Transforming Education with Self-Directed Project-Based Learning: The Minnesota New Country School

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To achieve truly learner-centered instruction and assessment, Reigeluth (1994) and Reigeluth and Karnopp (2013) pointed out the importance of schools providing a caring environment. They indicated that such an environment could be ensured with better interaction and relationships among students and teachers in a small learning community. How can a school become a caring environment? What roles do students, teachers, and parents play in such an environment? How can instruction and assessment be based on individual learners' preferences? More importantly, are there schools like this anywhere in the world? This article describes and highlights one such school, the Minnesota New Country School (MNCS). Four design principles of the school—making this school unique—are explained: (1) small learning community, (2) self-directed project-based learning approach, (3) authentic assessment, and (4) teacher ownership and democratic governance. Some success stories of the school are presented.

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Introduction

The urgency of paradigm shift in K–12 education has been noted by several researchers (McCombs, 2003; Reigeluth, 1994; Reigeluth & Karnopp, 2013; Schlechty, 2003; Software & Information Industry Association, 2010; Thornburg, 1999). Despite the transition from the industrial age to the information age in our society (Toffler, 1980, 1990), most of today's K–12 schools are still more aligned with the industrial age (Watson & Reigeluth, 2008). Such an alignment supports a sorting-oriented and factory-model approach in which all students are expected to gain the same learning outcomes in the same amount of time (Reigeluth, 1994). Reigeluth defined the features of the new paradigm of education by comparing it with the current paradigm as illustrated in ***Table 1***.

Based on this comparison, two major differences between the industrial-age and information-age paradigms are evident: instruction and assessment. Similar to the "learning paradigm" (Barr & Tagg, 2000, p. 198), the information-age paradigm of education requires a shift in mindset: the focus should be on learning and learners. This focus should be reflected in instruction- and assessment-related tasks. Therefore, learner-centered instruction and assessment are the two cornerstones of the new paradigm, and they are seamlessly integrated with each other (Reigeluth *et al.*, 2008).

To achieve truly learner-centered instruction and assessment, Reigeluth (1994) pointed out the importance of schools being caring environments. He indicated that such an environment can be ensured with better interaction and relationships between students and teachers in a small community. He revealed additional features of the new paradigm to facilitate schools being caring environments:

1. A 'teacher' is responsible for a child for a period of about four years.
2. That teacher is responsible for educating the whole child.
3. Each school has no more than 10 teachers, to

Table 1. Industrial-age paradigm vs. information-age paradigm of education (Reigeluth, 1994, p. 8).

Industrial-Age Paradigm	Information-Age Paradigm
Grade levels	Continuous progress
Covering the content	Outcomes-based learning
Norm-referenced testing	Individualized testing
Non-authentic assessment	Performance-based assessment
Group-based content delivery	Personal learning plans
Adversarial learning	Cooperative learning
Classrooms	Learning centers
Teacher as dispenser of knowledge	Teacher as coach or facilitator of learning
Memorization of facts	Thinking, problem-solving skills, and meaning-making
Isolated reading/writing skills	Communication skills
Books as tools	Advanced technologies as tools

create a smaller, caring environment.
4. Each student develops a quarterly contract with the teacher and parents. (Reigeluth, 1994, p. 10)

How can a school become a caring environment? What roles do students, teachers, and parents play in such an environment? How can instruction and assessment be based on individual learners' preferences? More importantly, are there schools like this in the world? The remainder of this article will describe and highlight one such school, the Minnesota New Country School (MNCS).

What Is Unique About the MNCS?

Imagine a school with no classrooms, teachers, classes, and many other things that are seen in a traditional school. When entering the MNCS, one sees a large room with individual desks and computers. Instead of students going from one classroom to another for different classes, all students are located in this room. It looks at first sight like a busy open office instead of a school.

Thomas, Enloe, and Newell (2005) referred to the MNCS as "the coolest school in America" in their book, due to its non-traditional approaches to instruction and assessment. A group of people including educational entrepreneurs and reformers founded this school in 1994 to change our perceptions about schooling. They designed it in a way that learners are always the starting point for instruction and assessment through self-directed project-based learning.

Since its foundation, the school has been receiving a lot of attention from communities, organizations, and other education-related entities. In 2000, the school was recognized by the Bill and Melinda Gates Foundation. The foundation awarded $4 million to have this school model replicated. Based on the four major design principles of the school—(1) small learning community, (2) self-directed project-based learning, (3) authentic assessment, and (4) teacher ownership and democratic governance—60 other schools have replicated the MNCS design (Minnesota New Country School, 2013, Design Elements section). However, it is important to note that, as the first of these innovative schools, the MNCS is still the leading school in this network.

