

They Will Learn What They See Others Doing

Gus Root and Grant McGiffin¹

Abstract: Demands on students to learn complex, higher order skills have raised questions about the schooling environment in which they would most likely learn them. Answers to such questions have come from many fields, and have suggested practical solutions to many problems we are experiencing in transforming the Falmouth schools.

Social learning theory (Albert Bandura) suggests that copying can lead to significant learning. We describe a set of activities and facilities that stimulate all schooling stakeholders (teachers, students, parents, administrators, future employers, etc.) to engage in, and be seen performing the higher-order behaviors we want students to learn.

Operational research (Stafford Beer) suggests that organizations be viewed as nested hierarchies of self-organizing sub-systems, each to be surrounded with organized information on its inputs, operations and outcomes. We describe a process for engaging each school sub-system in modeling its operations and contributions to the school's goals, and a facility for displaying organized information and operational models in a Performance Information Center (the PIC) for the decision-makers in each schooling sub-system.

Systems thinking suggests that innovations by individual teachers tend to come and go while the overall school system remains relatively the same, that the overall school's performance must be measured by more than the behavior of its students, and that sensitive leverage points for improvements in the system and its components are best identified by those most closely involved in the operations. We describe a process for continuously identifying leverage points for improvement in each school sub-system, for concentrating data gathering and analysis on those special factors and relationships, and for making that organized information available in the PIC.

Total quality management (Brian Thomas) suggests that a shared vision of the organization's mission and each components's contributions to that vision, combined with the display of information directly related to the system's actions to achieve those goals, can lead to a commitment to continuous improvement. We describe a vision-building effort working with all schooling stakeholders, as part of a strategic planning and implementation process.

International conflict prevention (Mansfield and Snyder) suggests that a "free, competitive and responsible marketplace of ideas" is a top priority in the process of moving from even a benign autocracy toward democratic participation in governance without serious conflict or "war". We describe the use of in-house and community news-media, the conduct of community meetings, and the availability of the School's PIC for a wide variety of school-related meetings.

The transition team guiding this effort consists of the Superintendent, members of the School Board, teachers, parents, students, community persons, and representatives from local businesses and colleges.

We will present a central theme and an integrated set of strategies for implementing that theme. Our theme: *Because we want students to learn skills needed to be fulfilled and competent in a complex and uncertain future, we want to immerse them in an environment with adults who are demonstrating the ability to cope effectively with complexity and uncertainty.*

¹ Gus Root, PhD, is an engineer, psychologist and system consultant.
Grant McGiffin, EdD, is Superintendent of the Falmouth School Department.

A school system can be viewed as a hierarchy of nested, recursive sub-systems like a set of Chinese boxes where "opening any given box in a hierarchy discloses not just one new box within, but a whole small set of boxes; and opening any one of these component boxes discloses a new set in turn."¹ Simon describes each such box as being "nearly decomposable" in the vertical hierarchy (that is, we can consider "its dynamics as being nearly independent of the detail of the internal structure of its sub-systems") and as having "loose horizontal coupling" with other sub-systems at the same level in the hierarchy (that is, each unit operates nearly independent of the detail of the others, and only its inputs and outputs are relevant for the larger aspects of system behavior).

In our school system, we are primarily concerned with the "box" (which we will call a "cluster") containing a student, a parent and a teacher or coach; at this level, there are many such teaching-learning clusters. At other levels are clusters of (1) teachers, administrators and support staff, (2) students, administrators and local employers or college admission officers, (3) administrators, citizens and the School Board, (4) administrators, the School Board and local government officials, and (5) administrators, the School Board and State Education Departments. The inputs to this school system are information and money; its outputs are student competencies.

Recently there have been heated discussion of standards for school graduation (i.e., the output of the cluster of our greatest concern). In our view, it is necessary but not sufficient to gather, organize and distribute information on student standards and student performance. For the evolution of our school system, it is also necessary to establish standards and assess the performance of the many other clusters that make up the environment in which schooling takes place.

So, we're starting in our high school library with three sets of theater-stage "flats" to establish a Performance Information Center (the PIC) in which most school-related meetings will be held (building on ideas from operational research centers², quality management³ and social learning theory⁴).

Flat #1: On this 7' x 4' surface, we display our goals for students and the latest data on their performance.

For some time, our Strategic Planning and Implementation Committee has been struggling with the questions:

"What is the mission of, and vision for the Falmouth Schools?" and

"What are the roles of curriculum, instruction, staff development, assessment and evaluation, school culture and time in achieving this mission and vision?"

