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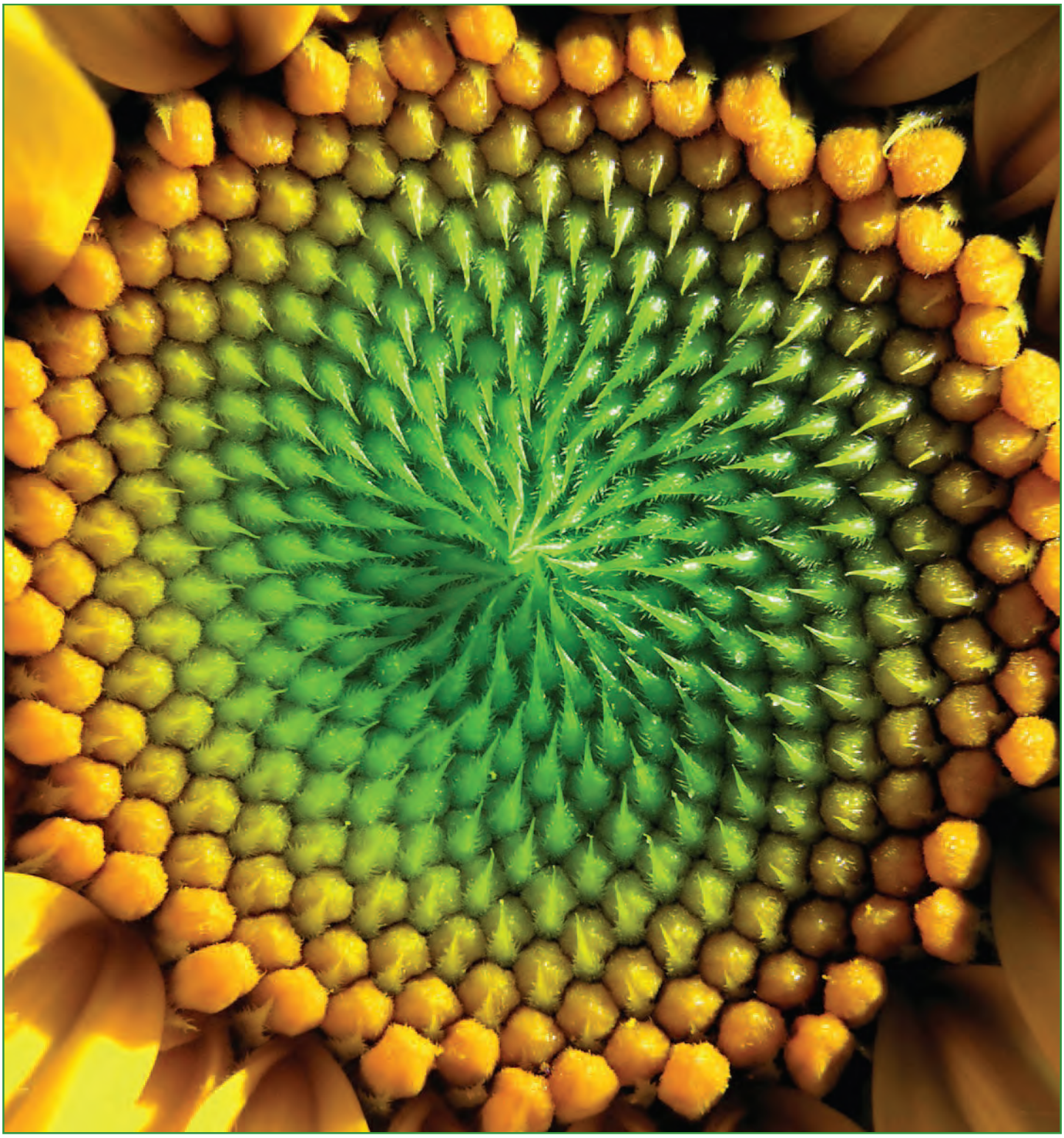

