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# **FOUNDATIONS FOR INTELLECTUAL CAPITAL – CHALLENGES AND OPPORTUNITIES FOR INSTITUTIONS OF HIGHER EDUCATION**

## **Abstract**

The concept of intellectual capital is applied to institutions of higher learning. A theoretical analysis is followed by sampling of new strategies taken from a two year survey of news reports on universities and colleges. Both a theoretical and applied analysis of the ways some institutions are responding to new external and internal pressures imposed by information society is presented. While there are considerable differences in the history of American and European institutions of higher learning, the concept of intellectual capital and the practical application of this concept to the management, organization and teaching strategies of colleges and universities have profound implications for all institutions of higher education throughout the world. Further investigation of the concept of intellectual capital for the entire educational system is advocated.

## **1. INTRODUCTION**

The concept of intellectual capital is receiving increased prominence in academic and business literature. This concept that the value of organizations in contemporary “information” economy is less measured by bricks and mortar of tangible assets but in the intangibles. Intellectual capital relates to the ability of the organization to “add value” to product or services in a manner that offers extraordinary growth or high profits which may well be more than a firm’s intellectual property. This paper explores this relatively new management concept and the implications it holds for higher education. While there are considerable differences in the history of American and European institutions of higher learning, the concept of intellectual capital has profound implications for institutions of higher education on both continents. This chapter provides selected examples of how some institutions are responding to the challenges of the information era. The role of education from early childhood through continuing postgraduate programs in the context of creating intellectual capital deserves a more thorough investigation.

## 2. CONFLICTING TRENDS IN HIGHER EDUCATION

In one sense, American institutions of higher education have never been in a better financial position to offer first class education. University endowments – until very recently - were at record levels due to the new highs on the stock market. And, philanthropic giving is also at a new high. On the other hand, costs have risen resulting in a decade of increasing salaries and administrative overhead running an institution. Tuition increases continue to exceed the rate of inflation. But, the picture is uneven. Universities, which receive funding from State governments, are finding that other social needs have resulted in static budgets. State governments must fund prisons, highways, welfare agencies, etc.

While education is very expensive at most private universities, the universities are competing for students and are aggressively offering scholarship to lure new students. Higher education has become like McDonald's hamburgers: fast, quick and convenient – but bland and not very filling. American education has been described as providing excellent access but poor quality control in outcomes. This may be in part because students are now empowered by an entitlement attitude toward education: “I have registered for your course, I am the customer, now you deliver the product!” Students rebel at long reading assignments and institutions that have faculty evaluation systems that really impact faculty pay, find that the range of faculty scores are remarkably within a very narrow range. Obviously many faculty members have learned to cope with the new reality.

The introduction of web based courses has led to active debates over who owns the intellectual property of the “electronic course” or casebook; what constitutes a “quality” courses; and what role is the professor to play – a computer administrator or a mentor. Some administrators gleefully look to technology as lowering the costs of education, but are surprised to find out that really well done courses require up to a million dollars to prepare and that professors have more demands on them when teaching through the web. In a normal lecture class of over 100 students rarely do students interrupt to ask questions. However, many students find it very convenient the write an email to a professor. They have grown up writing to “chat rooms” and feel no hesitancy to participate electronically when they would otherwise sit passively in a class. For the professor, reading through “chat room” discussions can be more time consuming than reading through one set of term papers! Technology has promoted several of these conflicting trends: many students have the expectation of elaborate (and expensive) multi-media, interactive www based courses while at the same time refusing to do the background reading. They do not want to actively participate in class, but fill pages in course chat rooms, and they want “relevant” education but in the shortest and most convenient time possible without interfering with part time employment, social life and other non-university related activities.

The reality in Central Europe reflects new realities of transition from command to market economies and from authoritarian political structure to democratic forms. State university budgets have not kept up with increases in cost of living, resulting in faculties having to teach and pursue other employment to survive. In the field of business, having a faculty that is actively consulting and interacting in business actually contributes to the quality and relevancy of information. However, classes are often huge and economic

incentives are not encouraging enough students to pursue an academic career. This could result in serious shortages of faculty. The demand for education is exceeding supply, but the governments are also facing tremendous needs in maintaining a social safety net for the older populations not able to fully participate in the benefits of the new economy. In many countries, private institutions are being formed to fill the gap. Fortunately, organizations like CEEMAN and EQUIS are in place to encourage quality programs through accreditation procedures.

