

Educational Reform and a Model for Change

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Introduction

There is no one best way of developing instruction. If there is no one best recipe for making tomato soup, it absurd to argue that there is a best way of teaching someone to acquire worthy performance (Davies, p. 94)

Change in education has a long and well documented history. From the ancient Greeks through to the densely populated campuses of today, education has undergone constant change. However, calls for educational reform continue. What does this mean? How are people to decide upon the best model of education for their children? Is there one "best" answer? The desire for a better model of instruction can be seen throughout history, and at least in part, this answers the questions. There is no "best" way to model instruction; or rather, there are as many "best" ways as there are learners. This means there is no simple, single way to teach everyone. Instead, we need to change how education is viewed as a process and accommodate a multitude of learning styles.

The need for educational change is exemplified by the often overheard remarks "falling national achievement score", "growing drop-out rates" and "losing interest in learning" (Schwier, 1994). While concern for such findings are valid, too often people look to merely repair an outdated system. I believe the focus should be on the negative attitudes many people have toward school. One reason for this focus is the 1500+ children being home schooled in Saskatchewan (Ramsey, 1998). Life long learning is not an attitude; it is a truism, regardless of whether the learner realizes it or not. Educators and society must realize that education should not only be the major industry of a healthy society but its implementation should be virtually seamless.

This paper will give a brief overview of educational systems in Saskatchewan and describe attempts to utilize technology in educational systems. In this paper educational reform is considered, and current education systems and other models of education discussed. Finally, I propose an alternative to current educational systems.

The provincial government of Alberta (Alberta Education-Online) has recently issued a set of objectives for technology education in public schools. These objectives are to be added to the existing curricula and are stated as follows:

F. Foundational Operations, Knowledge, and Concepts

- F1. Students will demonstrate an understanding of the nature of technology.
- F2. Students will understand the role of technology as it applies to self, work and society.
- F3. Students will demonstrate a moral and ethical approach to the use of technology.
- F4. Students will become a discerning consumer of mass media and electronic information
- F5. Students will practice the concepts of ergonomics and safety when using technology
- F6. Students will demonstrate a basic understanding of the operating skills required in a variety of technologies.

P. Processes for Productivity

- P1. Students will compose, revise and edit text.
- P2. Students will organize and manipulate data.
- P3. Students will communicate through multimedia.
- P4. Students will integrate various applications.
- P5. Students will navigate and create hyperlinked resources.
- P6. Students will use communication technology to interact with others.

I. Inquiry, Decision-Making, and Problem Solving

- I1. Students will access and use information from a variety of technologies.
- I2. Students will seek alternative viewpoints using information technologies.
- I3. Students will critically assess information accessed through the use of a variety of technologies.
- I4. Students will use organizational processes and tools to manage inquiry.
- I5. Students will use technology to aid collaboration during inquiry.
- I6. Students will use technology to investigate and/or solve problems.
- I7. Students will use electronic research techniques to construct personal knowledge and meaning.

These are undoubtedly informed and important objectives. However, it seems absurd that departments of education are concerned about teaching technological skills in and yet expect the component of technology to be borne as yet another burden by the teacher who may or may not be experienced in these technologies.

Schwieb (1994) has noted that two major characteristics of our educational structure are i) grouped learning and ii) the component nature of the system. The assembly line or industrial metaphor is repeated in various readings (Frick, 1991; Hathaway 1989; McKenzie, 1993; Reigeluth, 1995; Reigeluth, 1996) and is the primary argument for

educational reform in the Information Age. If the majority of society values independent learning, adaptability, critical thinking and diversity, then the industrialized model of component learning systems is counterproductive. A variety of questions arise at this stage: Why has society been reluctant to embrace reform in education? What models would best encompass the goals and needs of an information society? How can reform be cost effective in today's restrained economic climate? How can a greater link between education and community be forged?