National Council of Supervisors of Mathematics *www.mathedleadership.org*

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Partnerships for Learning: Using an Innovation Configuration Map to Guide School, District, and University Partnerships

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There is a pressing need for effective partnerships between government, business, communities, schools, universities, and other stakeholders in education. This need is magnified by the current involvement of foundations, business, and government in educational endeavors such as the Common Core State Standards for Mathematics and research grants funded through the National Science Foundation. These endeavors often require focused collaborative interactions between all stakeholders that ultimately support a learning system and students' achievement. The purpose of this article is twofold: (a) to report key findings that emerged from our research partnerships, and (b) to offer an instrument that assesses the readiness and measures the effectiveness of educational research partnerships between schools and universities.

Background

As mathematics educators, researchers, and mathematicians, we have engaged in university and school- or district-based projects for over eight years. The central goals of our collaborative work have been to improve mathematics achievement for students and develop cultures for continued learning through two projects funded by the National Science Foundation (NSF): the *Scaling Up Mathematics Achievement* project (Kinzer, 2007a) and the *Gadsden Mathematics Initiative* (Kinzer, 2007b). These NSF projects have required complex district and university organizations to work together effectively in order to attain project goals. This article builds from a prior publication of the initial partnership work (Kinzer, C. Wiburg, K. Virag, L. 2010). Based on our learning from these projects, the Innovation Configuration (IC) map was developed *(see pgs. 59-62)*. It provides a tool for assessing the key elements necessary for initiating and maintaining successful research partnerships. The IC map provides a softer approach than using a checklist or evaluative instrument and provides a range of descriptors that are helpful in developing a robust research partnership.

The Need

Partnerships between universities and schools and districts are usually very complex and vulnerable. Building professional relationships requires thoughtful collaboration focused on explicit, shared project goals. These associations are influenced greatly by the personalities of the key stakeholders, their abilities to develop a mutual working culture within a changing political landscape, and the establishment of structures and processes for implementing and monitoring project goals over time (Darling-Hammond, 2010; Elmore, 2005; Fullan, 2001, 2005; Kinzer & Bradley, 2010). A rubric or IC map (Hall & Hord, 2001) helps partners see what is needed for professional working relationships based on project goals. The IC map also serves as a formative assessment tool for monitoring the development of the partnership over time and can serve to support thoughtful examinations of what it means to establish and maintain healthy, productive research partnerships.

Domains

The map is organized into four key domains: (a) Culture, (b) Structures, (c) Processes and Practices, and (d) Research. Each domain is divided into levels with key characteristics for each level.

A. CULTURE

It is important for partners to design a collaborative culture in which to develop and share knowledge and meet measurable goals over time to accomplish the intended work (Barth, 2002; Fullan, 2001). Building a collaborative culture to support the project requires considerable commitment and the ability to consider one's individual interest and the collective needs of the project. In particular, this means becoming familiar with the working culture of each partner, especially in terms of their beliefs about learning, teaching, change, use of resources, and how internal systems and policies impact (and sometimes impede) upon the shared work. Developing an understanding of each organization provides a basis for codeveloping cultural values, goals, and principles and/or a theory of action in the shared project space.

Assumptions can become barriers, and therefore, preliminary discussions are essential to determine the viability of a research partnership. Norms, beliefs, and strategies for collaboration should be explicitly discussed "up front" before investing in a shared project. This is because partnerships are greatly affected by how key stakeholders leverage their beliefs about how project goals are implemented and monitored, how problems are solved, and how the "reculturing" that occurs in working together takes place (Fullan, 2002). Preliminary conversations are likely to reveal previously unstated assumptions so they can then be discussed and addressed.

Agreements about the work requirements and the implementation process are critical for success for partnerships. For example, one NSF research grant was written with different district administrators, and when the project was funded there was new leadership in the school district. This required intensive work with the new administration to develop an understanding of the project design, commitments, costs, affordances, and research plans. A central administrator played an integral role in bridging the leadership changes to ensure a continued commitment to the project partnership and agreed upon scope of work.

