



### **STEM MINDEDNESS: CULTURE OF COLLABORATION**

*A culture of collaboration in a STEM school is defined as an environment in which all stakeholders work interdependently and share accountability for student success. Characterized by trust and collective responsibility, schools with a culture of collaboration utilize communal strengths to prepare students for college, careers, and citizenship.*

#### **Norm in High Performing Schools**

In *Adaptive Schools: A Sourcebook for Developing Collaborative Groups*, Robert Garmston and Bruce Wellman state that collaboration is not “contrived collegiality,” nor should it be only project-based. They assert that true collaboration is the norm in high performing schools. It is developed through purposeful actions of leaders who recognize that superstars working in isolation do not produce the same level of growth and learning as teams working interdependently. Garmston and Wellman say leaders must recognize that the processes leading to systemic collaboration have to be “taught, practiced and learned.” This includes processes for implementing behavioral and collaborative norms and for building trust.

#### **Role of Trust**

According to Stephen Covey, author of *The Speed of Trust*, “If developed and leveraged, trust has the potential to create unparalleled success and prosperity in every dimension of life.” He states that trust is the glue and foundational principle that holds all relationships. This includes relationships within learning communities.

In their research on trust in schools, Anthony Bryk and Barbara Schneider identify four elements of relational trust: respect, competence, personal regard for others and integrity. In a collaborative culture, individuals demonstrate their trustworthiness by showing:

- Respect as they genuinely listen to and consider others’ points of view.
- Competence in completing core role responsibilities.
- Personal regard and concern for others.
- Integrity through honoring commitments and being guided by a moral-ethical perspective.

#### **Positive Results for Stakeholders**

In a collaborative culture, a structure ensures that time is embedded within the school day for teachers to focus on curriculum and instructional practices and take targeted action based on assessment results. In this trusting environment, educators may openly share their practices, curriculum knowledge and student results, freely exchanging ideas and constructive feedback on instructional practices. With such support, teachers are more apt to integrate innovative teaching technologies and methods that promote STEM capabilities in their students.

While a collaborative structure enables adult learners within a school to work interdependently on designing and implementing the STEM curriculum, students have similar needs. Such a structure encourages students to collaborate with each other on real world tasks and to design innovative solutions to relevant problems. Collaboration, when integrated across the curriculum, gives students experiences similar to those they will find in the professional world of work.

As schools work to build the collaborative culture with the internal stakeholders, they must also initiate a plan for purposefully engaging parents and community stakeholders as vital contributors to the school team. This will provide access to a wide range of STEM knowledge and resources that can be utilized to ensure the school develops citizens who are successful and productive members of society.

In practice, the culture of collaboration principle ensures that through supportive, collegial interactions, learners throughout the school community can experience increased individual efficacy. As a result, collective efficacy is strengthened as all work together to ready students for college, careers and citizenship.

#### **Bibliography:**

Bryk, Anthony and Schneider, Barbara. "Trust in Schools: A Core Resource for School Reform."  
<http://www.ascd.org/publications/educational-leadership/mar03/vol60/num06/Trust-in-Schools@-A-Core-Resource-for-School-Reform.aspx>

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Solutions in Science, Technology, Engineering & Mathematics Education

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### **Guiding Questions**

*Use the reflection questions below to guide discussions. We recommend documenting evidence to support each question. Doing so will assist you in setting action plans, goals, and progress monitoring.*

### **Norm in High Performing Schools**

- What processes are in place to ensure systemic collaboration?
- Describe the interdependent relationship among adults and among students and adults in your school work.
- What evidence do you have that stakeholders are working in teams as opposed to working in groups?

### **Role of Trust**

- Within the context of learning communities at your school, what are some ways respect is demonstrated? Nurtured?
- Within the context of learning communities at your school, what are some ways competence in completing core role responsibilities is demonstrated? Nurtured?
- Within the context of learning communities at your school, what are some ways personal regard and concern for others demonstrated? Nurtured?
- Within the context of learning communities at your school, what are some ways integrity demonstrated? Nurtured?

### **Positive Results for Stakeholders**

- What opportunities are available for teachers to meet with their colleagues to focus on curriculum and instruction practices within the school day?
- To what degree do teachers openly share their practices, knowledge and student results with each other? With stakeholders? Explain.
- To what degree are ideas and constructive feedback on instructional practices freely exchanged among faculty? With stakeholders? Explain.
- What structures are in place for students to collaborate with each other on real world tasks and to design innovative solutions to problems? Describe these structures.
- What plan is in place to engage parents and community stakeholders and tap into the wide range of STEM knowledge and resources they might potentially provide?