The final report in 1994 made by the Saskatchewan Information Technology and Telecommunications Strategy Advisory Committee made several recommendations regarding the role of education in the future. Included in these recommendations are the need to:

- develop a strong, supportive education system.(p.3)
- create an information-literate population which has the tools for success in the Information Age.(p.12)

Among the proposed initiatives of this document is a statement which calls for the expanded use of information technologies: "Involve every sector, including libraries, schools and universities, ... in using locally developed information technology products and services" (p.16). The report also sees the geographical barriers which limited Saskatchewan's prosperity during the industrial age as now being a strength in the information age (p. 9). Ironically, these barriers are still seen as a limiting factor in rural schools. While the agriculture and technology sectors have taken full advantage in utilizing information technologies, education generally remains behind in the use of telecommunications and information technology for instructional purposes (Hollingsworth and Eastman, 1997). Saskatchewan has implemented distance education programs from Regina's Campbell Collegiate and Viscount School via the Saskatchewan Communication Network (SCN), yet these programs are still modeled after traditional instructional models. Hollingsworth and Eastman(1997) recently concluded what many have suspected or discovered "on the job". That is, a large number of students already have access to a wide range of information technologies at home, most of which are of a "leading edge" nature. Compare this to schools which are generally far behind the rest of society in equipment standards. It is obvious that students with greater access to the latest technologies at home will feel disenfranchised when they are forced to school on a daily basis to work on outdated equipment in, what is often perceived as, an obsolete educational system.

Ely (1992) used literary content analysis to suggest trends in educational technology. A few highlights include:

- the increased use of instructional technology in the development of technology based teaching/learning products,
- the advent of performance technology has increased the emphasis on evaluation,
- distance education is evident in almost all levels of education,
- computer technology has permeated schools,
- increased use of telecommunications technology, and
- an increased pressure for the adoption of educational technology tempered by the concern over the impact technology has on children.

Two very interesting trends are the observation of the change in the teacher's role in

education countered by the statement that professional development in the field has stabilized. Many are continuing to advocate professional development as essential to any positive changes in future education. Zazelenchuk (1994), in his call for improvements in the professional development of teachers, sees "the emphasis on CELs and Resource-Based Learning involves many shifts that technology can make possible" and that "once these roles come to be accepted, teachers and students will not only welcome the implementation and adoption of educational technology, they will demand it" (p.45). Other studies involving the professional development of K-12 teachers indicate that the essentials or "3 Rs of computer education" are practical applications of technologies like the Internet and computer hardware and software (Fisher, 1997). It is the contention here that this applies to all information technologies and that it is the responsibility of the educational system to incorporate all learning architectures to facilitate student development.

Technology has become more than a set of tools to be picked up and used when a student decides to use them. It has become a required medium that mediates experience in most aspects of peoples lives. Consequently, technology should be viewed by educators as a major area of study since it is one of the principal factors in determining how people experience and know their world. (Fisher, p. 28)

In September, 1996 a workshop sponsored by the Training, Research and Evaluation Sub-committee of Schoolnet published a vision statement entitled Vision of Learners in the 21st Century. In this paper, the group made the following statements about the characteristics of the learning system needed to support the learner of the future:

learning system to support this learner (of the 21st century) should be: responsive, adaptable, respectful of diversity, empowering, accessible, lifelong, linked with community and reality, affordable. (p. 6)

A new learning system for the future would involve changes in all the interconnected elements of the system: the framework of structures and funding; the processes of curriculum, instruction and assessment; the modes of access including institutions, teachers and technology; and the rationale for the system based on research and evaluation.(p. 6)

To ignore the changes in society during the last quarter century would show a blind disregard for the welfare of our children. To further ignore the necessary changes needed to our education system would be foolhardy indeed.

Aspects of Education Which Need to be Addressed

Connoisseurship

When referring to someone with expert knowledge of wines and wine-making, people confidently refer to them a connoisseur. Their intimate knowledge and experience, their

subtle sense of taste and their discriminating nature make them masters of the field and generally others hold them in high regard for their expertise. This concept has particular applications in systemic change. With the increased concern over the development of information technologies permeating our society, and the teaching of the skills necessary for our children to utilize these technologies becoming increasingly emphasized, it seems logical that educators become knowledgeable in educational technology.

