise needed.

Consistent throughout all aspects of this SPDG is the commitment to providing high quality professional development across all levels. As a mechanism for self-monitoring quality, checklist(s), survey, and observation protocols will be developed as tools to be used when designing professional development activities, providing professional development, and for following-up with participants in order to facilitate translation into practice. The implementation of the MIM in the prior SPDG was designed to build on the research of the National Implementation Research Network (NIRN). The work of NIRN emphasizes implementation

drivers and purveyors as elements critical for successful implementation. The implementation of the MIM found these elements to indeed be important.

**Figure 10: Linking Standards and SPDG Focus**



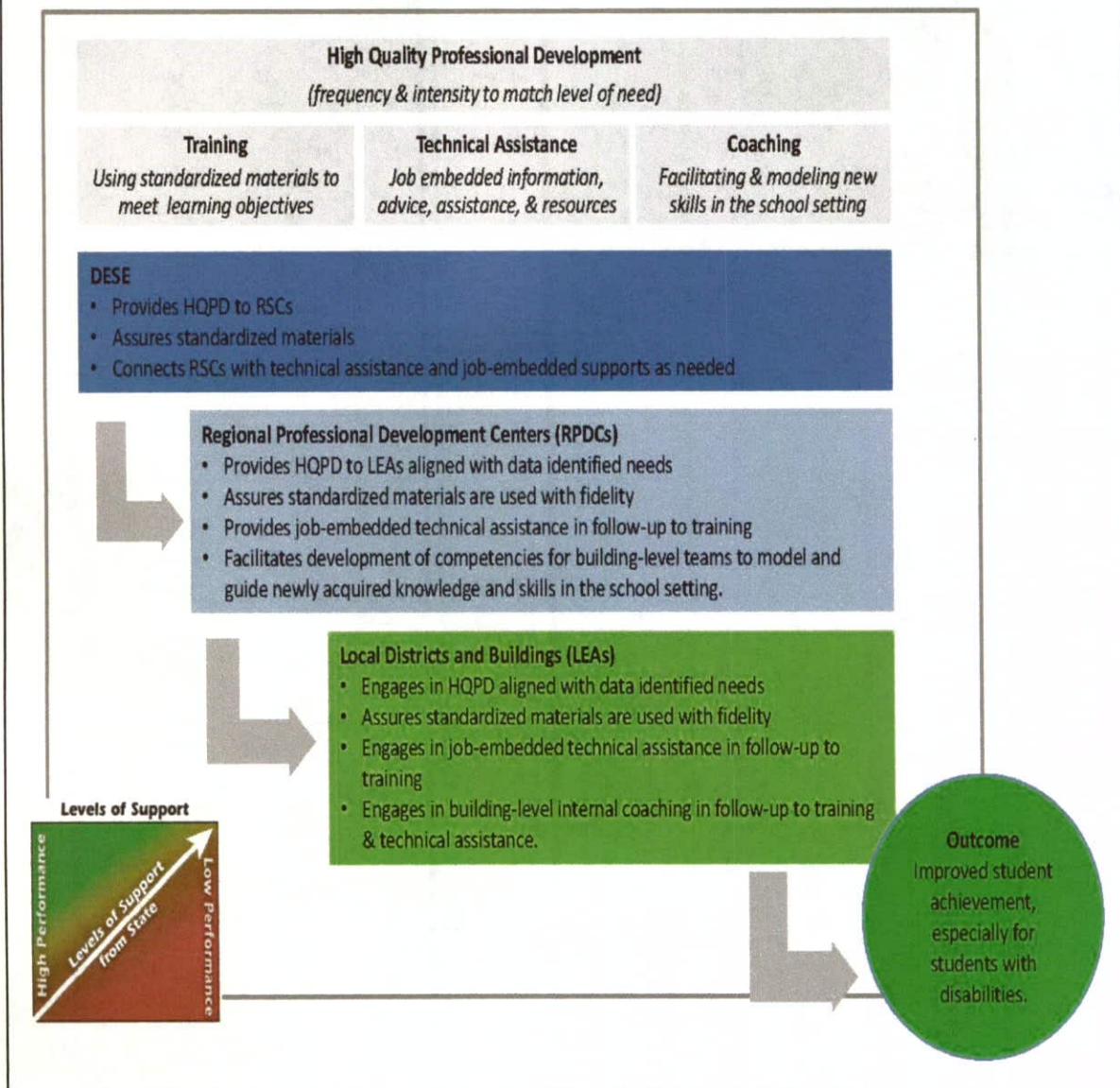
The design of the Missouri SPDG infuses the NIRN research by including purveyors focused on facilitating systems change and an implementation driver monitoring system. Research identifies eight implementation drivers. Three of the drivers focus on competency (selection, training, and coaching) and three focus on organizational systems (decision-support, data system, and facilitative administration). The remaining two drivers address fidelity and feedback (performance assessment) and foundational support (leadership).

The following section lists each implementation driver (Fixsen & Blase, 2008), the purpose, and how the SPDG design addresses the driver. The description of how the Missouri SPDG addresses each implementation driver begins with an overall description and is followed with a list outlining how the network of teams and advisors will support the driver.