As the partnership develops, ways of working and interacting should be co-constructed and clearly defined, with norms for the intended collaboration clearly established. This norming process often requires a shift in perspective, with a focus on creating partnerships that function as learning systems, with shared components and perspectives, rather than partnerships that consist of unique separate entities (Fullan, 2005; Senge, 2006). This involves developing a shared culture over time, building the collective capacity of the partners to learn together, both within each partnership and across the partnership, with a focus on the shared work of the project. Understanding the stages of group development provides insights into the process of building interdependence and ways of working together (Tuckman & Jensen, 1977). We began with the nuts and bolts of when, where, and how to manage the work and, over time, began to understand how to collaborate and communicate as partners to achieve project goals. This includes important details like clarifying roles and responsibilities to best ensure the project will benefit the school district as well as the university. It must be a reciprocal relationship without hierarchal dynamics that marginalize or minimize the partners.

Critical to successful partnerships is knowing the formal and informal, procedural policies and chains of command for effective communication and collaboration within the unique systems of each partnering school, district, and university. For example, one of the district-based co-principal investigators presented the organization chart of the school district to help the university researchers understand the structure of the district. This provided ways to think about how to effectively facilitate the logistics of the work. Understanding the leadership and management structures ensures that project conversations include the essential partners. Knowing the organizational structures of each partnership and who is responsible for procedures and policies can build relational trust.

Partnering requires flexibility regarding some responsibilities, such as the facilitation of the weekly meetings, but also requires firm commitments to other responsibilities, such as agreed commitments to the data feedback process, ways to address challenges, and monitoring of the work plan. Developing "partnership competence" requires honoring key stakeholders as individuals, while at the same time rising above a focus on individuals to the creation of a synergistic team with collective responsibility for achieving shared goals (Ravid & Handler, 2001).

A working partnership is grounded in an action/work plan with specific measurable benchmarks and mechanisms for monitoring progress toward achieving those benchmarks, with a management team of leaders who agree on

project roles and responsibilities. These include a full commitment to regular meeting times, the use of equitable communication practices, and frequent data feedback to support decision-making and to inform stakeholders of progress towards achieving project goals.

In particular, it is important that expectations regarding data collection, analysis, and the process for public presentation are made explicit. Researchers should honor agreed upon processes for sharing data with school district administration or appropriate stakeholders. These data conversations across the partnerships are crucial for guiding the project, developing knowledge, and determining future directions. In our project, we found that processes for sharing data—including classroom observations, case studies, research articles, and stories from practice—provided opportunities to build a knowledgeable and viable partnership with a common vision and shared language to discuss that vision. This can only happen if there are protocols about how data are shared and discussed both within the project and with the broader community.

Opportunities for partners to learn together are essential for building trust, creating shared knowledge, and engaging in unified decision making. Such opportunities necessitate a culture of sustainable learning in the partnership in relation to the project goals and purposes. Developing common professional knowledge is important in order for the partnership to clarify purposes, strategies, and language for their own learning. The partnership itself can become a professional learning community, developing common knowledge and skills needed for the work at hand.

B. STRUCTURES

To be sustainable, it is important for partnerships to build their capacity to support and sustain distributed or shared leadership, both within and across the partnerships and with key stakeholders in the school district. District leaders should serve as co-principal investigators on projects. School board members and teacher-researchers can function as leaders across both the school and university domains. These opportunities to develop shared leadership help build collective capacity to achieve project goals and are paramount to the sustainability of projects.

In many cases, structures need to be created to support effective and collaborative communication across partnerships. Some of these communication structures help support the management of the project. For instance, it can be important to provide ready access to school district and university calendars so meeting dates and times can be easily set and posted.

In other cases, it is a matter of leveraging existing organizational structures within each member of the partnership, including understanding the broader contexts of these structures as well as the barriers and opportunities they present. For example, in schools where professional learning communities of teachers meet regularly to discuss project data and consider implications, it can be useful for researchers to become members as well—participating in the discussion alongside teachers.