To be a connoisseur Belland (1991) calls the development of the following skills/strategies:

- a) fine discrimination
- b) a hierarchical system of concepts
- c) organizing principles to structure the relationships among the concepts
- d) strategies so that one can focus on the salient aspects and ignore the myriad array of other aspects present in any complex phenomenon(pg27).

During the development of these skills/strategies, he compared them to Gagne's interpretation of higher order thinking(p.28), which can be considered a primary goal of an educational system. These can also be said to be valuable for any educational paradigm. However, if educational technology is to lead reform movements how is connoisseurship developed? Belland states that "the educational technology connoisseur will need to spend many hours, whether required by coursework or not, reading, observing, participating and otherwise accumulating a vast range of perceptual experience with instructional products and systems" (p. 30). In other words experience and commitment are the necessary requirements for a person to become a true connoisseur of educational technology.

Equity

Equity in education needs very little introduction as it has been receiving much attention of late. In general, equity in education refers to three issues:

- equal access to education,
- support and environment
- research and pedagogy in education.

While various groups have been targeted as having special needs regarding equity, the question here is how can educational technology and systemic change enhance education equity? There are numerous possibilities. The following are two major areas where educational technologies show great promise.

Multiple voicing is a term referring to the increasing number of knowledge groups whose perspectives are being addressed. This is in sharp contrast to historical knowledge structures where generally one epistemology was held to be true and all others false or lacking. With the development of constructivist theory and the reduced power of colonialist patriarchal political structures, a wider range of beliefs are being considered valid. This can best be shown with a quick survey of the internet where not only are

educational opinions presented, but also radical expressions of all varieties. The common element of all these is the belief that there is freedom to express opinions and state values with no judgmental standards associated with who's voice is heard. The danger here is to have a populous without the necessary skills making critical evaluations of the panorama of ideas. Television, radio, internet, newspapers, and video games are consuming much of the intellectual time of the learner in today's society and replacing the textbook and teacher and the "authority" on knowledge (Hlynka, 1995, Boyd, 1991). How is education and educational technology to battle the onslaught of a society in love with entertainment?

Another aspect of equity where educational technology promises significant advances is the education of people with disabilities. Not only can telecommunications and distance learning technologies allow some people with physical disabilities to access education in ways never before possible, but also many of the current challenges of Attention Deficit Hyperactivity Disorders (ADHD) and Oppositional Defiant Disorders (ODD) can be addressed. This is not to say that computers are going to solve these problems, but interactive instructional technologies can provide people with these disabilities with an enhanced educational experience possibly allowing more individualized instruction between teacher and student at other times. Computer-mediated communication may also provide the ODD student with the necessary interface to make positive interaction with authority possible. Instructions from an authority figure to a person with ODD is something which infuriates and often results in violence but instruction coming from an impersonal machine may be less threatening and more productive.

Prescriptive, Democratic and Cybernetic Learning Environments

The learning environment is one of the most critical areas of education and it is this area which is attacked most frequently by detractors of current educational systems. The information age will not only change the way we communicate with others it will also radically change the way we expect our interactions with others to take place. No longer are students satisfied, or sometimes capable, of sitting in a structured environment receiving instruction in a manner chosen by another. This is not to say that any of these environments are without value. On the contrary, it is the stance in this paper that all environments have varying degrees of value to different individuals. The future of educational technology is that more and more individuals will be able to choose which learning environment they prefer. For the purposes of the model proposed later in this paper the following definitions are useful. A prescriptive environment is one in which information is chosen by an authoritative entity for the learner to incorporate. A democratic environment is one in which the learner has control of what is learned as well as how it is learned. The third example, cybernetic learning environments, is generally an example of artificial intelligence or virtual reality systems where the primary control is given to the learner but the system used adapts to the learning style used (Schwier, 1994). For the model proposed in this paper, the cybernetic environment is viewed as the adaptive dimension and encompasses both earlier environments.