In addition to the recognition from the Bill and Melinda Gates Foundation, in 2006, the United States Department of Education, Office of Innovation and Improvement, identified MNCS among the top eight charter schools. Tom Vander Ark recently posted in an EdWeek blog that MNCS is one of 35 schools in the U.S. that should be visited. *Ladies Home Journal* listed the school as one of "America's Most Amazing Schools." The Hewlett Foundation has recently included MNCS in their deeper learning network and will be posting videos on the Teaching Channel.

MNCS annually hosts visitors from around the world. Teachers, professors, legislators, parents, and school board members visit MNCS to observe a fully student-led, project-based school. The uniqueness of the school provides a model for others to observe and replicate. People from Japan and Iceland visit the school annually and have created learning environments that replicate the school model as research and development sites.

The remainder of this article will discuss the four major design principles that make this school unique, and at the end we will highlight some of the success stories of the school in terms of student achievement.

Four Major Design Principles

1. Small Learning Community

One of the major design principles of the MNCS is being a small community of about 110 students in grades 6–12 with 10 advisors. This means each advisor has about 11 students to work with in his or her "advisory." Considering that all advisors spend a substantial time with students in their advisories, they are able to build strong relationships with their students. This creates a mentor-protégé type of interaction instead of the teacher–student interaction typical in traditional schools today. Therefore, the advisors are not only responsible for academic support but also emotional and psychosocial support that their students might need.

Based on this strong relationship, the students call their advisors by their first name and have the opportunity to select their advisor for the following year. Some students change advisors each year; others remain with the same advisor for seven years. Utilizing time in the morning for "advisory group" gives the advisor a chance to know if a student will have a good day or bad day just by the way they greet each other. The advisor plays a key part in assisting the student to be college focused and bound.

The school operates in a democratic mode with many decisions being made by the students. New policies are presented to the staff from the Student Congress, and negotiations are implemented to get everyone to agree on the new item. Also, the process works in a reverse order, with staff presenting new policies to the Student Congress, and negotiating. The small school size allows multi-age advisories, mentoring for all students, and the use of Restorative Justice when disagreements arise.

2. Self-Directed Project-Based Learning Approach

As pointed out earlier, the MNCS implements a self-directed project-based learning approach. Although there are various project-based school models, the MNCS model has a strong emphasis on individual projects and full-time "self-directedness." In other words, students in the school are given opportunities to actively design, develop, and monitor their own projects. More importantly, the school encourages students to design projects that they are passionate about. Therefore, the role of the advisors is to ensure that academic standards are addressed through these projects.

Most of the projects require a number of planning activities. First and most important is an initial planning session between an advisor, an individual student, and possibly his/her parents to identify the student's characteristics and needs in order to guide him/her to set short- and long-term goals. The advisor, student, and parents then plan for projects that enable accomplishment of the short-term goals that are also in line with their long-term goals.

The next step is to complete a project proposal using an electronic form on Project Foundry, the project management software the school uses. The student fills in the proposal from before beginning to work on the project. Next, the advisor reviews the project proposal form and suggests revisions if appropriate. If not, the advisor approves the project and sends it to the student's parents for approval. Once all approvals are received, the student starts working on the project. The role of the advisor and parents is to guide the student whenever necessary during the project work. In order to keep track of what the student learns throughout the project, the student is asked to enter time logs each day, where s/he reflects on what has been accomplished for the project.

Once the student completes the project, a group of advisors (2–3) and sometimes community experts meet with the student. The student is expected to give a presentation and demonstrate the artifacts completed as a part of the project work. The group of advisors assesses student learning based on the student's presentation, time logs, and clarifying questions that they ask during the presentation. Finally, the advisor group decides on the earned credits and learning standards attained. Transparently, the advisors ask for the student's comments about their assessment and number of credits and standards earned. If there are any objections, they engage in a conversation with the student to clarify the issues and reach consensus.

3. Authentic Assessment

The advisors in the MNCS do both formative and summative assessment of learning. Each project requires using a rubric or a set of standards that are jointly developed by student and advisor. This has two potential benefits: (1) Each individual student is actively involved in the assessment process, facilitating learner-centered assessment, and (2) the student knows the particular criteria or standards for success in advance.

For formative assessment, the advisors use their observations throughout the day as well as time logs that each student enters on a daily basis. This enables the advisors to provide immediate feedback to students. Without teaching preps and a curriculum to follow, learning is fluid and demonstrated throughout the day. Advisors monitor the learning by questioning students daily to make sure that the project is making progress and authentic learning is happening.

Students are required to present their projects at least twice per year to an audience of parents, relatives, and community members. Rubrics are used by the visitors to help provide quality feedback to the presenters. Students are required to complete 10 projects per year to advance. A project credit is determined by time, quality, ability level, presentation, and documentation of learning through daily time logs. Students negotiate their learning and credits with a minimum of two staff. They develop a keen sense of negotiation through this process.

