

WHY EFFECTIVE EDUCATION
MATTERS TO ALL OF US

MARCH 2008

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“The quality of a civilisation depends not on the material equipment or the political machinery but on the character of men. The major task of education is the improvement of character.”

~ Radhakrishnan Report, 1949

These are some key educational outcomes that matter to political, business and community leaders, teachers, parents and private citizens: critical thinking, analytical skills, confidence, team-building, conflict resolution, relationship-building, communicating, systems thinking, a relevant core of knowledge, creativity, initiative, problem-solving, and people who care. This is nothing new. Throughout history, great thinkers have expressed the idea that the best way to improve the world is through education; education that leads to outcomes that matter; education that works.¹ John Dewey, American educational reformer, wrote:

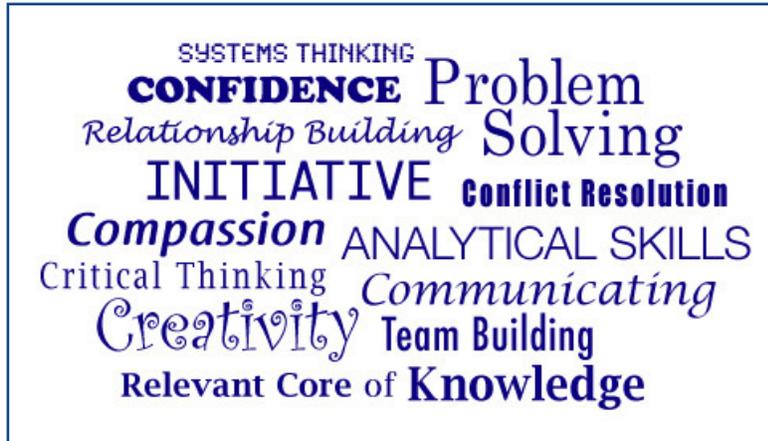
“I believe that education is the fundamental method of social progress and reform. All reforms which rest simply upon the law, or the threatening of certain penalties, or upon changes in mechanical or outward arrangements, are transitory and futile.... But through education society can formulate its own purposes, can organize its own means and resources, and thus shape itself with definiteness and economy in the direction in which it wishes to move.... Education thus conceived marks the most perfect and intimate union of science and art conceivable in human experience.”²

Nelson Mandela has said “Education is the most powerful weapon which you can use to change the world.” It can be argued that education that works is *the* issue of our times. There is no problem or person in the whole planet not affected by education. Education matters to all of us.

¹ For example, Mahatma Gandhi (1869-1948) said "If we are to reach real peace in this world . . . we shall have to begin with the children." Franklin D. Roosevelt, former President of the United States of America, said “We cannot always build the future for our youth, but we can build our youth for the future.”

² Dewey, J. (1897). My Pedagogic Creed. School Journal. IIV (1897), Jan.0. 77-80.

Table 1: Educational Outcomes



If we look at the educational outcomes we all want (Table 1),³ most would agree that effective education is based on the following principles:

- Creating a relationship of trust
- Connecting learning with the child's experience
- Acknowledging the ways in which children learn and develop

These principles can be observed wherever good education is at work. They can give us a common basis beyond methodologies and pedagogies to work together for educational change. We recognize and welcome the fact that specific applications will differ in different settings, cultures or countries, but by uniting around these principles and making them the core of our work for educational change, we can achieve the outcomes that we are all looking for.

This paper briefly explores why these educational outcomes and effective education matter to individuals, families, businesses, communities, and the wider society. While it is recognized that the educational outcomes are inextricably related to one another in an integrative way, for practical reasons they are sub-divided into groups. In reality, they are all interconnected with each other.

³ For example, *Are They Really Ready to Work?* - a collaborative report by The Conference Board, Corporate Voices for Working Families, the Partnership for 21st Century Skills, and the Society for Human Resource Management (2007) - states in a survey of over 400 employers across the United States that the most important skills cited by employers included professionalism/work ethic, oral and written communications, teamwork/collaboration, and critical thinking/problem-solving.