These definitions are often used in reference to the design of computer based instruction or multimedia programs. However, they mirror the three major arguments relating to learning theory and epistemologies: objectivism, constructivism and pragmatism. Currently the trend seems to be towards a constructivist learning environment. With

recent advances in distance education and computer based instructional technologies that concerns regarding learning environment can be addressed.

A Few Proponents of Reform Design Models

Charles M. Reigeluth

Two major articles from this leading writer for Instructional Systems Design (ISD) and Educational Systems Development (ESD) are the focus here. In *Educational Systems Development and its Relationship to ISD* (1995) and in *A New Paradigm of ISD* (1996) Reigeluth discussed the need for a new paradigm in education and pointed out that education needs to change as society's needs change. ISD is also an integral element of ESD according to Reigeluth. The wide range of strategies which may be employed during instruction (Reigeluth, 1996, p. 16) need to relate to systemic reform. Calling for a systems approach to educational thinking, he quotes Banathy's four subsystems in any educational enterprise:

1. the learning experience subsystem, in which the learner processes information from the environment to produce new or modified cognitive structures,
2. the instructional subsystem, in which instructional designers and teachers use information about learning needs (gained through analysis activities), as well as administrative and governance input, to produce environments or opportunities for learners to learn,
3. the administrative subsystem, in which administrators use information about instructional needs, as well as governance input, to make decisions about resource allocation, including use of leadership, and
4. the governance subsystem, in which "owners" use their goals and values to produce policies and in other ways provide direction and resources for the educational enterprise in order to meet their needs (which usually include those of the learners, teachers and administrators). (Banathy as cited in Reigeluth, 1995, p.84)

Reigeluth saw the crisis many families experience in societal evolution as another reason for systemic reform. The trend towards holistic environments in the workplace should reflect a change towards a more caring and holistic environment society's schools. Due to these changes, he presents an emerging picture of changes to the present system towards an Information Age system which are highlighted by four main features:

1. A "teacher" is responsible for a child for a period of about 4 years.
2. That teacher is responsible for educating the whole child.
3. Each schools has no more than 10 teachers, to create a smaller, caring environment (the notion of schools-within-a-school).
4. Each student develops a quarterly contract with the teacher and parents.

These changes are significant as they indicate a possible alternative to the component system currently entrenched in K-12 education.

Peggy R. Proctor

Exploring the changing role of the teacher in Saskatchewan Educational Reform: The Roles of Teachers and Learners (1994) has lead Proctor to also question the current system. The major points constructed in her argument are:

- Teachers are beginning to demand change (p.10)
- Teachers are being told to change their teaching behaviors while functioning within a school system which constrains change with rigid time schedules, prescribed class sizes, graded classrooms and limited resources.(p.12)
- Teams of professionals working together with students in clusters, phases, or teams over a longer period of time, 3-5 years, should replace the teacher-per-class-per-grade concept.(p12)
- Technology would be a tool used to customize the environment to suit the needs of every learner.(p.14)

Proctor also proposed a new model for change. In a similar fashion to Reigeluth, she saw groups of multi-aged students remaining with one "set" of educators for several years. The learners would share common learning goals and developmental stages while the "set" of teachers would consist of a master teacher, specialist teachers and pre-service teachers. Within a school, these groups would have access to educational technologists, paraprofessionals, and administrators. She also saw a greater need for a holistic approach encompassing school, community and home environments.

Robert K. Branson

This approach is based upon currently successful corporate Research and Development approaches to systems organization and change. In The Florida Schoolyear 2000 Initiative: Redesigning Public Education (1997) Branson believes that electronically connecting learners, instructors and outside resources to each other, as well as to four major subsystems is the route to a effective education. These subsystems consist of Communication, Knowledge Database, Learning Support and Staff Support.

An interesting point made in this, and previous articles by Branson, is the performance/cost analysis used to determine that "the current model of schooling has reached the upper limit of its performance capability - the point of diminishing returns"(p.15). This is an excellent reason for those portions of society primarily concerned with fiscal responsibility to advocate educational change. Branson continues to describe the process of developing the Florida Schoolyear 2000 model as one that involved all stakeholders. Unfortunately this model viewed all stakeholders as the school districts of Florida. No mention is made of parental, student or staff involvement directly with the design team.

