Creating Conditions for Developing and Nurturing Talent: The Work of School Leaders

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In 1993, two decades after the 1972 U.S. Office of Education Report on the status of gifted and talented programs (the Marland Report), U. S. Secretary of Education Richard Riley issued a report stating that gifted education is essential to our nation's future and documenting the "quiet risk" faced by gifted children and gifted education programs in the United States.

Despite the recognized need for specialized programs for gifted students, gifted education remains a controversial topic. As a nation, we embrace talent development in music and athletics, but see development of intellectual talent as undemocratic elitism. Ironically, when the world is crying out for enlightened leaders, there is ambivalence and often antagonism in our nation's commitment to support the unique needs of gifted students. Competition for diminishing financial resources and questions about the wisdom and efficacy of specialized programs result in calls to reduce or eliminate programs that identify and challenge our most talented students.

Although gifted students consistently graduate with discipline mastery, mounting evidence suggests they also graduate with thinking characterized by stereotypes, misconceptions, unexamined assumptions, and rigidly held algorithms. For talented young people to realize their contributions to self and society, they require educational opportunities and experiences not ordinarily provided in most school programs.

Creating Challenging Conditions

Within this context of ambivalence and limited resources, school administrators are challenged to create conditions that enable gifted students to thrive. What are those conditions and how can we create them? In this article we:

- Offer a way of thinking about the creation of learning environments (structures and processes) that stimulate the development and nurturing of talent
- Provide an example of how our learning community, the Illinois Mathematics and Science Academy, creates a "decidedly different environment" for talent development

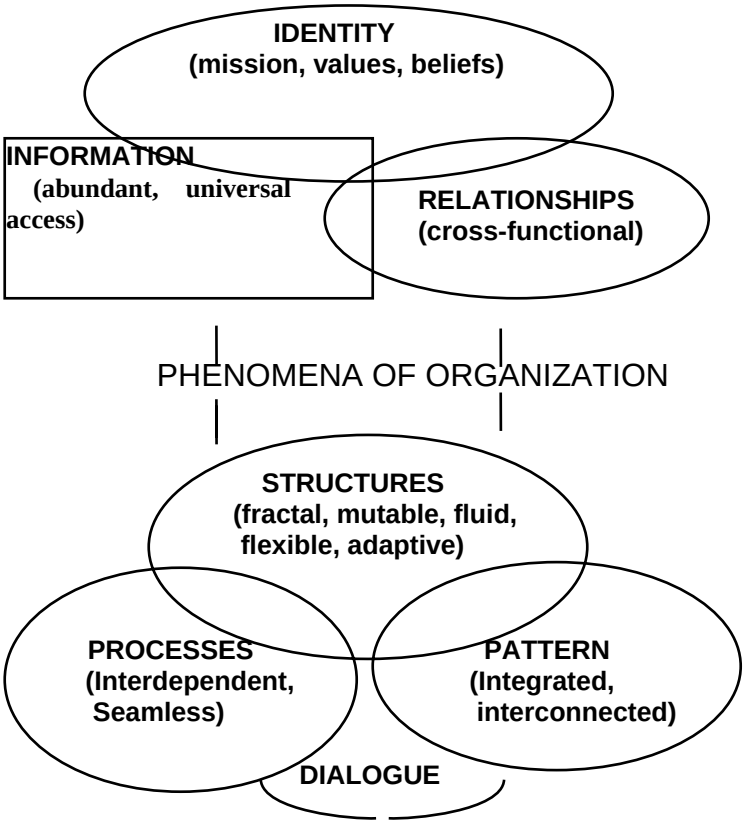
- Illustrate the impact of our learning environment through the reflections of Kathy Plinske, a recent IMSA graduate

When administrators and boards of education discuss programming for gifted and talented students, they often focus on program implementation or delivery structures and processes. We believe that because our behavior (structures and processes) is the manifestation of our thinking (beliefs and assumptions about talent development), we must begin at the thinking level, not the behavioral level. Consequently, school leaders must start with questions that help their community understand and articulate the learning principles and conditions they wish to create. Many reform and restructuring initiatives have failed because they focused first on the strategies, processes, and protocols that would structure their work.