The school, district, and university partners should focus on developing a systemic and inclusive approach through the partnership. This requires not simply developing and strengthening communicative structures between collaborators across the partnership, but among the broader community as well. Sustainable capacity for the project is strongly influenced by the development of both internal and external stakeholders' understanding and commitment to the project over time. Support from the wider school community and those who influence policy, such as school board members, politicians, or external stakeholders, is vital. Shared knowledge helps to build a comprehensive base for understanding the research project, especially when leadership changes. Many worthwhile partnerships have ended because of a single leadership change.

At times, existing leadership structures may serve as barriers for true collaborative practices. Partner projects should utilize readiness instruments and tools to identify where the partnership is, what the concerns are, and understand how change occurs within organizations (Banathy, 1996; Fullan, 2005; Hall & Hord, 2001). Learning brings change and the partners will need to understand how to assess the levels of implementation, collaboration, and determine the impact of their efforts.

One strategy to build collective capacity for the project is through supportive team structures. The *Scaling up Mathematics Achievement (SUMA)* research project utilized a district mathematics leadership team as a structure to think interdependently about mathematics teaching and learning in the district (Kinzer & Bradley, 2009, 2010). This leadership team included stakeholders from all levels of the system—teachers, administrators, parents, university researchers, mathematicians, professional development

providers, and project staff. The leadership team had the opportunity to engage in classroom observations, analyze data, develop a shared vision of effective teaching, and provide feedback to the research project (Kinzer & Bradley 2009, 2010). Additionally, another project team considered management details, such as scheduling classroom observations, meeting with evaluators or statisticians, and when to arrange data sharing with key stakeholders. The teams must have access to relevant project information through effective communication structures.

C. PROCESSES AND PRACTICES FOR LEARNING

It is necessary to determine whether the schools or district even desire change or whether the organization is satisfied with the current state. If a partner district is not actively interested in change, or does not see a need for change, it may be difficult to form a collaborative partnership. Project data can often be a useful tool for addressing the need for change as well as documenting how that change can be accomplished.

In our partnerships, gathering data at both the classroom and district levels regarding changes in mathematics teaching and learning and sharing that data across the partnership was important. While the research team gathered much of the data, it was necessary to develop feedback loops to inform university and district partners, so all could meet together to discuss the meanings and implications of the data.

The careful use of data can be helpful in mediating project decisions, allowing decisions to be based not just on opinions, but on what is actually happening in terms of teacher and student growth. For that reason, a process for scheduled data and knowledge sharing is essential. This process, a learning cycle, uses data purposefully to support continued improvement.

In the SUMA project, the school district used its school-based professional learning communities to discuss project data and its implications for teaching. Data based decision-making increased in the schools. Because of the focus on data to support learning, there was growth in teacher's use of formative assessment data in their math classrooms.

As a result of these collaborative discussions about project data, both the schools and the university partners are asking better questions about the data and the implications for both the research project and student learning.

D. RESEARCH

School, district, and university partnerships require a commitment to share goals, provide appropriate resources, measure progress toward those goals, and utilize a recursive process to collaboratively study and learn through the research.

It is important for everything associated with the research agenda of the project to be made explicit, including project timelines, resources, research plans, data analysis strategies, and data reporting protocols. Any managerial details associated with the unfolding of these collaborative efforts also need to be clarified. Unexamined assumptions about this aspect of the project work and the proposed work plan can create obstacles.

The research focus of a project can provide opportunities for professional learning in the district, particularly when district-based teacher-researchers are involved in the research effort. These individuals are important connectors between the cultures of the school district and the university. While they are learning the skills and knowledge needed as researchers, they observe in classrooms and work with school district administrators and practitioners. These district-based partners support effective communication, as they have both the district and university contexts in mind, and are integral interpreters during the implementation of the project that can help bring coherence to the partnership.