It is also interesting to note that this model was rejected by the Florida legislature in 1996. This could be due to the greatly increased technological, administrative and support costs to implement this system. It is not to be argued here whether society could actually afford an increase in the cost of education if there was a substantial increase in productivity. This model does not encompass enough change in the way learners, teachers and parents interact to fit the changes the information age will bring to society.

Educational Reform Sites on the WWW

At this point it might be fruitful to look at some of what is currently being published on the internet regarding educational reform. These sites were located by typing "educational reform" into the search engine Metacrawler.

Environmental Education and Educational Reform
(<http://www.edgateway.net/er101/introer.html>)

This site has some interesting comments regarding educational reform and the four basic groups: curriculum, instruction, assessment, and school site. These are very similar to the four subsystems developed by Banathy. The views held here are that educational reform efforts include two areas that cut across the four categories described above. These are:

- Equity - how education can better serve those who are currently under served
- Systemic Reform - one prominent branch of current education reform, maintains that all the features described here must align and change in a coordinated, mutually supporting manner.

Systemic Reform: Perspectives on Personalizing Education
(<http://www.ed.gov/pubs/EdReformStudies/SysReforms/shields2.html>)

This web site agrees on the need for greater community involvement by bringing parents and business into regular school activities. It seems to be assumed that this will cost a great deal more, as it refers to increased need for staff development. Much of this can and should be the responsibility of the individuals involved and rather than expect a wholesale remodeling of the system in a short period of time a new model can be slowly integrated into communities and allowed to develop naturally.

Riding the Backlash: Advice for Reformers, By Reformers
(<http://place.scholastic.com/el/exclusive/backlash296.htm>)

Change must be allowed to develop in a naturalistic manor, allowing people the choice of educational styles. This can be seen as many schools today are split between parents wanting a traditional component model for education and those wanting a more open, constructivist model. The question is no longer "which way to go?" but "how can we have it both ways?"

Grandfather Education Reform Report By Michael Hodges and Bill Mechlenburg
(<http://home.att.net/~mwhodges/education-b.htm>)

This is an extreme right wing opinion paper which uses standardized test reports as a basis for "back to basics" educational reform. What is interesting here is the call for an open market, competitive structure to new systems of education which can be modeled in a more constructivist manner.

Recent Developments: Systemic Reform by Andy Carvin
(<http://edweb.cnidr.org/edref.sys.intro.html>)

This web site looks at systemic reform and categorizes such reform initiatives into two groups

"First, it is seen as sweeping and across-the-board change in education, often occurring in the form of state or federal omnibus reform bills. Second, systemic reform suggests that education policy is integrated around a set of clear and definable outcomes"

and also that

"Systemic reforms usually involve some form of decentralization, empowering educators and leaders at the local level to make independent decisions in order to succeed in reaching mandated guidelines"

This web site also offers several examples of systemic reform including school choice, learning process initiatives, peer competition amongst teachers, professionalization of teachers, and the role and the structure of the school itself. Comments regarding local school management or empowerment are interesting but scary when considering local school boards and the power structures therein. It also refers to achievement and rewards for teachers using standardized tests as a basis for approval. This leads to the debate regarding the validity of standard tests.

The Coming Transformation of America's Schools by Bruno V. Manno
(<http://edexcellence.net/library/trnsfrm.html>)

New relationships among school, state, and families are transforming the nation's primary and secondary schools. The view here is that five trends in educational reform are currently taking place in American schools:

- Shift of power from producers to consumers
- Emphasis on results
- Accountability
- School choice
- Professionalism

Proposed Model - The Cooperative Community of Learning

Having established the need for reform, an innovative new approach is necessary to launch education into the Information Age. While some have proposed specific features that a reformed system should have (Reigeluth, 1995; Branson, 1997) and others (Proctor, 1994; Fisher, 1997) have advocated positive modifications to existing systems these may not be enough. To truly accept the future and take advantage of the promise that technological advances have made, we need to do more than re-think old methods. We must embrace new ideas.