CORE BODY OF KNOWLEDGE AND COMMUNICATING

The information age and globalized world make it more important than ever for students to develop a high level of competency in the basic subjects. A Report of the New Commission of the Skills of the American Workforce, for example, states that “a very high level of preparation in reading, writing, speaking, mathematics, science, literature, history, and the arts will be an indispensable foundation... for most members of the workforce.”⁴

Since ancient times, communicating ideas and expressing one’s ideas, opinions and feelings clearly in a way that engages with people has been highly valued in society. In this age of overflowing information and communication technologies all competing for the attention of family members, colleagues, consumers and the wider public, communication skills are valued more than ever. Such skills help people work effectively in teams, often with people from different cultures and continents working in different time zones.

It is also true that since complex communication involves intense human interaction, jobs involving these skills are less likely to be automated. Employers state that oral and written communication skills are among the top four skills and qualities they are looking for in new employees. Communication skills are necessary for fostering engaging and loyal relationships with customers, especially in the growing services sector.

While many students are engaged in school, it is common for students to be bored and disengaged with their studies.⁵ Many students do come out of school with mastery of a relevant core of knowledge, but many do not. For example, in the US, one-third of all high school students fail to graduate, with only 68-71% of school students graduating.⁶

⁴ *Tough Choices or Tough Times* (2006): Report of the New Commission of the Skills of the American Workforce. National Center on Education and the Economy. p. 6.

⁵ In Germany, Greece and Spain, for example, over two-thirds of students are bored in school. UNICEF. Retrieved from the UNICEF website at http://portal.unesco.org/education/en/ev.php-URL_ID=13110&URL_DO=DO_PRINTPAGE&URL_SECTION=201.html

⁶ John M. Bridgeland, J., Dilulio, J., Morison, K. (2006). *The Silent Epidemic: Perspectives of High School Dropouts*.

The costs to society are high. High school drop-outs are more likely than their peers to be unemployed, live in poverty, receive public assistance, commit crime, be unhealthy, divorced, or single parents with children who drop out of high school themselves.⁷ Only 33% of 8th graders and 24% of 12th graders in the US can write proficiently.⁸ In many countries, up to one-third of students completing primary school cannot read or write with any degree of competency.⁹

School assessments and examinations encourage students to learn by rote and memorize rather than deeply understand the subject matter. Memorization in itself is a useful skill to develop, but understanding of the subject matter is also important. For example, a study by the Harvard science Education Department found from a survey of Harvard graduates on their graduation day that most of them could not correctly answer why it is warmer in the summer than in winter.¹⁰ In another example, graduates from the Massachusetts Institute of Technology (MIT) were asked the question “If you were given a piece of wire, a battery, and a flashlight bulb, could you light the bulb?” Most answered “yes” but when actually given these items, very few could actually light the bulb.¹¹

The scope of some syllabi/curricula means that students need to cover portions quickly without going into detail in order to cover the material to be examined. “We have watered down too much material, and a lot of teachers know that.”¹² In many cases, what the students actually understand is different to what the teachers believe they have taught.

Education systems are also facing challenges in helping students develop good communication skills. A recent report called *Are They Really Ready to Work?* found that US high school and university graduates are deficient in written communications skills. Employers say that, although oral and written communication skills are among the top four skills they seek in new employees, all high school and college graduates are lacking in these areas. The

⁷ Ibid. Page (i) – ‘An Open Letter to the American People.’

⁸ The National Assessment of Educational Progress – NAEP.

⁹ Hertz, T. (2003). Upward Bias in the Estimated Returns to Education: Evidence from South Africa. *The American Economic Review*, 93, 4, 1354-1368.

¹⁰ Teaching Teachers what Kids are not Learning. By William J. Cromie (1997)
<http://www.hno.harvard.edu/gazette/1997/05.29/VideoRevelation.html>

¹¹ Ibid.

¹² Dr. Rodriguez teaches developmental reading at El Centro College of the El Dallas County Community College District. Extracted from: <http://forums.hannity.com/showthread.php?t=703471>

Superintendent for the Miami-Dade School system, Rudolph Crew, reports that “kids don’t know how to shake your hand at graduation.”

The costs of children not mastering a core body of knowledge and communication skills to individuals, families, businesses, communities, and to wider society are so great that it’s not possible to enumerate them all here. Yet, they are avoidable.