The reality in Western Europe is that the once 'elitist' view that only those who test at the highest levels at high school should move on to higher education is being revisited. There is some recognition that having more of the population gain access to higher education may be beneficial to society. France and Germany still have their vocational or professional schools, but a greater percentage of students are being offered some type of college experience than before.

Throughout Latin America new institutions have been formed over the past twenty years – both public and private. In the Middle East, the tradition was that the elites would send their children to Europe or to the United States for higher education. However, during the past decade millions of dollars have been spent on building the higher education infrastructure. Asia is still exporting students, but even their institutions of higher education have been expanding and new ones have been built during the past ten years. The situation in Africa is mixed due to some countries suffering from constant civil war. In those countries that are not in bitter conflicts, there is evidence to suggest that slightly larger percentages of the population are getting access to higher education. In conclusion, societies around the world have recognized that there is a societal value to higher education. There is recognition that building a country's intellectual capital base is a sound investment. While this paper explores the American and European models of higher education, the lessons may be of some value globally.

### **3. DEFINING INTELLECTUAL CAPITAL**

The concept of intellectual capital is more than a topic to be covered in a management course. If there is any validity to the concept of intellectual capital as being the framework for creating wealth in the new information economy, then its underlying approaches deserve consideration by those in academia. Edvinsson, former Director of Skandia Financial Services proposes an analogy of a tree whereby current accounting conventions and financial statements only measure the fruit whereas the truer strength of a firm lies in analyzing its root system (Edvinsson, 1997). If the root system is the structure that ultimately feeds and nourishes the tree's ability to produce fruit (profit), then we should look at the role of business or management education as part of that invisible system that creates future wealth. If we apply this analogy to society, then educational institutions are the greenhouses to cultivate plants that will eventually go into society. As in plants, some will not bear fruit but others will create new innovation, wealth and hopefully, human progress.

My basic hypothesis is that the structure, design, curriculum and culture of institutions of higher education should address the challenge of creating intellectual capitalists.

#### 4. INTELLECTUAL CAPITALISTS – A DEFINITION

The application of the concept of intellectual capital to management suggests that those who lead organizations must be capable and imaginative enough to maximize an entity's intellectual capital. This requires an innovative approach to management not currently widely understood. Intellectual capital is a relatively newly coined concept. Like gravity, however, it has existed even prior to its formal discovery.

The term intellectual capitalist refers to management personnel, scholars and educators capable of creating systems, policies and environments highly conducive to creating or maximizing intellectual capital. To limit the responsibility of creating intellectual capital to management majors or to MBAs, however, misses the essence of the concept of intellectual capital. Intellectual capitalists should be developed from all disciplines. A firm that creates intellectual capital is one that has combined structural capital, human capital, and leaders with a supporting system of values and culture. To continue with the tree analogy, the root system includes all employees.

Looking at the American business curriculum, most American colleges still bear the title Business Administration. Such a title suggests that business is being busy and that the solution is to impose some administration – ordering. Edvinsson notes that the Swedish counterpart is *naringsliv*, which translates as “nourishment for life” (Edvinsson, 1997). But the issues of developing intellectual capitalists – future business leaders capable of creating an intellectually nurturing environment go much deeper than the names institutions bear. The issue is what are the attributes of an intellectual capitalist that a business education should seek to develop among its students? While this is only a preliminary discussion of this issue, I would suggest that the following attributes facilitate an individual's capacity to contribute to the development of intellectual capital:

- Highly developed ability to communicate.
- Critical thinking skills involving an understanding of different approaches to logic, reasoning and learning.
- Well rounded appreciation for technical expertise in each business discipline
- Imagination and ability to “think of out of the box”.
- Humility and child-like curiosity and willingness to question.
- Ability to research solutions.
- Ability to both work in teams as a worker but also as a leader and sometimes concurrently.
- Comprehension and sensitivity toward the legal environment and strategies to protect intellectual capital.