4. Teacher Ownership and Democratic Governance

The founders were the first in the country to create a public school educator cooperative, which continues to serve a dozen schools and over 200 teachers in Minnesota. The EdVisions Cooperative supports teachers in 14 schools in the Minnesota region through

such activities as providing them with staff development when requested, assisting a school with personnel issues if they have legal questions, and bringing together multiple sites for "conversation days," where they can share strategies and work together on projects or other issues. In addition, EdVisions Schools is a nonprofit organization that supports startup efforts using the four Design Principles. Both of these organizations encourage teacher leadership and management of their schools, using the "teacher professional practice" concept, which supports the teachers as leaders in decision-making in all aspects of the school. They study and plan for academics, finances, transportation, building, special services needed, testing, and any other issue involved with running a school. Many of the key individuals in these two organizations have been involved since the creation of the New Country School in 1994, or since EdVisions' new school development work began in 2000.

The advisors at MNCS maintain a stake in the success or failure of the school. The staff/owners are accountable for the success of the school, leadership in administrative and academic areas, and full commitment to the mission and vision of the school, much like the responsibilities of a partner in a law firm. This ownership entails much more sacrifice, risk, and hard work, but the advisors feel that the benefits outweigh the challenges. In return for "owning" the program, there is an increased sense of professionalism, actual input into the learning program for the students, actual input into administrative decision-making, and constructive and supportive continuous improvement.

Becoming an owner in the field of education does not fit the paradigm of the industrial-age educational structure. MNCS has found that breaking the paradigm in the methodology of interacting and educating students must be accompanied by the recreation of a professional field of educators.

Success Stories for Student Achievement

Eighty percent of the MNCS students have been postsecondary bound. Of those students, 80% complete postsecondary. An average of 35% of the students have a diagnosed learning disability and still are postsecondary bound. On national college testing (i.e., the ACT), students have performed very well with project-based learning. Since 2005, MNCS students have consistently scored several points higher (up to 5.4 points) than both the ACT national composite and the ACT state composite (up to 4.3 points) with the exception of one year.

Students have shown overall a 15% increase in math scores and a 13% increase in reading scores since 2010. Students also maintain a high enrollment in Post Secondary Enrollment Options courses, work in apprenticeships with numerous businesses, run a number of successful student-run businesses, and complete 300-hour senior projects. MNCS continues to be impressive in both traditional and nontraditional assessment measures. □

References

Aslan, S. (2012). *Investigating "the coolest school in America": A study of a learner-centered school and educational technology in the information age.* (Order No. 3550777, Indiana University). ProQuest Dissertations and Theses, 303; http://ezproxy.lib.indiana.edu/login?url=http://search.proquest.com/docview/1316886672?accountid=11620. (prod.academic_MSTAR_1316886672) .

Barr, B. R., & Tagg, J. (2000). From teaching to learning: A new paradigm for undergraduate education. In D. DeZure (Ed.), *Learning from change: Landmarks in teaching and learning in higher education from Change Magazine, 1969–1999* (pp. 198–200). Sterling, VA: Stylus Publishing.

McCombs, B. L. (2003). A framework for the redesign of K–12 education in the context of current educational reform. *Theory into Practice, 42*(2), 93–101.

Minnesota New Country School. (2013); *http://www.newcountryschool.com/* .

Reigeluth, C. M. (1994). The imperative for systemic change. In C. M. Reigeluth & R. J. Garfinkle (Eds.), *Systemic change in education.* Englewood Cliffs, NJ: Educational Technology Publications.

Reigeluth, C., Watson, S. L., Watson, W., Dutta, P., Chen, Z., & Powell, N. D. P. (2008). Roles for technology in the information-age paradigm of education: Learning management systems. *Educational Technology, 48*(6), 32–39.

Reigeluth, C. M., & Karnopp, J. R. (2013). *Reinventing schools: It's time to break the mold.* Lanham, MD: Rowman & Littlefield.

Schlechty, P. C. (2003). *Inventing better schools: An action plan for educational reform.* New York: Wiley.

Software & Information Industry Association. (2010, November). Innovate to educate: System [re]design for personalized learning; A report from the 2010 Symposium. In collaboration with ASCD and the Council of Chief State School Officers. Washington, DC. Author: Mary Ann Wolf.

Thomas, D., Enloe, W., & Newell, R. J. (2005). *"The coolest school in America": How small learning communities are changing everything.* Lanham, MD: Scarecrow Education.

Thornburg, D. D. (1999, Dec.). Technology in K–12 education: Envisioning a new future. White paper commissioned for the Forum on Technology in Education: Envisioning the Future, Washington, DC.

Toffler, A. (1980). *The third wave.* New York: William Morrow and Company.

Toffler, A. (1990). *Powershift: Knowledge, wealth, and violence at the edge of the 21st century.* New York: Bantam Books.

Watson, S. L., & Reigeluth, C. M. (2008). The learner-centered paradigm of education. *Educational Technology, 48*(5), 42–48.