Acknowledging how children learn and develop makes teaching easier and more effective. For example, acknowledging students as individuals, developing supportive relationships with them and listening to their views motivates students, and helps to make schools interesting and engaging places. This improves overall performance, increases school enrollment among boys and girls, and reduces school drop-out rates.

A supportive teacher-student relationship, one built on communication skills, also helps students’ communication skills, as their self-confidence and freedom to express ideas grows. Similarly, teachers who understand that children learn in integrated ways can help students understand the academic subjects they are studying, and how the subject content relates to their lives. For example, a literary text can turn from a boring to an interesting one for students if the teacher relates it to their interests in some way. Teaching that acknowledges how students learn and develop increases engagement, improves performance and helps students develop a deeper understanding of the subject matter. With an emphasis on understanding rather than just memorization, and teaching based on how children learn and develop, the benefits are obvious and far reaching.

RELATIONSHIP-BUILDING, CONFIDENCE, TEAM-BUILDING AND CONFLICT RESOLUTION

"He who wishes to secure the good of others, has already secured his own."

~ Confucius

Individuals, families, businesses and communities all need people with good relationship-building skills who can work well in teams and resolve conflicts. Henry Ford once said "Coming together is a beginning; keeping together is progress; working together is success." Good team players and people who can adjust and get along with others are valued throughout society. In fact, employers now value applied skills such as collaboration, teamwork and relationship building more than basic knowledge and skills such as reading comprehension and mathematics.¹³ What follows are not pleasant facts, but they are very real consequences of children turned adults failing to develop these skills in their formative years.

Around 275 million children worldwide are estimated to witness domestic violence annually, and suffer the consequences of a turbulent home life.¹⁴ This causes long-term physical, emotional and psychological damage, making it difficult for children to develop close relationships and perform well in school. Each year, around 40 million children under the age of 15 are subjected to child abuse.¹⁵ Research indicates that up to 36% of girls and 29% of boys worldwide have suffered child sexual abuse; up to 46% girls and 20% boys have experienced sexual coercion.¹⁶ Approximately 53,000 children died worldwide in 2002 as a result of homicide.¹⁷

Millions of children are victims of non-fatal abuse and neglect each year. Between one-quarter and one-half of all children report severe and frequent

¹³ *Are They Really Ready to Work?* - a collaborative report by The Conference Board, Corporate Voices for Working Families, the Partnership for 21st Century Skills, and the Society for Human Resource Management (2007) (p. 9)

¹⁴ UNICEF (2007). *The State of the World's Children 2007. Women and Children: The Double Dividend of Gender Equality*. At p.24.

¹⁵ World Health Organization (2001).

¹⁶ *The 57th session of the UN Commission on Human Rights*

¹⁷ Estimated by the World Health Organization (2002) based on limited inter-country data.

physical abuse, including being beaten, kicked or tied up by parents.¹⁸ Drug abuse and violence are now widespread among young people,¹⁹ many of whom have to live with family breakdown and family discord. The average divorce rate among married couples in Western Europe, for example, is 30%, while in Scandinavia, the UK and the US, the rate is closer to 50%.²⁰ Between 40% and 70% of female murder victims in Westernized countries were killed by their husband or boyfriend.²¹

Poor relationship-building and teamwork skills also express themselves in the social alienation many people feel today. These statistics reveal the severe costs to children and families of children not developing self-esteem, relationship-building, conflict resolution and teamwork skills in their formative years. Note that these costs affect rich and poor families and societies alike. The consequences of unhealthy child-adult relationships apply to all children, regardless of background, or socio-economic status.

The cost of poor teamwork, relationship-building and conflict-resolution skills for businesses includes the loss of customers, staff dissatisfaction, and internal operational costs. The overall cost to an organization can typically include loss of market position, the inability to respond to changing customer needs, failure to identify new market opportunities, lack of focus in training or cross-functional decision-making, increased time required for management intervention on issues related to process and staff performance, poor responsiveness and time inefficiencies.²²

While conflicts are inevitable and often healthy, being opportunities for creativity, collaboration and improvement, it's how conflict is dealt with, or what happens when conflicts are not resolved, that really matters. When conflict becomes litigious, it can be very expensive for everybody. Alvin Toffler, author of *Future Shock*, has stated: "The real weakness throughout the country [the US] is the lack of conflict resolution methods other than litigation and guns."²³ For example, in 1994, 18 million cases were filed in U.S. courts at a cost of

¹⁸ *Global Estimates of Health Consequences due to Violence against Children*, WHO 2006

¹⁹ Ginsburg, 2000.