In addition, future intellectual capitalists need to have an understanding of the concept of intellectual capital, the evolving and changing nature of work and the workplace (which suggests an appreciation for business or economic history), and an understanding of human motivations. Those who understand intellectual capital develop certain attributes which may include personal maturity, the ability to engage in constructive self-analysis to bring one's own self-perception clearer in line with how others perceive one, and an understanding that education takes many forms. True intellectual capitalists understand that their intellectual development does not end with graduation or attainment of formal degrees. Some intellectual capitalists may even aspire

to create their own organizations in which they would become true “intellectual entrepreneurs.” I am defining intellectual entrepreneurs not as intellectuals who start businesses, but entrepreneurs who build businesses based on the philosophy of developing an organization with intellectual capital.

Intellectual capitalists is a concept not limited to business leaders. Society needs individuals who comprehend that the information and creativity aspects of organizations now transcend the bricks and mortar or physical size of organizations. Society needs leaders of governmental agencies who can implement more efficient, responsive and compassionate services. Just as businesses are learning to alter mass production techniques to be able to customize products for individual buyers, governments need to harness intellectual capital to come up with new and more flexible approaches in dealing with societal challenges. For example, President Bush has announced new initiatives whereby government and non-profit charities would explore ways to combine their efforts in dealing with certain societal problems: education, drug abuse, etc.

The issue is whether institutions of higher education can contribute to a more vibrant, intellectually constructive and creative society.

## **5. TRADITION ROLE OF UNIVERSITIES**

Under the traditional paradigm, universities are residential places of learning. Under this paradigm, the university experience was seen as a rite of passage. Students were essentially a captive audience. Under this traditional paradigm, all programs were designed to fulfill degree programs and the organization of academic disciplines reflected a certain mix of ingredients to achieve a specific degree. The outcome of the traditional paradigm is a degree. Continuing education was seen as an auxiliary program usually under the direction of a non-academic using whatever faculty resources were available. Little or no prestige was seen in participating in or supporting this function. Alumni relations meant keeping in touch with former graduates to build financial support for the institution.

Under the traditional paradigm, faculties are specialists in narrow academic disciplines pursuing academic recognition and prestige through research. Teaching became a necessary part of the “academic” regime as “on the job training” but certainly no coursework in pedagogy was ever offered or required of Ph.Ds (other than those earning an advanced degree in education). Tenure was necessary and probably still is to protect against intellectual arrogance and backstabbing internal politics as opposed to the more publicly cited reasons of “academic freedom”.

The problem with the traditional paradigm is that for-profit institutions and angry legislators fed up with decreasing productivity of faculty are beginning to challenge many of the sacred academic traditions. State legislatures have begun to cap tenured positions; demand minimum teaching loads, and have capped funding with the admonition that even publicly funded institutions must develop other sources of support.

## **6. A NEW PARADIGM: FOUNTAINS OF INTELLECTUAL CAPITAL**

Clearly a new paradigm is needed. The phrase “fountains of intellectual capital” is chosen deliberately. A fountain is often placed in the center of a garden, viewable from all angles and available to all regardless of the route they take. A fountain consists of recycled water, but it is constantly refreshed with new water. A fountain is not visited once, but repeatedly by those who seek its refreshment. The water of the university fountain is intellectual capital. Intellectual capital is not measurable by degrees or programs. Intellectual capital is the sum of knowledge plus creativity or imagination, plus critical learning skills, plus value structure. Seen from the perspective of the emerging knowledge-based economy, intellectual capital is the measure of the individual or society’s ability to add value to products and services. The concept of adding value, however, should not be limited to an economic perspective but to a broader perspective to include compassion, integrity, trust and quality – all concepts needed to maintain a civil and democratic society.

This analogy constitutes a new paradigm for universities as they face the challenges of the new millenium. The application of the new paradigm has important implications for the management of universities. First, it forces a new approach toward faculty. In the traditional model, new faculty must earn tenure through adequate teaching and very specific research accomplishments. Tenured senior faculty are often viewed as “burned out” or as “dead wood” so that many universities are trying everything they can to give incentives for early retirement. If, however, we use the fountain paradigm, then we recognize that old and new water is totally indistinguishable and what is important is the mission. This suggests that faculty must be treated as a renewable resource. While travel for research may be considered an investment in the intellectual nourishment of the faculty, this should be one small element of a new approach to manage intellectual capital. The analogy suggests many other approaches. First, mixing. Most institutions do not consider that intellectual capital gets enhanced through a mixing of ideas and personalities. They tenure administrators for long periods of service. Corporate entities do not, and for that reason respond much more quickly to changes in the external environments. Secondly, while universities talk about life long learning, they expect faculty to engage in life long learning through only one method: research. Corporate entities often send their best to learn from other institutions. Universities rarely encourage professors to take courses. In fact, some universities that offer lower tuition to the children of faculty do not offer any reduction for faculty wanting to take courses! And many universities charge faculty the same price as students for taking a course! Third, intellectual capital is acquired by going out of the routine to gain new experiences. However, traditional universities restrict or even discourage faculty leave of absences. Bringing challenging points of view often excite intellectual inquiry and creativity together. In yet, most traditional universities are unable or unwilling to design courses that permit more than one professor. And when team teaching is used, the worse element of it is brought to bear: one professor turns the class over to another rather than having two professors in the same classroom. While accounting systems and computers make such a task of accountability fairly easy, the traditional management of university is oriented to controlling the institution and not toward stimulating the development of intellectual capital beyond that of research.