The research effort can also provide opportunities for university partners to gain a better understanding of the challenges district leaders face as a project unfolds, especially with regard to district, state, and federal guidelines and expectations of compliance. As our research partnership progressed, we were often reminded of the fact that the school district has many masters, subjects, guidelines, and emergencies that need to be addressed. There are also the ongoing working realities and challenges related to changing policies, budgets constraints, and mandates. With a shared commitment to project goals and a viable process for collective decision-making, these types of challenges are minimized when engaging in school based research.

As a partnership, we developed a shared understanding of the essential components in effective mathematics classrooms and refined classroom observation instruments based on both research and the shared vision. Through this purposeful collaboration the research process has

contributed to improvement of mathematics teaching and learning in the school district.

Summary

Partnerships between schools, districts, and universities require a collective responsibility for collaborative structures, processes, and resources for achieving shared project goals. It is essential that crucial conversations take place at the onset to address possible preconceived notions, assumptions, or conflicting agendas.

Conversations that are supported by norms, protocols, and explicit structures that reinforce collaboration and provide time to build trusting relationships can be instrumental in bringing partners together to engage in collective work. Partners learn from each other and create a shared culture for collaborative knowledge building and continued learning beyond the research project. Sometimes it is best to start with small projects so that confidence and competence in the partnership are built slowly and provide a foundation for growing efforts.

Both the district and the university will initially come to the table with very different lenses and ideas; the IC map can stimulate critical conversations about the shared work. The IC map is useful to collectively assess readiness; design and monitor progress, and strategically consider the roles and responsibilities of the school district and university within the project plans to implement a successful research partnership.

References

Barth, R. (2002). The culture builder. *Educational Leadership*, 59(8), 6-11.

Banathy, B. H. (1996). *Designing social systems in a changing world: Contemporary systems thinking.* New York, NY: Springer.

Bransford, J. D., Brown, A. L., & Cocking, R. R. (2000). How people learn: Brain, mind, experience, and school (expanded ed.). Washington, DC: National Academy Press.

Darling-Hammond, L. (2010). The flat world and education: How America's commitment to equity will determine our future. In J. Banks (Series Ed.), *Multicultural education series.* New York, NY: Teachers College Press.

Elmore, R. (2005). Accountable leadership. *Educational Forum*, 69(2), 134-142.

Fullan, M. (2001). *Leading in a culture of change workbook.* Washington, DC: Jossey-Bass.

Fullan, M. (2002). The change leader. *Educational Leadership*, 59(8), 16-20.

Fullan, M. (2005). *Leadership and sustainability: System thinkers in action.* Thousand Oaks, CA: Corwin Press.

Hall, G., & Hord, S. (2001). *Implementing change: Patterns, principles, and potholes.* Boston, MA: Allyn & Bacon.

Kinzer, C. (2007a). Pointing in the right direction: The Gadsden Mathematics Initiative; National Science Foundation Award Number 0096674. *Noticias de Todos*, 3(2), 8-10.

Kinzer, C. (2007b). *Scaling up mathematics achievement* (National Science Foundation. Award Number 0733690). Washington, DC: National Science Foundation.

Kinzer, C., & Bradley, J. (2009). Developing a shared vision. *Journal of the National Council of Supervisors of Mathematic*s, 11(1), 39-41.

Kinzer, C., & Bradley, J. (2010). A district mathematics leadership team; Deepening the collective focus. *Journal of National Council of Supervisors of Mathematics*, 10, 33-46.

Kinzer, C., Wiburg, K., & Virag, L. (2010). University/public school research partnerships in mathematics. *Border Walking Journal*, 61-69.

Ravid, T., & Handler, M. G. (Eds.). *The many faces of school-university collaboration: Characteristics of successful partnerships.* Englewood, CO: Teachers Ideas Press.

Senge, P. M. (2006). *The fifth discipline: The art and practice of the learning organization.* New York, NY: Currency.