²⁰ Eurofound website: Retrieved from the following link:
<http://www.eurofound.europa.eu/areas/qualityoflife/eurlife/index.php?template=3&radioindic=54&idDomain=5>

²¹ Krug E .G. and colleagues (2002). *The World Report on Violence and Health*. Geneva, Switzerland: World Health Organization.

²² Bowles (2005). Retrieved 27th October 2008 from the following link:
<http://marcbowles.com/courses/dtaa/taa10/taa10b.htm>

²³ Toffler, A. (1970). *Future Shock*.

\$300 billion, with 20% of the time of Fortune-500 senior executives spent in litigation-related activities.²⁴

Unresolved conflict in the workplace often leads to stress, frustration, anxiety, strained relationships, high levels of employee turnover, loss of productivity, increased client complaints, absenteeism, sabotage, injury and accidents, disability claims and higher levels of sick leave.²⁵

The costs of inadequate relationship-building and conflict resolution skills are no less serious in conflicts on the larger domestic and international stage. The loss of life is the most serious and obvious cost. In recent years, there have been between 20 and 40 wars going on in the world at any given point in time. The 1994 genocide in Rwanda saw 600,000 victims killed with machetes. Over 100 million people died in the wars of the 20th century alone, over 20 million since the Second World War. The deaths and wounds are not only of combatants but also civilians.

The economic costs of conflict include the direct economic costs as well as the cost of foregone choices in order to fund the conflict at the expense of taxpayers and economic growth. In 2003, the world spent US\$900 billion in military expenditure.²⁶ Other costs of conflict include injuries, deep fear, distrust, depression, a sense of hopelessness, refugee flows and environmental degradation.

"Education is not just teaching and learning lessons. It has to be concerned about building human values along with knowledge."

~ Dr. Abdul Kalam,
Former President of India

Acknowledging how children learn and develop and creating a relationship of trust can help students develop relationship building skills, confidence and

²⁴ Stuart Levine. Retrieved 27th October 2008 from the following link: <http://www.mediate.com/articles/levine1.cfm>

²⁵ CCR International Website. Retrieved 28th October 2008 from the following link: http://www.conflictatwork.com/conflict/cost_e.cfm

²⁶ Brahm, E. Costs of Intractable conflict. Retrieved 29th October 2008 from the following link: <http://www.beyondintractability.org/action/essay.jsp?id=28804&nid=1049>

effective teamwork skills. For any child, as the US National Association for the Education of Young Children observes, the relationship they have with adults is the foundation for their development:

“Positive relationships formed through warm, sensitive, and responsive care help children feel valued and gain more from their learning experiences. Children need positive relationships so that they feel comfortable and learn how to cooperate with others.”²⁷

For the teacher, this can be as simple as recognizing the student as an individual, listening to their views, and treating them with dignity. Students are more open to what the teacher has to say to them when the relationship between them is a good one. In the right relationship with adults, a child can learn how to adjust in his relationships, and how to resolve conflicts, which will carry on through into his own adult life. Everyone would benefit if children experienced warm and close relationships with adults; the individual, the family, the economy, and the wider community.

CREATIVITY AND INITIATIVE

“The true sign of intelligence is not knowledge but imagination”

- Albert Einstein

Professor Michael Porter, an authority on management and economics, has commented that “Innovation is the central issue in economic prosperity,” more so than basic intelligence. According to Mark Tucker, President of the US National Center on Education and Economy (NCEE), in the new economy, jobs will “put an enormous premium on creative and innovative skills, seeing patterns where other people see only chaos.”²⁸ The “best employers the world over will be looking for the most competent, most creative and most innovative people on the face of the Earth and will be willing to pay them top dollar for their services. This will be true not just for the top professionals and managers, but up and down the length and breadth of the work force.”²⁹ A leading thinker

²⁷ US National Association for the Education of Young Children (2008). Retrieved 24th October 2008 from the following link: <http://www.naeyc.org/ece/2006/05.asp>

²⁸ Mark Tucker, President of the US National Center on Education and the Economy (NCEE).