Converting institutions of higher education to fountains of learning means that the university must more creatively sell core liberal arts curriculum as relevant, skill-building, intellectual capital building exercises. This is particularly true for the traditional 18-24 year old students. They need to know that history is relevant if we are not to recreate the mistakes of the past. Mathematics and logic are necessary so that they will be able to direct rather than be directed by technology. Literature and art reflect lessons of life that form the groundwork for healthy social and emotional development. Science helps build the mental capacity to cope with experimentation and analysis. American institutions of higher education are pressured to offer “relevant courses”. But, intellectual capital for individuals entails a “core” liberal arts curriculum. What makes Bill Gates so phenomenal, even with the recent outcome of the anti-trust litigation, is not his code writing ability but his amazingly broad vision. This is true of other leaders. Truly great artists have the intellectual capacity to appreciate other aspects of life. The knowledge based information society requires specialists in computers and electronics with broad intellectual capacity and vision. Those who study genius suggest that intellectual curiosity is the underlying basis for creativity. Those who aspire to be future leaders in the public sector need to understand economics and business. The point here is that universities have a societal obligation to present a vision of education and intellectual capital that is more than the attainment of a degree.

At the same time, the realities of the modern economy with its large number of individuals who seek and need updating means that universities must break down the artificial wall between continuing education and regular courses. Treating 40 year-old “returning” students as children is not only bad public relations; it is damaging to the potential of creating a truly exciting intellectual experience for faculty and other students. Corporate trainers receive education on how to teach “adult” learners. Most college professors have never taken such a course. The university must break away from the mentality that a semester defines when a course must start and when it must stop. Really innovative universities will offer “topics” or smaller subsets of courses to fit personal and corporate needs, and charge accordingly. Some universities are offering travel with a faculty member serving as a traveling expert. This sort of activity not only benefits the alumni, but refreshes the faculty member as well.

A fountain of intellectual capital paradigm suggests that the university should serve as a creator and generator of intellectual capital. While the issues of academic freedom and intellectual inquiry are very central to the tradition of a university, most professional research organizations assemble teams to do research on a common project. While I am not suggesting involuntary assignment to a research team, some universities actively discourage joint or multiple authored research projects. Such policies are the antipathy to nurturing intellectual creativity and productivity. Individuals who have the imagination and leadership to inspire teams of faculty to combine efforts often lead those institutions that have achieved public recognition. A good example is Sonoma State University’s College of Business. A new Dean looked at the College and saw a traditional departmentalized organization where individuals fought over a smaller and smaller amount of state funding. So, he convinced his colleagues to form an institute to focus their research on the wine industry. The result was the institution received serious funding from local vineyards and a front-page article in the Wall Street Journal recognized this previously un-noteworthy institution. While serendipity often leads to

discovery, some leadership in bringing different faculty together for both applied and pure research may heighten the intellectual yield.