A Cooperative Community of Learning(CCL) would build new relationships between education and all other members of society through effectively changing the attitude students have towards learning. The discussion of the CCL takes three steps: an overview of the four main subsystems from Banathy (instructional, administrative, learning experience and governance), followed by an illustration of the model and concluding with a description of each component within the model.

Instructional subsystem

Currently, the vast majority of this subsystem is located within one building and the delivery of content takes place within one room. The component system requires students move from room to room every hour or so to gain access to a different content specialist. Without specific guidance, students often feel what they are learning has no relationship to their needs or desires.

In the CCL model the mentor would be responsible for ensuring the holistic education of every student with whom they are involved. To do this, they would need to have experience and training in educational technology because contact with the other subsystems would primarily be accomplished via telecommunication technologies with a pragmatic approach to instructional design essential. Parents in this system would be encouraged to provide mentorship for their own children thereby allowing homeschooling to reach fruition in society. If they are incapable, through career or other reasons, of performing this duty they would still be required to be an integral part of the student's decision making and holistic experience.

Administrative subsystem

In today's superstructure of component education, administrators at various levels are responsible for seeing the system runs smoothly. Currently directors, superintendents, principals and vice-principals may be responsible for hundreds, if not thousands, of individuals within districts. In an attempt to achieve greater systemic performance these districts often amalgamate, becoming much larger entities. The manageability of such a system requires an immense bureaucracy which is difficult to maintain in the most productive fashion.

Administration could be a function of the open market structure with mentors and content specialists responsible for their own affairs. Governmental involvement would be restricted to parental representation for quality control. The advantage is that such a system eliminates redundancy and forces greater communication between parents,

students and mentors.

Learning experience

By creating intimate relationships between experienced and caring educators with parents and students, the goal would be to allow young people to find their own way to be productive in society and at the same time guide them through the vast amounts of information available. Teachers are often expected to play the role of parent in guiding the moral development of young people. What processes are in place to ensure that parents and teachers share values? Morality is not easily developed and cannot be treated as a component within a system of education. Only during individualized instruction and mentorship controlled by the parent can values be made clear to the learner.

It is important that experience allow for the development of critical thinking, connoisseurship, and life long learning. The CCL model can accomplish this task in a pragmatic fashion which embraces the ideals of a holistic, open learning environment.

