

21st Century Learning Principles:

After decades of working at all levels of education--from elementary to doctorate; in multiple roles--from student, to teacher, to administrator, to policy maker--in diverse situations; I have developed some personal conclusions about directions in education. The following are reflections from works in progress and come from different writing contexts. In today's fast changing world, these conclusions are more like ideas in progress, and change with new technology, organizational structures, and political shifts in the wind. However, they provide a framework for understanding the individual 'crises' of the moment in America's educational system.

1. **HighTouch/HighTech:**
2. **Diagnostic/Prescriptive Individualized Curriculum:**
3. **Standards Based Education:**
4. **Vary Time And Methods, Not Level Of Learning:**
5. **Just-In-Time-Learning:**
6. **Learner as Teacher and Producer:**
7. **Value Added Measurement:**
8. **Creating Learning Communities:**
9. **Seamless Lifelong Learning:**
10. **School and College Financing:**
11. **Modularization:**
12. **Learning as an Obligation:**
13. **Positive Gangs:**
14. **Post Puberty Learning**

1. HighTouch/HighTech:

Combining the use of technology and people to facilitate learning by using interactive data acquisition, simulation modeling, games, and other learning programs delivered locally and through telecommunications whenever possible for lower cost. This provides the opportunity for even greater person-to-person interaction in the form of tutoring, coaching, and motivating is provided by the locally organized coaches, etc. **HighTouch/HighTech** means using people where they are best, as facilitators, motivators, tutors to individuals and small groups of learners; while using computers, multi-media stations, electronic learning, and the Internet resources to bring vast amounts of information and learning activities to each learner. Active learning is best, yet, almost impossible to provide with 30 or 40 students in a standard classroom. However, many studies have shown that students who are actively involved in solving problems, simulating science experiments, accessing information, writing essays and communicating with other learners (as they are in high quality, computer-based instruction) are actively using their cognitive, affective, and psychomotor assets.

2. Diagnostic/Prescriptive Individualized Curriculum:

To design individualized curriculum recognizing the preferred or most effective way for each learner to learn. Gardner and others have identified multiple intelligence's, and multiple ways in which each individual learns most effectively. Focusing on using that student's most effective learning style in prescribing a specific learning plan for each student makes time and economic sense. A comprehensive electronically maintained student database facilitates the required record keeping. Each student is unique, and we should treat their goals, styles, and personal development as constructively as possible.

3. Standards Based Education:

We are organizing all computer and non-computer-based assignments and curriculum, as well as assessment based on Colorado's newly adopted content standards. Learners would be assessed on what they know and can demonstrate in a diagnostic assessment and their individualized curriculum developed.

Summary Assessment would also be based on the acquisition and demonstration of proficiencies linked to these new standards. . The learning program then works with them on those areas in which they need help.

4. Vary Time And Methods, Not Level Of Learning:

All children and adults can learn if time and methods are variable and sufficient motivation and support exists. Traditional classroom methods have not, or, are not, working for all but about 1/3 of the students. We should use a combination of methods and needs assessments until we discover what works for each of our students. We will design our methods around the other principles identified herein. Our motto is ‘try until you succeed’. This could include home- or learner-centered learning with little outside structure for the self-motivated and family supported. At the other end might be highly structured, boot camp style, learning environments facilitated by community employers, and citizens who will help wake up, drive to, sit with, and monitor the learning of those students who need outside discipline to motivate them to use multiple learning tools. If the prevalent culture of schools was used to teach children to walk, then 1/3 of us would still be crawling because someone would have tried a few ways to teach us, stifled our other attempts and rationalized by saying, "it's ok, you just were not meant to be good at walking".

5. Just-In-Time-Learning:

Knowing the most effective learning method for each student is helpful but not enough. Rather we will organize the student’s personalized curriculum by focusing the learning of cognitive and affective domain skills on projects or topics that the learner has identified as important to him or her at that time. For instance, if a student has strong concerns for the environment then all math, reading, writing, and other skills can be learned or advanced through projects based on the environment. Over time we can direct the learner into enough areas to insure acquisition of core knowledge's and meeting of standards based for them.

6. Learner as Teacher and Producer:

Each learner also produces new learning materials as they complete their learning by being a teacher--both On-Line and through the production of learning materials shared electronically. As all teachers have learned, and groups like Boy Scouts have focused, the learner learns best when they become the teachers to another learner. For instance, when a student learns about the significance of the Civil War using textbook focused materials we will assist them to write analysis and explanations in terms more relevant to their lives. What are the tensions in the existing community, which lead to similar violent behavior. What can be done short of war. How can racial tension be better understood today, than during the Civil War. As the student writes about these thoughts their work is shared electronically with other students and the dialogue both educates, and leaves learning materials for the next group to build upon.

7. Value Added Measurement:

Assessment is based on measuring skills and competencies before a learning activity and after that activity. The level of knowledge or learning gained is the real criterion of effectiveness. This is a focus on results, not process. We will assess each learner on a matrix of skills and competencies developed in accordance with Colorado Content Standards, and using assessment models developed by the Mid Continent Regional Education Laboratory (McREL), and the league of charter schools.

8. Creating Learning Communities:

We recognize that success in learning depends upon a high level of family support for learning. We will involve multiple groups to create extended families for learners. These other groups will assist a student’s strong healthy family support, or provide an alternative support group where the family is not a positive force for the learner. The synergistic impact is when the whole family and its associated social groups become life long, inquisitive and successful learners. Many families traditionally have not had any family numbers complete high school or college. We are committed to breaking this chain of non-completion. Our efforts at school districts and the community colleges develop and build successful

programs to increase completion at both levels. Student and community interest in electronic mail have encouraged us to use more computer-based learning. We have been successful in our alternative school and college programs where we create family like groups to help learners.