To become an institution that creates and nurtures intellectual capital, it may be necessary to involve the faculty in exploring not the issue of pedagogy but the real issue of how the brain actually works. Recent scientific exploration of this issue by those seeking to program computers with “artificial intelligence” has revealed that the mind really learns by making associations or pattern recognition using all senses. And medical research suggests that the basic structure of the brain is similar without regard to race, ethnicity or gender (though there are significant chemical variances by gender from different hormones affecting the brain). These discoveries have profound implications for the university. Instead of trying to teach to meet the “different ways” which students have developed to learn, perhaps we should incorporate some teaching on how to learn properly! Tony Buzan, author of some 84 books, articles and videos on that subject, suggests that studies have shown tremendous increase in intellectual retention, articulation, and analysis when that strategy is used as opposed to teaching in different styles that were developed by those ignorant of how the brain actually works. This would mean that either Ph.D programs need to be changed, or universities should sponsor special orientation programs for new faculty. The mere thought that a university would “invest” in the intellectual development of its faculty (other than by sponsoring independently proposed research) may seem radical, but it has ample precedence in the corporate and even in the military establishments. Obviously any institution that fosters such teamwork among academicians must change its incentive/reward system. Total quality management theories suggest that corporations that have changed their reward systems to funding bonuses based on institutional measures rather than on individual sales patterns foster greater teamwork and organizational efficiency.

Finally, the notion of a university serving as a nurturing agent of intellectual curiosity and excitement has radical implications for the design of the physical facility. Look at a French Café and what do you see? Tables of people conversing. Look in a typical American classroom and what do you see? Bored students nodding off to sleep. Should universities dare explore the efficacy of offering courses over meals? The same is true of university libraries. Look at what Borders Books has done to bookstores. By putting in café’s and by inviting customers to take their reading materials into their café’s, the modern bookstore has created a learning environment. Why not university libraries?

If all the senses are engaged in learning, why then are typical classrooms so incredibly dull. Why not paint up a simulated mural of a Paris café for use by classes taking French? Why not use artificial lighting and movable chairs to either diffuse or focus lightening depending on the style of the presentation? Why not pump background music into study halls (as some organizations do to promote concentration)?

The environmental design of today’s university should be re-evaluated if our mission is to become a center for the nurturing and creation of intellectual capital. This goes beyond merely offering child-care for returning students. It means more comfortable seating, it means more convenient timing of courses, and it means scheduling “study” time with a subject matter expert/proctor as part of the course requirement. It means new approaches to teaching by giving students an experience rather than a passive exposure to subject matter.

More fundamentally, at some point, universities must reconsider their emphasis on making faculty produce “teaching portfolios” which at most institutions has become a major waste of time. This is particularly true for those institutions that have exposed their faculty to new research on the brain and intelligence. Perhaps faculty should be encouraged toward teaching strategies that engage students to “prove” their learning. One such strategy is to require a “student learning portfolio” of short assignments where the student proved their ability to define a problem, obtain data, and develop an analysis outside of the textbook. Too often our methods of evaluation (exams) focus too much on retention of memorized information and not enough on the skills related to intellectual capital.

## 7. EXAMPLES OFF INNOVATION IN EDUCATION

A review of the past two years of *Chronicle of Higher Education*, a periodical focusing on news and issues in higher education in the United States, provides some examples of specific strategies that some institutions have adopted in response to their competitive environments. Selected samples of some of the innovative programs, which are likely to foster the creation of intellectual capital, are presented below.

One the difficulties facing universities is obtaining technology to enhance their educational programs. Four universities – University of California at Berkeley’s extension program, Pennsylvania State University’s World Campus, the University of Washington, and the University of Wisconsin’s Learning Innovations program - have formed an alliance to share information and make joint technology purchases (Young, *Chronicle of Higher Education*). Apparently these universities felt they could benefit from a sharing of ideas on new technology and that their joint purchasing power would provide some incentive to vendors to provide information more readily than if they dealt with each university on a one-to-one basis.

At the same time that universities are investing in ‘distance education’ technologies, the University of Maryland at College Park has built a dormitory designed to be an ‘entrepreneurial incubator.’ Twenty one student entrepreneurs will be given the chance to learn informally by doing all the things that entrepreneurs do – coming up with ideas for new businesses, working in teams, writing business plans, seeking venture capital, making presentations, and if they are successful, managing the growth of real businesses. The residential learning program not only attracted business and engineering majors but students majoring in architecture, classics, economics, journalism, and life sciences. They are all enrolled in the university’s four-semester Entrepreneurship Citation Program. University officials report that there are more student applicants than the high-technology dorm’s capacity and there is a long waiting list. The dorm offers special meeting rooms equipped with video transmission equipment. Maryland’s program, Hinman Campus Entrepreneurship Opportunities was started with a \$1.7 million gift from Brian Hinman a 1982 electrical engineering graduate of the university and now boasts 87 students (Olsen, *Chronicle of Higher Education*). Stimulating ideas by placing prospective student entrepreneurs into a dormitory equipped with lots of computer and communication equipment not only creates intellectual capital but also may result in the creation of financial capital as dreams are realized into companies.