Paradoxically, the sustainable dimensions of any restructuring initiative are not the structures; they are the principles and conditions created in response to essential questions of program identity, information, and relationships.

Margaret Wheatley and Myron Kellner-Rogers offer a powerful synthesis for understanding how structures and processes emerge (are derived) in self-organizing systems. We believe this conceptual lens can help school leaders make “thought-full” decisions about programming for gifted students. Figure 1 represents the three domains and the three phenomena of self-organizing systems.

DOMAINS OF SELF-ORGANIZATION



The first domain is *identity*. This encompasses the system's fundamental purpose, beliefs and values and provides the coherence and integration for sustaining programs.

The second domain is *information.* This serves as the systems' "energy" and its source of power, leverage, and continual learning. Without the constant flow of information, systems become closed and isolated, and cannot be sustained.

The third domain is *relationships.* This represents the neural network of the system and establishes its capacity for engagement, interconnectedness, and resiliency.

These domains help administrators create the context for thinking about program development by setting the context for the public articulation of learning principles and conditions. In the process, decisions about programmatic structures and processes become clear.

Answering Questions

There is no one right answer to programming for gifted and talented students. There are, however, essential questions that must be addressed before structural or process components of programs are implemented. School leaders must answer these questions:

Identity

- What is the vision of our program?
- What is the purpose of our program (what have we come together to achieve)?
- What do we believe about teaching, learning, building human capacity, and developing and nurturing talent?

Information

- What is the nature of program evaluation and learning assessment (what is important; what will be measured)?
- How is information shared and gathered with respect to student learning?

Relationships

- How will the role of teacher and learner change in this unique learning environment?
- How will learning relationships be nurtured and sustained?

Only after answering these questions are school leaders and their communities ready to create multiple structures and processes.

How has the Illinois Mathematics and Science Academy used these questions to create of our learning community? How have our students responded? How have our responses led to the emergence of powerful learning structures and processes that create conditions for exceptional learning?

Identity

Gifted and talented education has been immersed in an artificial choice: provide enrichment or provide acceleration. Enrichment seems to favor the development of process-oriented skills such as how to learn, think, and solve problems (Renzulli, 1977; Howley, Howley & Pendarvis, 1986; Davis & Rimm, 1989). Acceleration most often is associated with hastening the rate at which content is presented to the learner (van Tassel-Baska, 1986; Fox, 1979).

At the Illinois Mathematics and Science Academy we offer an alternative; our beliefs, vision, and purpose are grounded in what is known about the brain, human learning, and the learning conditions more likely to invite exceptional performance.

We believe our learners need an environment that allows them to use both process and content-oriented initiatives to achieve deep understanding. Knowledge cannot be constructed deeply and powerfully unless both are addressed (Palmisano, Ramirez, 1997). We define deep and meaningful understanding as using knowledge in complex and novel ways and thinking flexibly with what one knows (Gardner, 1991; Perkins, 1992). Thus, one's learning is transformed in a way that transcends the separateness of process and content because genuine understanding requires both.

Our students are co-creators of our learning environment and their voices best convey the meaning of our responses to these basic questions. Their understanding provides the best evidence of the embodiment of our beliefs and principles.

Our use of problem-based learning (PBL) illustrates the power of knowledge acquisition and contextual understanding. Kathy Plinske expresses the power of PBL:

> Imagine you are in a course for the first time, expecting a traditional classroom setting. Instead of your instructor attempting to spoon-feed you information, she says you are part of a risk assessment panel and your duty is to determine the best location to build a super theme park in Southern Illinois. Or perhaps there is a hurricane threatening the coast of Florida, and it is your responsibility to issue warning and evacuation plans to keep the population safe. Wouldn't this experience be far more exciting than a typical class and motivate you to take responsibility for your own learning? Problem-based learning requires a student to experience intellectual frustration, witness firsthand the power of collaboration, and deal with ambiguity. These skills will continue to gain importance in our increasingly complex global society.