Our Mission is to "develop capable individuals who value life-long learning, responsibility, change and growth". Our vision is for a community that plans and carries out shared experiences for the growth of *all* community members.

The Committee has begun to focus their efforts on student standards and assessment procedures. A set of standards for students at Grades 4, 8 and 11 (based on Maine's Common Core of Learning, the Maine State Learning Results and recommendations from other sources) will assess student performances in career preparation, reading and writing, health and physical education, math, the sciences, social studies and the visual and performing arts. These standards for student competence and data on past and current student performance will be continuously displayed in the PIC.

But we will have another, similar display for our schooling environment.

Flat #2. On this surface, we will display our goals for, and data on the current indicators of our schooling environment.

Here, we are focussing attention on the other school clusters which critically influence the environment for all school stakeholders -- particularly for students. We have tentatively identified standards and assessment tools for parental involvement, classroom climate, staff relationships, school culture, community involvement, and world-of-work involvement. In all cases we are asking ourselves, "Are we expecting something different for ourselves, than for our students?" "Are we demonstrating the behaviors we want students to see, experience and emulate?"

A sub-committee is working on these standards and the related assessment tools and procedures. They are both preliminary and evolving. We regard the vigorous debate surrounding these issues as an indicator of their probable importance, even though they are often difficult to deal with.

But systems thinking suggests that there are dynamic networks operating between the information on flats #1 and #2. Thus flat #3.

Flat #3. On this surface we will display flow diagrams and STELLA^s models of the clusters noted above. In addition, the flat provides a screen on which a computer can project details of the data in flats #1 and 2, and dynamic models of each schooling cluster in order to study its dynamic behavior and the relative sensitivity of each cluster-component's influence on its output.

Major effort is involved in working with those in each cluster, to identify the elements and relationships in their cluster which influence contributions to the performance of the other clusters and the whole system.

Working with representatives of each cluster in the PIC is helping focus attention on the purpose of each modeling effort, and is serving to clarify the critical measures of the schooling environment displayed on flat #2. While the focus of many total quality management (TQM) projects have been on performance data, schools are awash with data of all kinds. What data should be gathered, analyzed and displayed? Who should decide what data is critical? Who is best equipped to gather and interpret whatever data is to be collected? Our response to these questions is, "The people closest to the problems usually have the best ideas." But at the same time, by making their ideas public and open to review through the PIC, everyone has the opportunity to be involved and to see the relationships between their activities and the performance of the whole.

This demands everyone to stretch, to grow, as we deal with this complexity and uncertainty -- with being willing to plan, act, assess our own performance, and plan new actions. These are the essential behaviors we want our students to learn. Many adults are uncomfortable with the expectation for public commitment in such a complex and uncertain situation. This discomfort is a special challenge for school administrators and the School Board, who are required to respond with confidence and assurance that the outcome of these shared experiences will be beneficial to the individuals and the system.

And then there is the role of the internal and external media.

While the PIC is a critical source of information for school decision-making, we also need to provide a "journalistic infrastructure (which) is probably the most highly leveraged investment (the school) can make in a peaceful democratic transition."⁶

Internally, we are preparing for a quarterly newsletter to the School Board, parents, teachers, administrators and school staff to share our joint vision, our activities and results, and our continuing hopes and plans.

Externally, we are holding community meetings to provide information on current schooling conditions and to involve community members. We are inviting other school stakeholders (local employers and representatives of local colleges) to observe and talk with us about our project, and to seek their support through internships, apprenticeships and special programs to enrich the world-of-work experiences of our students.

Recapitulation. We are involved in the evolution of our school system. As with the evolution of many natural systems, we expect this to be a process of punctuated equilibrium, in which relatively rapid, small changes in the sub-systems precede the slower but more visible change in the appearance and performance of the whole. Drawing on ideas from many, apparently diverse areas of theory and practice, we are providing a schooling environment in which adults are challenged to learn and display the behaviors which we want our students to learn -- life-long learning, taking responsibility, being willing to learn from mistakes, adjusting to change and uncertainty, and using information to grow in personal and professional competence.

This paper has described a set of activities which we anticipate will make a self-sustaining change in our school system, K-12. We hope to elicit comment and suggestions. Subsequent papers will present analyses of our successes and shortfalls.

A Selected Bibliography

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