American institutions are not the only ones interested in creating entrepreneurs. Oxford University has announced that Beeson Gregory Bank will pay for one third of a state-of-the-art chemistry building in return for a share of the profits from any spin-off companies in the next 15 years. The bank will receive half the university's share of any spin-offs. Oxford operates a technology transfer company called Issis Innovation that is involved with over 300 continuing projects and it files one patent per week (Birchard, *Chronicle of Higher Education*).

Related to the issue of sharing new research and stimulating academic discussion and additional is the problem of publishing faculty research. Traditional hardcopy publications require quite a bit of time from submission to review to publication. More than a thousand scholars have joined an economist from St. Andrews University, in Scotland, who is launching the Electronic Society for Social Scientists (ELSSS) to produce peer-reviewed journals at half the price of their commercial counterparts. Manfredi La Manna's publication will compete with Elsevier Science which is part of Reed Elsevier, a multinational publishing company and Springer-Verlag, a subsidiary of Bertelsmann A. G., a German media conglomerate. ELSS will pay authors \$500 and referees \$200-\$250 depending on the journal. The pricing for subscriptions of ELSS electronic publications will be quite a bit less than Elsevier. For example, a college in the US could subscribe to ELSS's *Review of Banking and Finance* for one year for \$500 as compared with \$1,066 for Elsevier's *Journal of Banking and Finance*. What is interesting about this initiative is that it arose in response to a program between the University of St. Andres and the Scottish Enterprise Fife, a government economic development agency (Payne, *Chronicle of Higher Education*). Here is a case of a grant competition designed to foster both intellectual capital and new ventures.

Many institutions are beginning to offer courses in e-commerce. What makes the graduate diploma course at the Central Institute of Technology, Wellington campus, interesting is that their e-commerce program is built on a foundation of seven courses, which must be completed within a certain period of time. Course controller Armadeep Sandhu is quoted as saying that because of the fluid nature of the subject, content will vary to keep up with current practice (Fraser, NZ Infotech Weekly). Such an admission reflects the challenge facing higher education in terms of breeding intellectual capitalists. The information must be fresh though the foundation of critical thinking, communication skills, logic, etc are timeless skills.

Attacking the problem of providing library services to students has resulted in some competing institutions joining forces. The Association of American Medical Colleges has voted to set up a virtual, electronic library of not only books, but videos of complex operations for medical students, undergraduates in premedical programs, students in other health-related fields, faculty members, practicing physicians. Currently, many universities have developed their own electronic libraries such as Wake Forest University where medical students are required to have laptop computers and much of the instruction is computer-based. Tufts University School of Medicine has a database for its own medical schools where 3,000 faculty members from area universities have access (Mangan, *Chronicle of Higher Education*). Competing organizations realize that the information era requires a leveraging of assets and a sharing of expenses. While traditionally, university libraries have shared resources on a limited basis, the electronic format now permits virtual and immediate sharing among a greater audience. Fostering

access to information is critical for institutions to stimulate both effective learning and research on the threshold of knowledge.

Other medical sources have been organized. Researchers at the University of Illinois at Chicago Laboratory for Advanced Computing are working on an Internet protocol that will help scientists share data over super-fast research networks (Olsen, *Chronicle of Higher Education*). The laboratory is part of a Terabyte Challenge 2000 project, a high-speed data-transfer experiment that sends data across several open network connections simultaneously and lets scientists publish their data online. It is conceivable that such technology will permit extremely large data sets perhaps involving human genetics to be shared.

One of the problems with computer-based learning is the lack of human contact. Critics of medical education based on computers complain that bedside manners are not learned from computers (Mangan, *Chronicle of Higher Education*). Social isolation is not exactly the way to foster intellectual capital if human interaction helps to associate and assimilate new information. The University of Illinois requires distance education students to stay in a campus dorm for a two-week summer “boot camp” (Carnevale, *Chronicle of Higher Education*). Another approach to building human networks is to create a multiple-user object-oriented environment (MOO) for distance education students. Professors Cynthia Haynes and Jan Rune Holmevik at University of Texas at Dallas developed a program called enCore Express which is distributed free of charge online, provided that the users agree to share any improvements they make (<http://lingua.utdallas.edu/encore>). What is interesting is that this high technology solution was developed by professors to teach rhetoric, writing and arts and humanities courses (Young, *Chronicle of Higher Education*). Professor Joel English (no pun intended) used MOO to teach an advanced composition course whereby ten of his students logged on to the class from their homes while the rest sat in a classroom. Mr. English used a video camera to stream his lectures live over the MOO. Students at home typed in their questions or comments (Young, *Chronicle of Higher Education*).