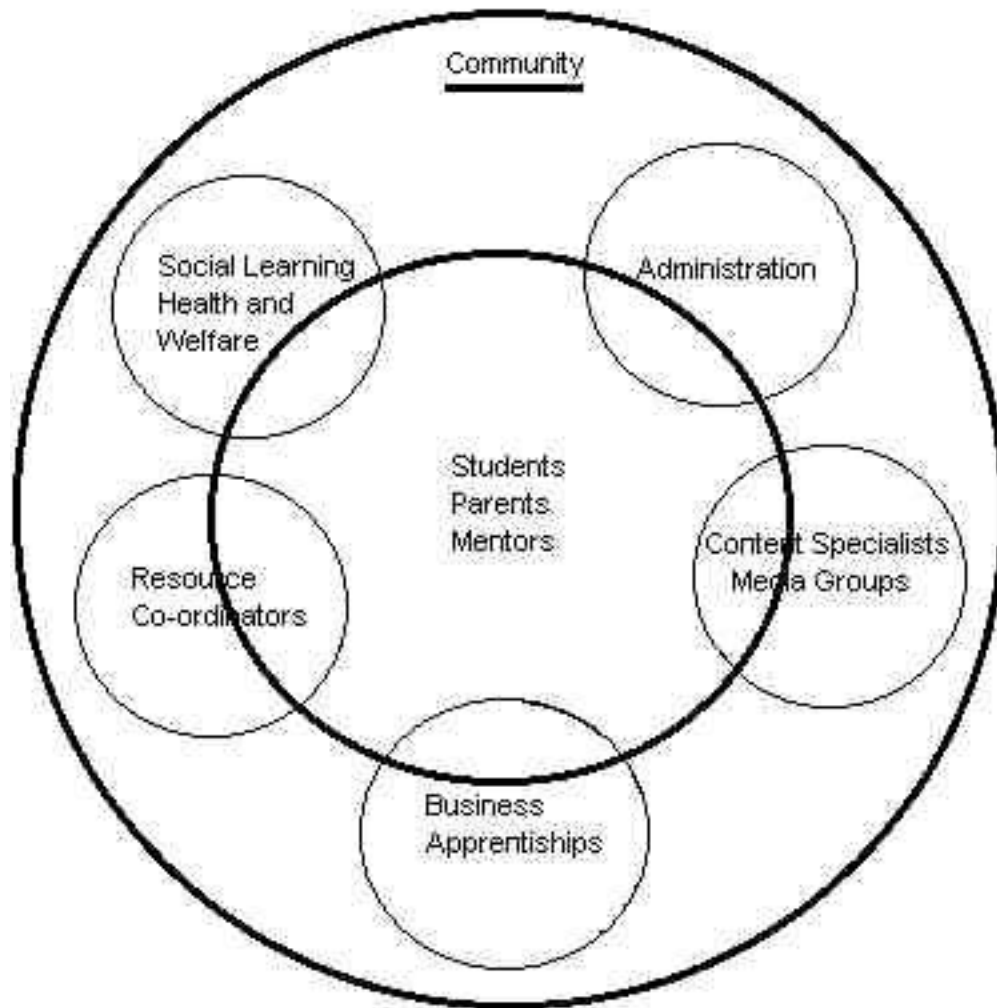
Governance

Public education today is the joint responsibility of governments, parents and educators. While positive in intent, the levels of responsibility need to be shifted. With governments in too much control, bureaucracies tend to overwhelm the other stakeholders, a phenomenon apparent in school systems today.

In the CCL, parents would assume the primary responsibility of assuring their child's needs are met. This is accomplished through the open market nature of hiring mentors. The mentors would seek content specialists, business partnerships and resource co-ordinators based upon the needs and desires of the students. Experiences with administrators, social groups, as well as health and welfare organizations would be the joint responsibility of the mentors, students and parents. In this fashion society would be able to develop an enlightened populace from within, with the power of personal development in the hands of the people.

How is this power to be distributed? With the government currently spending greater than \$5500 per student the CCL model asserts this money could be placed in the hands of the parents responsible for each student. A commodity system of vouchers refundable through accredited mentors would be put in place. This would ensure a healthy, competitive structure sensitive to the needs of all stakeholders. The distribution of funds would still be the responsibility of the governments. Little change would be needed for such organizations to fill that role and accountability for spending would be to the parents.

The Cooperative Community of Learning



Mentor

This is the person responsible for the "whole" child. The only way to become a mentor would be trained and have significant experience in one of the "spoke" systems (for example content specialist) followed by additional training in holistic education, educational technology and evaluation. This field would need to be open market based to allow parents and students the control needed. As a profession it would also police and regulate itself internally. As in other professions, extensive internships would be required for graduation. In many other models, these experts are called master teachers, though to some this implies subservient students.

Groups of mentors and students might form cooperative groups for social and academic discussion. This could take a form similar to what is now referred to as a "school" where the groups share resources and ideas. In this fashion, the system could take advantage of the existing infrastructure.

Content Specialist

Today, many teachers go to a university or college and learn specialty subjects. They are also given a specific amount of education training, generally with a practicum period associated. Upon graduation, a "job" follows which has varying degrees of relevance associated with the previous experience. While teaching colleges have done a credible job of preparing initiates for the fray it is the nature of the current school system which often leads early teachers to suffer or seek guidance.

In the CCL model, the content specialist would have the role their training specifies. However, this would not qualify them for the other roles within the organizational structure. Distance education training would be a requirement because much of the content would be sent to various locations synchronously. Trends in communications show that computer/internet technologies will allow for full motion synchronous interaction in the near future. This will permit a wider range of instructional styles to be presented from a distance-be it 100 kilometers or 2 city blocks. Technology would allow the instructor to concentrate on delivery, instructional design and some evaluation. Any more load on a person's energy is counterproductive.