In other words, learning is a byproduct of the contextualized and meaningful engagement students have when confronted with a compelling problem and when able to acquire the knowledge, skills, and dispositions to solve it.

Our perspective on building capacity is grounded in our learning community's beliefs. We believe all people have an innate desire to learn; the human mind is the world's greatest resource;

and meaning is constructed, not prescribed. Consequently, we provide opportunities for students, teachers and administrators to pursue their own learning by posing and pursuing questions that matter to them. Transformation of self as learner is our primary objective.

Plinske shares her path to self-discovery:

> Before coming to IMSA, I had lived in the same small, conservative suburb of Chicago my entire life. I went to school with the same students year after year, and we shared similar beliefs, values, and morals. Our community was somewhat intolerant to new ideas or different ways of living. My ideas, all I knew, … were accepted by my peers, I was comfortable, and I never was asked to think about why I believed something.
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> When I came to IMSA, suddenly my way of thinking was not shared by all. For the first time, I had to support what I believed--my ideas weren't simply accepted. It was difficult and uncomfortable at first--I never had to think about my thinking. However, I now know my identity will always be changing. As I learn more about the world around me, as I meet different people, and am exposed to different ideas and beliefs, I must continue to grow. Ideas must not be accepted simply because they are popular.

Information

Information, especially information about individual and system learning, is the lifeblood of an organization. The way it is valued, shared, and used speaks volumes about how the organization wants to stay connected to itself (identity) and continuously create knowledge. The most critical dimension of sharing, integrating, and leveraging information about learning comes from the system's concept of what assessment is and how it is practiced. IMSA's assessment is grounded in our Standards of Significant Learning (SSLs)--cross-disciplinary expectations of what our students need to know and do to demonstrate integrative ways of knowing.

Assessment of understanding is not limited to more traditional "event-type" examinations, but is an actualization of the Latin root of assess, *assidere* or "to sit beside." The student and teacher as co-creators and collaborators exchange information in the form of continuous feedback and challenging probes that allow the student to explore ideas deeply and apply them in a variety of meaningful contexts.

This commitment is manifested in Plinske's "fearless" view of learning:

> At IMSA, we often were asked questions that motivated us to discover the necessary information for ourselves. We learned various methods and gained many different skills to help us gather accurate information...we used traditional sources of information and electronic resources including the Internet and World Wide Web. By senior year we had dealt with many real world issues including validity and relevancy of information, and we understood there was often more than one solution to a problem. We were able to handle almost any situation we were given--from determining what a data set of more than 3,000 points told us, to collecting our own data through experimentation…my IMSA experience has helped me develop a type of "fearlessness" with information.

Relationships

Our learning relationships have evolved in concert with our development of shared identity and explicit attention to information. Plinske notes the value of her relationships with teachers:

> The faculty at IMSA didn't teach me in the traditional sense--instead, they helped me to learn. They helped me become a problem-solver and a risk-taker, and allowed me to become responsible for my own learning and discovery. Before IMSA, most of my classes consisted of a teacher spoon feeding us information and then requiring us to memorize facts for a meaningless exam. We were on a strict schedule, and had to cover certain topics on certain days. Our learning felt rushed and somewhat choppy.
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> At IMSA our instructors worked and learned with us...as colleagues in the classroom, they often acted as peers rather than authority figures. Some of the bonds I formed with the faculty and staff were as strong as those I formed with students.

In a learning organization, everyone learns. We establish relationships that are dynamic, collaborative, fluid and adaptive to the needs of our collective whole and important to individuals. This leads to an environment that honors differences, encourages risk, and supports creative expression.

IMSA's response to the needs of our learners is not meant to be universally applied. We do not propose a template – indeed, that would be contrary to our premise. Each system must develop its own response through a process of careful and honest self-reflection - a process designed to elicit the conditions under which exceptional learning more likely will occur.

Getting to Structures and Processes

How have our responses to the questions about identity, information, and relationships led to structures and processes that support exceptional learning?

In brief, we use them to:

1. Articulate learning principles
2. Articulate learning conditions
3. Determine the learning processes and structures that are grounded in our principles and conditions.