For-profit publishers are active in pushing new joint ventures. The University of Cambridge, the University of Michigan, Regents College and Pearson Company have joined forces. Pearson is also a partner with American Online in an alliance that will add new Web sites packed with material for schools, college students, professors, and adults seeking professional and career education. Pearson, the London based media conglomerate and now the world’s largest educational publisher (thanks to the acquisition of Simon and Schuster) has been sending its executives to meet with 13 of the 15 top ranked American business schools to line up partnerships with schools (Blumenstyk, *Chronicle of Higher Education*). And Pearson is not the only publisher seeking to bridge the world of published books and the Internet. Thomson International Publishers, Houghton Mifflin, Harcourt Publishers are all engaged in looking for ways to redesign or refashion the traditional textbook through the web.

Even the United States Army is investing in education partly to help in retaining soldiers, but also to produce a more ‘thinking’ force. The U.S. Army selected PricewaterhouseCoopers, a consulting company, to lead a \$453 million project to deliver distance education to soldiers all over the world. The consulting firm set up a team of 10 companies and 29 colleges to work together on the initial offering of courses which will

be provided to over 15,000 students. Blackboard and Peoplesoft will provide the administrative system (Carr, *Chronicle of Higher Education*).

These are but a few of the types of innovations or experiments that universities and their partners are engaged in to maintain their competitive position. While only selecting a few of the articles on educational innovations, an analysis of two years of such articles reveals the following: (1) technology is becoming an integral part of learning even for the “classics,” (2) the issue of developing opportunities for human interaction is viewed as critical for retention of students in distance learning programs, (3) there seems to be a concern over the relationship of creativity and the use of technology... the more prestigious institutions require some creative report or intellectual outcome from distance education programs, (4) technology is extremely labor intensive and the whole internet-web-based effort almost forces collaboration among competing institutions to amortize the costs, (5) technology is related to the issue of teaching values and morals as new distance education courses and web-assisted courses permit students to observe and interact in simulations that test and challenge their values. Clearly, the American universities reflect the American culture which is enamored with technology. It is not clear, however, that technology is the sole vehicle for inspiring intellectual capital. As previously discussed, there are policy and structural changes to our system of higher education that can foster creativity and intellectual growth.

## **8. CHALLENGES**

There are clearly challenges that lie ahead for universities. First, the notion that we are the exclusive providers of education is being challenged by commercial organizations offering “education” and un-accredited programs. In the past, un-accredited degrees had little value. However, commercial organizations have found a way around our exclusive franchise by obtaining trademarks on educational attainments. One example is the notation Certified Financial Planner <sup>TM</sup>. Another is Microsoft Certification <sup>TM</sup>. Universities must think beyond our medieval traditions to develop alternatives to our degree programs. In addition, for-profit institutions like University of Phoenix have received regional accreditation to offer degrees. And, publishers are moving from traditional textbooks to partnering with institutions to deliver course content electronically.

Secondly, technology will not diminish the importance of human interaction in learning. Rather, technology may be used, as my examples of innovation show, to increase human interaction. The reality is that really quality web-based learning does not reduce labor, it increases it. What universities should resolve is the intellectual property rights issue over web-based courses. One potential resolution would be to treat web-based instruction as copyrighted property of the professor and institution much as a textbook and a publisher. This would give the creator of the web-based course a 15% royalty of an amount equal to the cost of an average textbook in the field. The other 85% would be held by the institution as reimbursement for their overhead in providing computer support. The total additional cost to the student would be a premium amounting to the cost of one textbook over the cost of taking a normal course. In actuality, this would be a reduction of the 30-40% premium that students are now paying

to for-profit universities that offer web based courses. Such a policy would give professors an incentive to make their course so good that others would use it – similar to the competition to writing a good textbook.