Tuckman, B. W., & Jensen, M. (1977). Stages of small group development revisited. *Group and Organizational Studies*, 2, 419- 427.

School, District, and University Learning Partnership Participants Innovation Configuration Map

The goal is Level 4. What level currently characterizes your school, district, and university partnership?

CULTURE: School, District, and University Learning Partnerships develop a **culture** for professional learning and improvement that:

	Level 4	Level 3	Level 2	Level 1
Norms for Collaboration	Enacts norms for interacting and ways of working that exemplify relational strengths and professional structures in the district and the university; encourages openness to modifying goals and objectives through deliberate reflection and analysis in relation to shared vision and articulated goals.	Takes explicit actions that have potential for building relationships, trust, and ways of working between the university and the district but agreed-upon norms or ways of working collaboratively are inconsistently implemented.	Uses norms or agreed-upon ways of working inconsistently, contributing to ineffective communication, mistrust, and inadequate implementation.	Assumes that norms or agreed-upon ways of working are in place without discussion, ownership, or shared responsibility.
Data Feedback Systems	Includes key stakeholders (internal and lateral) in inquiry and reflective dialog for analysis and decision making focused on project goals and measureable outcomes; makes strategic adjustments based on data from feedback systems.	Uses inquiry and reflective dialog periodically for analysis and decision making about project goals and outcomes; but communication and data/feedback loops are often unidirectional or do not include or inform appropriate stakeholders.	Rarely uses systemic feedback to engage in inquiry and reflective dialog for analysis and decision-making about project goals and outcomes with partners.	Lacks inquiry and reflective dialog for analysis and decision making with partners; no data feedback system in place.
Professional Knowledge	Supports a culture of sustainable learning in the partnership and in the partners' organizational structures (e.g., PLCs) related to project purposes and measureable goals to build a collective professional knowledge base for improving and guiding the project.	Engages in work together but there is a need for a systemic approach to building a professional knowledge base through developing structures like PLC's or ongoing processes for developing shared knowledge relevant to project.	Focuses on management issues with limited opportunities for professional learning and knowledge building that supports project goals.	Lacks explicit systems or processes for building professional knowledge within the project.

School, District, and University Learning Partnership Participants Innovation Configuration Map (cont.)

STRUCTURES: School, District, and University Learning Partnerships develop and employ **structures** and processes that support sustained purposeful learning at all levels of the system that:

	Level 4	Level 3	Level 2	Level 1
District as Learning Partner	Utilizes structures and processes for systemic improvement, including (a) necessary resources, (b) effective communication and decision-making processes, (c) ongoing relevant professional development (e.g., PLCs), (d) specific measureable prioritized goals that are monitored at several levels of the system, and (e) timelines for assessment, data collection and analysis, and feedback mechanisms for adjustments to the learning system.	Moves toward systemic implementation, with needed resources, communication structures, professional development monitoring, timelines, and data feedback systems that are used periodically by partners for improvement of teaching and learning.	Provides sporadic opportunities to build a learning system focused on the goals and objectives; lacks ongoing professional development and collaborative communication structures, contributing to district fragmentation and uneven support for implementing the project.	Lacks explicit structures or agreements for purposeful collaboration based on shared goals; each school or classroom works in isolation; inconsistent messages, a lack of resources, and little professional support for realizing project goals.
University as Learning Partner	Engages honestly in the partnership through shared commitment to the project, expertise, respect, and credibility; builds viable learning structures and processes to improve individual and collective practices and project interdependence.	Develops partnerships through intermittent efforts to provide modest support but lacks consistency in commitment to the collective project and partnership.	Provides periodic support to the project and due to the unreliable nature of the efforts there is a lack of relational and professional trust in the partnership.	Lacks responsibility, commitment, expertise, or infrastructure to support the project; not a collaborative functioning partnership.
Shared Leadership	Engages in ongoing shared leadership and decision making that includes all members of the partnership; provides opportunities for equitable voice and shared negotiated responsibility and mutual accountability based on collective measureable goals.	Engages in leadership that is distributed unevenly throughout the partnership; some but not all partnership voices are used for input and decision making; not everyone has agreed to or operates from delineated project goals and action plan.	Engages in leadership that is primarily autocratic and does not utilize partnership voices or input for decision making; only some agree to project goals.	Uses hierarchical leadership that is top down or bottom up, with no ongoing relationships between the levels of the system to support a collaborative partnership.
Purposeful Collaboration	Clarifies the goals and actions, utilizes strengths, abilities, and motivation of individual, social, and structural elements in the defined partnership based on shared values collective capacity, and a culture for purposeful collaborative learning.	Provides frequent opportunities for collaboration by partners focused on project goals; provides support for common but limited participation, communication, and collaboration in sustaining the vision, goals, and commitments of the project.	Accepts inconsistency in shared values and commitment to the project goals; conducts periodic meetings that are not clearly connected to the larger shared project goals and implementation.	Lacks shared values and purposeful commitment to the partnership.