²⁹ Tough Choices or Tough Times (2007). National Center on Education and the Economy - NCEE. p. 7-8.

on creativity, Sir Kenneth Robinson, contends that “creativity now is as important in education as literacy, and we should treat it with the same status.”³⁰

In the globalized world, the economic benefits accrue to the highly skilled workers, with businesses setting up where labour is cheapest for lower skilled work.³¹ The deep well of creativity, which cannot be automated or outsourced, enables countries to maintain and develop a technological advantage, so they can produce important new products and services and capture a premium in world markets.

Technology and scientific understanding are changing the world faster than ever before. Vint Cerf - the ‘father of the Internet’ - has said that 99% of applications for the Internet have yet to be invented.³² 24-7 global media communications are changing consumer tastes faster than ever before, as ideas and products spread around the world almost instantaneously.³³

For businesses, innovation and creativity mean sustained or improved growth, and for consumers they mean higher quality and better goods, more efficient services, and a higher standard of living. For the economy, innovation is “the key to higher productivity and greater prosperity for all... [and] will also be essential for meeting the environmental challenges of the future.”³⁴

Employers are also looking for initiative and resourcefulness in their employees, with one employer saying “If they see a problem on the assembly line, like poor quality materials, we want them to take the initiative and communicate the need to set the materials aside.”³⁵

³⁰ Sir Ken Robinson: Retrieved 10th October 2008 from the TED Talks website at the following link: http://www.ted.com/index.php/talks/ken_robinson_says_schools_kill_creativity.html

³¹ "Jobs in the new economy - the ones that won't get out-sourced or automated - put an enormous premium on creative and innovative skills, seeing patterns where others see just chaos." Mark Tucker, 2007.

³² Insert video link on Government Technology Magazine GTTV

³³ Innovation Report. Competing in the Global Economy: the innovation challenge. December 2003. Department of Trade and Industry. Retrieved from the following link: <http://www.berr.gov.uk/files/file12093.pdf>

³⁴ Ibid at p. 9. See also *Rise of the Creative Class* by Richard Florida.

³⁵ Chyrel Fortner of Pan Pacific Products quoted in *Are They Really Ready to Work?* (p.24)

Creativity and innovation are increasingly important not just for businesses³⁶ but also for families, communities and societies.

"It is a miracle that curiosity survives formal education."

- Albert Einstein

Commentators and experts throughout the world increasingly recognize that education systems can do more to help students develop creativity. According to Sir Kenneth Robinson, "We do not grow into creativity, we grow out of it – or rather, we are educated out of it." In many schools today, "we are educating people out of their creative capacities."³⁷ In India, for example, the classrooms need to be more tuned to fostering creativity. Former President, Dr. Abdul Kalam, has said that the Indian "education system in the primary and middle school level has to be changed to inject creativity among the children."³⁸

Current education systems and policies could do more to recognize that children learn in different ways, and provide learning environments that foster a willingness to make mistakes and be creative. For example, the Chinese school system is driven by the national college-entrance exam, the *gaokao*, which requires long and arduous preparation, where the difference of one percentage point can mean different life options. There is growing concern in China that "too many students have become the sort of stressed-out, test-acing drone who fails to acquire the skills — creativity, flexibility, initiative, leadership — said to be necessary in the global marketplace."³⁹ The former Vice-Premier of China, Li Lanqing, wrote that "students are buried in an endless flood of homework and sit for one mock entrance exam after another, leaving them with heads swimming and eyes blurred."⁴⁰

³⁶ For example, US employers project creativity/innovation to increase in importance for future workforce entrants. *Are They Really Ready to Work?*

³⁷ Ibid.

³⁸ Edunews.net, (2007). Education Should Inject Creativity, Values – Kalam. Retrieved from the India edunews.net website at http://indiaedunews.net/Gujarat/Education_should_inject_creativity_values-Kalam_457/

³⁹ Ibid.

⁴⁰ Education for 1.3 Billion. Former Chinese Vice Premier Li LanQing on 10 Years of Education Reform and Development. (2005). By Li Lan Qing. Pearson Education.