We intend to reach out and create more diverse support groups using electronic tools, and local community based organizations throughout the geographic area. We will create HighTouch support groups to assist the learner with technical, curriculum, and emotional support needed to be successful in rigorous levels of learning. The learning program uses the other learning principles to re-design the learning program, and link other community groups. Working with community groups we will create extended families of support for youth to encourage and support them in working harder and smarter for student achievement.

9. Seamless Lifelong Learning:

In an age where information needed in most fields doubles every five years and people will have seven different jobs in a career, we must change to a learning environment that is continuous, not traditional. We also know that people learn when they need to learn, not to just store up information for potential use in a far off future. This requires curriculum and method's changes. It also provides opportunity for high school students to take college courses, and adults of all ages to reach back and learn from the beginning anything they missed the first time.

10. School and College Financing:

Value Added, not Time - All of these learning principles lead to a shift from a time and process based funding system, to one based on student achievement of learning goals with system rewards for efficiencies in making this more productive for everyone. The present system of financing K-12 and higher education is based on time based credit hours, FTE's, or other measures of seat time. The incentives are for in-efficiency, since each level of the system makes more money for repeating what was not acquired the first time paid for, by both the taxpayer, and the individual.

Paying only Once - Teaching the same subject and level in multiple grades of K12 is expensive, redundant and boring for the children. Teaching the same subject again in college, in remedial courses, is even more expensive and reflective of our inability to do it right the first time. Perhaps the college should be able to bill the school district for the cost of all remedial courses taken by a recent high school graduate.

Quality is long term low cost - American automakers operated for years on the belief that a car could either be high quality or low cost. The reformation of the auto industry was caused by W. Edwards Deming teaching Japanese auto makers that producing a high quality car through the extra effort to make it perfect before leaving the factory was also the low cost production method. The American model expected 30 % errors fixed later at the dealers. Likewise the cost-effective transformation of education will come from teaching each subject well the first time preparing students for the next level of learning. We could save billions of dollars while reaching 100 % literacy through cost-effective changes in methods, incentives, and expectations of all participants.

11. Modularization:

What is also becoming apparent for 21st Century learning is a shift from course based, degree based, sequential learning to one of individually acquiring modules of learning Just-In-Time, from multiple site and distance delivered sources, and assembling credentials in some other manner. Most nations of the world have state or national exams that certify one's level and quality of accomplishment. America is moving in this direction in spite of traditions of local control, and local only accountability. Assessment of significance will shift from control by the teacher/institution, to external validation for individual and system performance level and efficiency.

12. Learning as an Obligation:

Learning is more than a privilege, or a right; it is the obligation of each American to insure their ability to be self-sustaining, positive contributors to the economic and social fabric of our country. To reach beyond America's present, and consistent, high school completion rate of 75% we must redesign all levels and areas of our learning system. Most other developed nations have literacy rates, and high school completion rates, of almost 100 %. We cannot succeed as a productive nation in a global economy without bringing along those now left behind. Likewise, they who now fail cannot be allowed to live off the

productive through crime, and welfare. A total learning community will have so many multiple ways to learn that through a continuum of methods and incentives from fun, to harsh we can insure that ALL CAN LEARN AND PRODUCE.

13. Positive Gangs:

All teen children will form peer group alliances for social development, leadership and role adoption, and emotional support. This has occurred for thousands of years of human development. One hundred years ago large families primarily met that need, along with church and farm based groups. Church, sports, music, scouting and other activities create teen groups with a positive agenda. However, in the absence of these groups youth will band together more often in 'negative' gangs. Both gangs provide emotional support and development. It is incumbent upon adult leadership to provide, support, and enhance positive gang activities and diminish the need for negative gangs.

- We are well aware that teen youth have such a strong desire and need for peer affiliation that they will form gangs of some type. We have growing numbers of 'gang' members in each community. These 'gang's are negative gangs. They focus on getting in trouble by vandalizing the community's property and people. We describe 'positive gangs' as those teen peer group activities that lead to skill development in literacy, leadership, community caring, and practical skills valuable for a lifetime.
- Youth need positive ways to acquire and display responsibility for themselves and others.
- Youth have tremendous levels of energy which will either be directed in positive or negative activities
- Youth want increasing amounts of peer leadership as they age, and will form their own groups, with or without adult leadership
- Recognition of their activity is very important and can become a positive motivator for positive activities.
- In order to help develop positive work and community contribution ethics; students who work on increasing their skills, assist younger children, and in community service will earn opportunities to take part in sports, music, swimming, and other recreational activities.

14. Post Puberty Learning

For thousands of years mankind has been raised to acknowledge the biologic change in boys and girls, as they become men and women. Rituals celebrated the change, and adult type responsibilities were increasingly given to these emerging adults. More primitive civilizations still operate this way and have much less teen-age negative rebellious behavior because they acknowledge and respect the change in youth as they pass through puberty.

Pre-Puberty	Post-Puberty
Passive acceptance of authority	Rejection of authority figures
Willing to learn through rote assignment	Need for Self directed learning
Need protection from failure and pain	Learn through mistakes and feedback
Want protection and guidance	Want authority to make choices and willing to pay dues for mistakes
Structured, teacher controlled classroom works much of the time	Structured, teacher controlled classroom seldom works for teen-ager—they merely tolerate by showing up.
Early grade, activity based learning is best	Self-directed, project based, real-world activities work best