Third, clearly universities need to do a better job of articulating this new paradigm and mission. This would really change universities from merely serving students to being “shopping mall” of intellectual excitement and personal fulfillment. As a fountain of intellectual capital, people would seek continuous involvement with the university. It may be that for a fee, professors would design specific courses for organizations that wanted their members to have particular skills, or knowledge. This should not imply a sell-out to commercial interests, but a better integration with the society that is funding the institution. Some universities offer “adult” courses or continuing education, but it is too often organized and coordinated as an auxiliary venture rather than as a component of the organization.

The notion of continuous learning means that the entire relationship between alumni and the university should not be directed by an autonomous organization called “Alumni Affairs” or “Development”. Rather, it should be moved to the college where communication and individual networks would be created. One of the key foundations of the knowledge-based society is a personal network. In a world in which corporations no longer offer job security, one’s true value is in having and utilizing networks. Universities that bring in alumni for a fun weekend every five years are missing the opportunities to help their alumni build networks. By utilizing the computer to track individuals as they progress through stages of life in career and personal aspects, universities can begin to offer truly age-appropriate programs. For example, those in their 30s and newly married, might well sign up and pay for a program on “Ten Great Thinkers Examine Elements of Child Rearing” featuring a psychologist, literature professor, sociologist and child development professor. Maintaining communication by college means that the college might well refresh its own intellectual capital by inviting alumni to come to talk with faculty on major developments outside the university. Unfortunately, at most universities such exchanges do not occur because only the development office tracks alumni.

This paper only traces a few of the major ramifications of adopting a new paradigm for universities. As more individuals attend universities, the institution may well be one of the few commonly held experiences in the diverse American culture. As opposed to being a distant and irrelevant critic of society, the university as a creator and generator of intellectual capital can make a more significant and enduring contribution to society by encouraging those virtues that have been the pillars of intellectual institutions: compassion, tolerance, intellectual curiosity, and integrity.

Finally, it is clear that the process of creating intellectual capitalists starts much earlier in life. Those who have expertise in childhood development should explore the intellectual capital paradigm. There are many questions to explore such as the definition of intellectual capital and how that might differ from training, and simple acquisition of knowledge. The concept of intellectual capital has the potential of profound implications for the entire educational system.

## REFERENCES

Birchard, Karen “U. of Oxford Sells a Share in Its Future” *Chronicle of Higher Education*, December 15, 2000, p. A60.

Carr, Sarah “Army Picks Consulting Group to Run Distance-Education Effort” *Chronicle of Higher Education*, January 5, 2001, p. A46.

Carnevale, Dan “Social Bonds Found to Be Crucial in Online Education” *Chronicle of Higher Education*, Vol. XLVII, Number 9, October 27, 2000, p. A48.

Fruin, Mark *Knowledge Works: Managing Intellectual Capital at Toshiba*, Oxford University Press, 1997.

Kwiatkowski, Stefan and Edvinsson, Leif, editors, *Knowledge Café for Intellectual Entrepreneurship*, Warsaw: Leon Kozminski Academy of Entrepreneurship and Management, 1999.

Mangan, Kataherine S. “Medical-School Group Proposes Huge online Library for Students” *Chronicle of Higher Education*, November 17, 2000, p. A 65.

Olsen, Florence “Electronic Dorm Gives Maryland Students an Entrepreneurial Environment” *Chronicle of Higher Education*, Volume VLVII, Number 18, January 12, 2001, p. A32.

Olsen, Florence “New Protocol Helps Researchers Share Large Sets of Data” *Chronicle of Higher Education*, Volume VLVII, Number 4, September 22, 2000, p. A45.

Payne, Doug “A Revolutionary Idea in Publishing” *Chronicle of Higher Education*, March 9, 2001.

Stewart, Thomas A. *Intellectual Capital – Realizing Your Company’s True Value by Finding its Hidden Brainpower*, New York: HarperCollins Publishers, 1997.

Stewart, Thomas A. “Brainpower – How Intellectual Capital Is Becoming America’s Most Valuable Asset” *Fortune*, June 3, 1991.

Young, Jeffrey R. “Four Universities Create Alliance to Deal with Technology Vendors” *Chronicle of Higher Education*, February 9, 2001, p. A 34.

Young, Jeffrey R. “MOOs, the Old Chatrooms are Updated for Distance Education” *Chronicle of Higher Education*, Vol. XLVII, Number 11, November 10., 2000, p. A47.