In the UK, there is concern that schools could do more to foster creativity. For example, the House of Commons Children, Schools and Families Committee has stated that "... creativity is a 'second-order priority'" in the UK education system.⁴¹ With high-stakes testing,⁴² the intense pressure on students and teachers to perform well on tests⁴³ drives many students towards memorization and away from expressing their creativity, and a deeper engagement with the subject matter.

A survey of US employers found that 54% of new workforce entrants with a high school diploma were "deficient" in creativity and innovation skills, and that relatively few employers considered two-year and four-year college-educated entrants to be "excellent" (4.1 percent and 21.5 percent, respectively).⁴⁴ In some instances, students, teachers or even schools and school districts try to distort the system to avoid being labelled as failing. In New York, for example, thousands of students were pushed out of high school into equivalency programmes so that they did not count as dropouts.⁴⁵

Acknowledging how children learn and develop, and connecting learning to their experiences, can help students develop creativity and initiative. For example, listening to students' views and perspectives, encouraging their natural curiosity to learn, and acknowledging that students learn and develop in different ways gives them the confidence to explore ideas and concepts, helps them engage with the subject and take more initiative.

To be creative, students need the freedom to sometimes be wrong and make mistakes. This does not mean that making mistakes is the same as being creative, but if anyone is not prepared to be wrong, then they are unlikely to come up with anything original. Einstein has even said that "If at first, the idea is not absurd, then there is no hope for it."

Acknowledging that children are integrated learners - that they do not naturally separate out learning into subjects or categories, that they bring their personal,

⁴¹ Education and Skills Committee - Eleventh Report of Session 2006–07, *Creative Partnerships and the Curriculum* (HC 1034). (2007) p.4 Retrieved 28th October 2008 from the following link: <http://www.publications.parliament.uk/pa/cm200607/cmselect/cmmeduski/1034/1034.pdf>

⁴² High-stakes testing refers to tests where the outcome of a test is used as the sole determining factor for making a major decision - <http://www.wisageek.com/what-is-high-stakes-testing.htm>

⁴³ Charles, D. (2008). Teachers' Perspectives on the Unintended Consequences of High Stakes Testing. Retrieved 28th October 2008 from the following link: <http://etd.lsu.edu/docs/available/etd-0... esdiss.pdf>

⁴⁴ *Are They Really Ready to Work?* (p10)

⁴⁵ Berliner, D., and Nichols, S. (2005). Test Results Untrustworthy. Point of View Essay. Educational Policy Studies Laboratory. Retrieved 31st October 2008 from the following link: <http://eps.lsu.edu/epru/POV/EPSSL-0503-107-EPRU.pdf>

emotional and intellectual qualities to learning, and they learn and develop in their own way - helps students to understand knowledge, make it their own and exercise their creative abilities.

Viewing the young child's enthusiasm and interest are valued as key to learning and development encourages initiative and resourcefulness. Creativity and initiative also help, and are influenced by, cognitive skills such as analytical, critical thinking, problem-solving and systems thinking, to which we now turn.

ANALYTICAL SKILLS, CRITICAL THINKING, PROBLEM-SOLVING AND SYSTEMS THINKING

We are now in a cognitive age where cognitive skills and qualities distinguish a healthy, dynamic economy from a less dynamic one, an individual who has wide economic opportunities, from one with limited ones.⁴⁶ The world values people who have good analytical and critical thinking⁴⁷ skills, who can see the big picture from the details, who can think in terms of whole systems and the interrelationships,⁴⁸ who can solve problems and who can think in terms of multi-disciplinary combinations.

According to Thomas Friedman, author of *The World is Flat*, it's "interdisciplinary combinations - design and technology, mathematics and art - that produce YouTube and Google."⁴⁹ The global marketplace will increasingly require software engineers who are musicians and artists, lawyers who are information technology specialists, and so on. Employers look for structured thinking, analytical creativity, and personality and responsiveness in job candidates.

In this age of overflowing information, in which the number of words on the Internet is close to surpassing the total number of words spoken in the history

⁴⁶ Brooks, D. (2008) *The Cognitive Age*. *New York Times* published May 2 2008 retrieved from <http://www.nytimes.com/2008/05/02/opinion/02brooks.html?em&ex=1209873600&en=58bbd827c1545adc&ei=5087%0A>. See also *Are They Really Ready to Work?* - a collaborative report by The Conference Board, Corporate Voices for Working Families, the Partnership for 21st Century Skills, and the Society for Human Resource Management (2007) retrieved from http://www.21stcenturyskills.org/documents/FINAL_REPORT_PDF09-29-06.pdf.