This would be a completely open-market structure which would then have the ability to adjust itself and flexibly ensure quality assurance, the number of content specialists, personal income and lifestyle. This could also lead to groups of specialists forming media groups and pooling resources to produce more enlightening, entertaining programs.

Teacher training in this would resemble the education and practicum experienced today. Universities are already the greatest source of media groups/content specialists.

Administration

This group would act as liaison between governmental organizations and the various other groups within the system. It would also have the secondary responsibility of distributing funds as directed by parents. Much of the concern in current reform literature is for accountability and administration would ensure funds are being spent as directed by parents.

This group would also be trained in ensuring that intellectual growth is optimized for individual students. This would take place through standardized tests, interviews, and observation. These evaluations would not be used to evaluate the individual children as this type of evaluation promotes the objectivist, component system which has been shown to be ineffective. Rather, these reports would be used to evaluate mentor effectiveness and provide the policing body of the profession with a rating system.

Business Apprentiships

With the current attendance figures and drop-out rates it can be shown that many young people currently find education to be out of touch with reality. Only through co-operative efforts between the business community and educators can this attitude be

changed. Communication and acceptance will lead to greater experience for young people and this will further lead to connoisseurship. Communication refers to the business community learning that young people have a lot to offer. Acceptance would require the educational community to realize that such experiences are legitimate and need to be credited as such. Content and experience should no longer be considered an either/or situation. All students should be encouraged to explore their interests from both an academic viewpoint as well as a real world view.

Social Learning and Health and Welfare

A young hockey player in Canada goes through many years of learning in a field (usually with volunteer instruction) which is completely outside the present "realm" of education. A young swimmer competing at a national level must spend many hours working and learning in a specialty where the instructors are paid professionals. Dance and music are two other examples where professional instructors are utilized in areas outside of the current educational system. These are just a few examples which show the random social learning structures which many, often privileged, students experience. These situations ignore the needs of the underprivileged and other disenfranchised groups with little access to an equitable education.

In the CCL model, social learning, health and welfare would consist of a wide variety of specialists including sports organizations, artistic groups, special interest groups, wellness coordinators, psychologists, and social workers. These would be accessed on an "as needed" basis and decisions would be made by the parents, mentors and students with all other groups available for consultation. This is the one area of the model which would not have an open market structure because issues of equity would have to be carefully addressed. Equal access to positive learning experiences is fundamental to the CCL model

Conclusion

The power of technology allows education to be free of the component system of education. No longer do we need to limit ourselves to group learning and confining architectures. Public K-12 education has been one of the slowest institutions to embrace communication technology and apply it to learning. Simple observation shows that teachers and their students are isolated from the rest of the world; lacking such basic communication tools as telephones in individual classrooms. It should come as no surprise that students have often expressed feelings of entrapment within a system intended for their benefit.

General rebuttals to statements such as these are traditionally focused on funding and budget constraints. Money can not be forgotten during any reform attempt and a successful model will promise no less than higher performance at equal funding today. Therefore, it has been assumed for this discussion that funding is similar to the sum of \$5625 per student that government spends today. This does not take into consideration the special needs of certain groups of students where additional funding would be necessary as it is today.

In current public education, there are wide variations in the roles teachers play (Proctor, 1994). Upon entering the public system, teachers are expected to be coach, friend, advisor, guardian and classroom instructor. Unfortunately, it is virtually impossible for a single individual to have the necessary skills for all of these roles. What is needed is a model of sharing responsibilities with a major emphasis on the role of mentor. A mentor would be the person responsible for guiding the individual through the wide variety of experiences necessary for developing skills in today's information age. These experiences would include classroom instruction, apprenticeships, social learning, travel and resource-based learning. With the Cooperative Community of Learning, all aspects of education can then be individualized to truly meet the student's needs. By meeting the individual needs of the young people in today's society we could save valuable resources to further enhance the educational experience and greatly increase the productivity and quality of life for students of the future.

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