This process compels us to abandon some structures and processes, revise others, and create new ones - continuously.

Table 1 depicts some of our learning principles. Table 2 depicts some of the learning conditions we wanted to create to support the learning needs of our students. Other communities may share none, some, or all of these, and may have others. The key is to begin at the essential place – with conversations around the essential questions of identity, information, and relationships.

Table 1

Learning Principles

- Meaning is constructed, not prescribed.
- Learning is demonstrated through "performances of understanding" (Perkins, 1992).
- The ability to discern and create connections is the essence of knowing.
- Aversion to risk-taking stifles innovation and creativity.

Table 2

Learning Conditions

- Greater personalization, integration, coherence and flexibility within learning experiences
- Dynamic and purposeful engagement in significant, complex, and novel research and real-world problems
- Focus on collaborative inquiry, problem finding, and problem resolution
- A climate that invites exploration and risk taking.

Structures and Processes

This process creates shared meaning that frames decision making about structures and processes. Some examples of structures and processes in IMSA's learning landscape include:

• *Flexible Modular Schedule Framework.* We changed our master schedule framework because the former one did not support learning needs such as integrative ways of knowing and deep understanding. We now have a flexible modular framework that enables different types of courses and learning experiences to be scheduled in different combinations of time. This has reduced fragmentation and unproductive class time (starting and stopping time, for example), and increased program integration and coordination.

• *Three Program Pathways.* We offer three program pathways for students; this is consistent with our belief that gifted learners cannot all be served optimally by the same program. Entering students choose their preferred pathway. One pathway is anchored by separate courses in chemistry, biology and physics; a second pathway is anchored by an Integrated Science program; and a third pathway is anchored by a coordinated science, mathematics and humanities program.

• *Student Plans of Inquiry.* Students develop personal plans of inquiry around questions that matter to them. These drive highly focused and deep intellectual pursuits by students. Faculty, staff, and community members serve as inquiry guides who support but do not direct students' learning. Some students pursue their questions in a formal mentor program. In this, they leave campus approximately once a week to work all day with researchers and scientists in area laboratories, universities and companies. The assessment of this work includes a public exhibition, presentation, or publication.

• *Integrated Courses*. One example is Mathematical Investigations, our core pre-calculus sequence. Instead of separate courses in algebra, trigonometry and analytic geometry, MI provides an integrated learning experience that introduces concepts and skills from across the mathematics curriculum in a mathematically natural way. Students actively construct mathematical concepts by considering examples, making conjectures, discussing ideas, arguing, thinking, proving, and understanding what they are doing and why they are doing it. Weekly problem sets challenge students to use all their mathematical tools.

• *Faculty Professional Development and Collaborative Accountability System.* IMSA has a unique system for professional development, supervision, and evaluation of faculty that challenges long-held assumptions about and practices in these domains. An integrated, interdependent system of learning and accountability, it centers around a network characterized by: collective goals (institutional, team and individual) that are driven by the needs of learners and IMSA; self and team-directed appraisal; collegial dialogue about teaching and learning; and high mutually-determined expectations for both faculty and administration. Teachers engage in action research (Plan for Authentic Inquiry) in which they specify what they plan to do to improve student learning; what methods they will use; how they will measure their success; how they will share what they learn with others; and how they will obtain input and feedback from students and colleagues.

Conclusion

Because exceptional performance results from exceptional learning, our role as administrators is to ensure that the conditions we create enable gifted and talented students--and all students--to thrive. We can do this by engaging our communities in questions that matter--questions that cause us to articulate principles of system and program identity, information, and relationships. Doing so can help us create dynamic and sustainable learning communities with structures and processes that invite the fullness of human capacity and meet the unique needs of learners like Kathy Plinske:

> I have learned the importance of taking risks everyday--it is the only way to keep growing. I discovered that failure is not always a bad thing. In fact, it can be a positive experience, depending on how the situation is handled. But I think the biggest challenge for me has been that I have learned to be reflective--I have learned the importance of thinking about my thinking, a concept that used to be foreign to me.

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