⁴⁷ Critical thinking here means the mental processes of discernment, analysis and evaluation. It includes the synthesis, evaluation and reconstruction of thinking as well as analysis, but it is not used here with the negative connotation sometimes ascribed to it. - http://en.wikipedia.org/wiki/Critical_thinking

⁴⁸ Systems thinking is a framework for "seeing interrelationships rather than things, for seeing patterns of change rather than static 'snapshots.'" - *The Fifth Discipline, The Art and Practice of the Learning Organization*, Senge, (Doubleday: 1990).

⁴⁹ Friedman, T. (2007). *The World is Flat*.

of humanity, we need analytical skills, and to know how to learn and deal with information. To know what are good sources of information, to be able to access it and use discrimination to make effective use of it. "It's important that students know how to manage it, interpret it, validate it, and how to act on it."⁵⁰

Problem-solvers are no less important. There is no shortage of problems that need solving in families, communities, businesses and countries. Finding effective solutions to environmental, economic and social challenges at all scales - from the global to the local - will require adept problem-solvers.

Research shows that schools can significantly improve in helping students to develop critical thinking skills. One US study indicates that "By any measure whatsoever, most students are not learning to reason well."⁵¹ Many teachers do not understand how to devise assignments that require critical thinking skills, and do not know how to analyze and evaluate reasoning objectively. Another commentator observes that "many teachers think that the abstract and theoretical is, by its very nature, impractical. Hence, there is a low level of tolerance for intellectual discussion of any sort in the present atmosphere of K-12 education.

As a result, there is a significant problem for anyone who seeks to move education away from its emphasis on classroom 'techniques and tactics' and toward the 'intellectual reasoning through of important content.'⁵²

Businesses also report a lack of systems thinking in their human resources. For example, W. Edwards Deming, the father of the process management quality movement, stated that, "Today's business professionals are generally not trained in general systems thinking. Too often constrained to a perspective limited by ingrained business practices, rigid scripts and structured input-output work, few professionals have a wide-angle view of, or experience dealing with, end-to-end business processes."⁵³

⁵⁰ Karen Bruett, cited in Time article by Claudia Wallis: How to bring our schools out of the 20th century. 2006). Retrieved 3rd November 2008 from the following link: <http://www.time.com/time/magazine/article/0,9171,1568480-2,00.html>

⁵¹ Why Students and Teachers Don't Reason Well. Retrieved from The Foundation for Critical Thinking website on 28th October at the following link: <http://www.criticalthinking.org/articles/why-students-teachers-dont-reason.cfm> (taken from Paul, R. (1993). Critical Thinking: What Every Student Needs to Survive in a Rapidly Changing World.)

⁵² <http://www.criticalthinking.org/articles/intellectual-foundations-the-key-missing.cfm>

⁵³ Cited in Fingar, P. (2005). Systems Thinking: The "Core" Core Competency for BPM. *BPTrends*. Retrieved 3rd November 2008 from the following weblink: <http://www.bptrends.com/publicationfiles/09-05%20ART%20Systems%20Thinking%20-%20Fingar.pdf>

Acknowledging how children learn and develop makes it easier for students to develop analytical, critical thinking, problem-solving and systems thinking skills. In a learning environment where there is a relationship of trust between students and teachers, teachers can more easily help students become good reasoners, encourage them to notice the interferences they are making, the assumptions they are basing these on, and their perspective on the world. It's difficult to do this if the student is not engaged or open to what the teacher has to say.

The students can also learn how to solve problems. A learning environment that reflects that children are integrated learners and that cognitive experience is inseparable from any other aspect of experience helps children to integrate their knowledge, understand the connections and logic of things, rather than merely memorizing content, and solve problems. The teacher can present content in a way that integrates with other areas, and that makes use of the students' life experiences.

For example, a teacher teaching the structure of the human brain could give an example from the students' favorite TV quiz show, where the host of that show always claps his left hand against his right. It can then be explained why this happens in terms of the brain. By using examples from everyday life that the students can relate to, students learn how to make sense of the component parts of any system in the context of their relationships with each other and other systems, rather than learning subjects in isolation from one another.