School, District, and University Learning Partnership Participants Innovation Configuration Map (cont.)

PROCESSES & PRACTICE: School, District, and University Learning Partnerships develop **processes and practice** that:

	Level 4	Level 3	Level 2	Level 1
Readiness for Change	Utilizes belief surveys, readiness for change and/or needs assessments to determine how to engage in the project strategically and build a competent partnership based on shared goals.	Makes use of readiness for change or needs assessments to determine the current "state" of the partners and decide on long and short term goals regarding the project and partnership.	Determines a need to do things differently but lacks data or commitment for collaborative change by both partners in the project.	Lacks understanding of the initial state of the partnership; stakeholders are not ready to collaborate.
Learning Cycle	Employs explicit processes and practices to develop data literacy by building skills and knowledge to use data to support continuous learning (i.e., a learning cycle that is understood by partners and is useful to support learning at all levels of the system).	Utilizes processes to build data literacy and develops the expertise to use data in a learning cycle but the process is inconsistent or has limited impact on learning at the appropriate level.	Provides data as singular events not connected to a learning cycle.	Lacks data to support ongoing learning.
Assessment	Uses an explicit formative assessment process with specific benchmark checkpoints to assess progress on partnership, project goals and expected outcomes.	Analyzes progress through periodic formative assessment checkpoints to assess partnership and project goals.	Uses formative assessments infrequently to measure progress toward partnership and project goals; lacks full participation by all members of the partnership.	Lacks ongoing processes or focused efforts to measure growth toward shared goals.

School, District, and University Learning Partnership Participants Innovation Configuration Map (cont.)

RESEARCH/TOOLS: School, District, and University Learning Partnerships have **Research/Tools** that:

	Level 4	Level 3	Level 2	Level 1
Research Practices	Builds capacity of school district to understand the role of research in a learning system and the university's role to make research practical and useful for educators by bridging research and the applications to practice to improve teaching and learning.	Embeds research for professional learning to connect research and practice (action research, formal research projects, study groups, etc.); research is valued as part of a learning system.	Conducts research activities in isolation that are limited in usefulness or relevance for improving learning.	Lacks connections between research and practice.
Collective Responsibility for the Partners	Demonstrates commit-ment to university/district project and research process through a clearly defined written agreement with shared accountability and collective responsibility for shared goals.	Uses clearly defined written agreements but lacks consistent commitment or accountability to the research partnership by all key participants.	Uses vague agreements with no strong commitment or shared accountability to the research partnership by key participants.	Lacks clearly defined written agreement or commitment to the research partnership.
Resources for Implementation	Includes dedicated resources and budget from both partners to support the needs of the partnership/project goals, including time, money, space, and personnel for the duration of the project.	Provides some resources from both partners that, over time, can support project implementation.	Includes minimal resources from one or more of the partners, which impacts implementation and project outcomes.	Lacks dedicated resources from either partner for enacting the project.