**Leadership:** *Implementation drivers are supported by committed and engaged leaders at all levels.* A network of teams provides perspective and leadership authority for addressing systems change at all levels.

- The SPDG Management Team (MT) facilitates collaboration across the network of teams, monitors implementation of the SPDG at all levels, and provides organization and expertise for the development and implementation of HQPD in SPDG focus areas.
- The SPDG MT works within the SSOS by collaborating with the SSOS Quality Control Team (QCT) and the DESE's Executive Leadership Team (ELT) to design HQPD, monitor effectiveness, and problem-solve at all implementation levels.
- The SPDG MT seeks advice from implementation advisors providing external national and state perspectives on implementation processes and using technologies to support implementation.

**Figure 11: High Quality Professional Development Across All Levels**



**Selection:** Professional development is provided by qualified people with the expertise and adult teaching skills. The RPDC are strategically located across the state and have teams of consultants with high levels of expertise in the MO SPDG focus areas.

- The SPDG MT works closely with the SSOS Quality Control Team (QCT) and Executive Leadership Team (ELT) to build a solid SSOS infrastructure of expertise through shared learning.

**Training:** *Opportunities to build knowledge and practice skills are important for all individuals involved in implementation.* The SSOS staff will receive training in the implementation of high quality professional development (HQPD). The SSOS staff will also engage in a process of aligning current work to more effectively and efficiently deliver HQPD.

- The SPDG MT will work closely with the QCT to align training content and context.
- The SPDG MT will facilitate a process of designing a statewide model of HQPD to be used for delivering professional development in all content areas. All standardized training content and materials on focused SPDG areas.
- The SPDG MT will convene the SPDG Content Teams comprised of national consultants, MT members, and select RPDC consultants to design standardized training content and materials in SPDG focus areas to be used when providing HQPD to schools.
- Technologies enhance training by providing a directory of resources, support re-learning, and providing a forum for teacher-learning team discussions.

**Coaching:** *Job-embedded modeling and feedback is essential to ensuring implementation with fidelity.* RPDC consultants will receive from the DESE and provide to the schools HQPD on effective strategies for facilitating building-level teacher teams who will provide ongoing modeling and feedback to each other.

- The SPDG Management Team (MT) will work closely with the SSOS Quality Control Team (QCT) and Executive Leadership Team (ELT) to design a model of internal coaching in which teachers receive professional development and on-site facilitation for building-level teacher-learning teams. The model of teacher-learning teams will incorporate technologies to enhance and support shared learning within teams.

- The RPDC will use the standardized processes and materials for facilitating the building-level teacher learning teams. Technologies will support consistent and timely access to standardized templates, instructional, and supporting materials.

**Performance Assessment:** *Use multiple sources of data to provide meaningful and timely feedback.* Building, district, RPDC, and DESE levels openly share data and provide timely feedback on performance. SPDG activities embed data into all steps to provide consistent and timely feedback of effectiveness, fidelity, and impact.

- Building-level teacher learning teams use data to provide just-in-time feedback.
- The SPDG MT, QCT, ELT use regional and state level data to provide feedback to the RPDCs.
- Technologies are used to provide ongoing feedback within teacher-learning teams and also between the RPDC and teacher-learning teams.

**Decision Support Data System:** *Monitor effectiveness and engage in continuous quality improvement.* SPDG activities include opportunities for all teams and implementers at all levels to share, discuss, and problem-solve effectiveness, fidelity, and impact.

- The SPDG MT, QCT, and ELT review and discuss data describing effectiveness, fidelity, and impact at all levels.
- RPDCs systematically review and discuss regional data describing effectiveness, fidelity, and impact.
- RPDC providing professional development to teachers and leaders to facilitate data-continuous quality improvement at building and district levels.
- Technology-based infrastructure provides organization for collecting, tracking, and

reviewing data.

**Facilitative Administration:** *Policy-level and practice-level expertise partner to review data and revise procedures to improve effectiveness.* The SPDG provides opportunities for discussing the policy-practice alignments of the SSOS and making improvements to the systems to improve effectiveness and efficiency.

- The SPDG MT and QCT collaborate to improve alignment of current systems.

**Systems Intervention:** *Systems support a data-driven cycle focused on reducing barriers to effective implementation.* The QCT and ELT as the SSOS oversight teams, systematically and frequently collaborate with the RPDC to review data, discuss regional successes and challenges, and revise systems to build on strengths and overcome challenges.

- The SPDG MT, QCT, ELT, and RPDC jointly design a communication plan for timely sharing of information and data. The communication plan includes methods for frequent updates as well as plans for bi-annual thorough review processes and data.
- The MT, QCT, ELT, and RPDC collaborate to select data and indicators for tracking SSOS effectiveness and efficiency.

### **Strategies and activities**

This section is the roadmap for addressing the goals and objectives. For each objective is an implementation strategy following by a series of action steps. The strategies and activities address work toward the specific goal and objective as well as the overall implementation drivers. The activities follows a sequence beginning with building fluency for setting the stage; developing content, materials, and measures; establishing implementation protocols and timelines; initial to full implementation; and using data for continuous quality improvement.

Figure 12 illustrates the flow of the activities and also shows how the implementation drivers