Teaching that recognizes that each child learns in their own way, has different logical systems, opinions, and ways of reasoning, encourages students to develop their analytical and critical thinking skills. Understanding that children are natural learners encourages them to discover and explore new knowledge, and develop their analytical, critical thinking and problem-solving skills.

PEOPLE WHO CARE AND HEALTHY EMOTIONAL DEVELOPMENT

What really matters for the world is that there are people who care about their family members, about what happens in their community, workplace and in wider society. Plato observed over 2,000 years ago that no amount of factual information would make ordinary men into educated or 'virtuous' men unless something is awakened in them, an innate ability to live the life of the soul.⁵⁴ This fact is obvious, but it is not commonly recognized in the actual practice of modern educational systems. We can have good problem-solving skills,

⁵⁴ Cited in the Radhakrishnan Report (1949) by the Commission on Indian University Education.

creativity, conflict resolution skills and so on, but these skills can only be put to good use when people care about others and the world around them.

How can we solve some of the world's pressing challenges, such as meeting the world's energy needs? Providing enough water and food to the world's people? Solving global, regional and local environmental challenges? Above all, it will require adults who care enough to develop the solutions.

It is necessary for adults to honour the fundamental dignity of children as individuals if they are to develop into adults who care about others. And yet, in many instances, we see the contrary. For example, a general trend in the world is that the fun is being taken out of childhood in that the spontaneous outdoor play of children is being taken away. For example, the Japanese photographer Heiki Haginoya began making documentaries of children at play in Tokyo in 1979. 17 years later, in 1996, joyful/spontaneous play among children in the city had all but vanished. He had no subjects left to film.

The International Play Association reports that 40% of US elementary schools have removed or are reducing recess time to prepare for tests. 40,000 schools in the US no longer have a play time.⁵⁵ The Atlanta school system even built schools without playgrounds to demonstrate devotion to high academic standards.⁵⁶ One commentator went so far as to say: "... children are disappearing from the outdoors at a rate that would make them top of any conservationists list of endangered species if they were any other member of the animal kingdom."⁵⁷

Children are often not provided with learning environments that support their integrated emotional and physical development. For example, German and US children increasingly suffer from chronic stress-related diseases. One in five children suffer from sleeping problems and gastro-nervous syndromes, one in four from allergies, one in three from obesity, and other nutrition-related diseases, and 40% from motor deficits. In the US, 40% of children aged between 5 and 8 years have at least one heart disease risk factor. Between 1979 and 2000, obesity-related health care rose from \$34 million USD to \$127 million USD per year.⁵⁸

⁵⁵ Frost, J. L. (2007). Childhood Education. – see also the following website link http://commongood.org/assets/attachments/Frost_-_Common_Good_-_FINAL.pdf

⁵⁶ Ohanian, (2002). *What happened to recess and why are our children struggling in kindergarten?* New York: McGraw-Hill.

⁵⁷ Gill, T. (2005). If you go down to the woods. *Ecologist*. Cited in *Exchange Every Day*, April, 17, 2006. <<http://www.childcareexchange.com/eed/issue.php?id+1440>>

⁵⁸ Centre for Disease Control, 2troe002.

Worldwide, 20% of children and adolescents suffer from disabling mental health problems. Hans Troedsson, the WHO Director for Child and Adolescent Health, notes that “The international health community is concerned about the mental health status of our young... It is a time bomb that is ticking and, without the right action now, millions of our children growing up will feel the effects.”⁵⁹ This does not mean that lack of attention to children’s physical and emotional development in education is the sole cause of obesity, mental health problems and so on, but it is important.

This quality of caring for others is best developed in supportive learning environments for young children in their formative years, where they learn to feel valued, develop self-esteem and care for others. This is the foundation for their development into good citizens and realizing their full potential. The consequences of providing such supportive learning environments would be profound.

⁵⁹ Cited in BBC News. UN Warning on Child Mental Health. Retrieved from the following website link: <http://news.bbc.co.uk/2/hi/health/1867410.stm> - see also <http://www.euro.who.int/document/MNH/ebrief14.pdf>

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