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COMPUTER-BASED DISTANCE EDUCATION IN HIGHER EDUCATION: CONSIDERATIONS FOR EDUCATIONAL PLANNERS ON THE MERGING OF POWER AND POLICY

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Globalized economies combined with technological dependence have created a new dimension of inequality between and within developed and developing nations commonly called the digital divide. In this context, technological capacity and literacy have become the currency of the new millennium and determinants of economic viability and competitiveness. This piece looks at the interplay of power and policy in addressing the multidimensional issues that technological capacity raises.

INTRODUCTION

Computer-based distance education has become an increasingly popular instructional delivery strategy employed by institutions of higher learning. While computer use may be a relatively new phenomenon, distance education is actually a centuries-old means of delivering higher educational instruction around the world. New technologies have however, changed the face of distance education yielding unprecedented opportunities and challenges to tertiary institutions.

Domestic and international priorities, in light of the largely technologically driven world economy, have placed higher educational institutions in the precarious position of being both powerful and vulnerable. On one hand, computers and their related technologies, are purported as valuable tools for expanding higher educational opportunities while also holding potential for increasing revenue. On the other hand, the costs of creating the infrastructure necessary to support large-scale computer and Internet use are exorbitant and there is little evidence that computer use alone deters or reverses historical exclusionary practices relative to higher educational access.

Globalized economies combined with technological dependence have created a new dimension of inequality between and within developed and developing nations commonly called the digital divide. In this context, technological capacity and literacy have become the currency of the new millennium and determinants of economic viability and competitiveness. Issues of competitiveness have trickled down to higher educational institutions as well. For example, the capacity of the Internet to attract students from around the world has increased competition for students within and beyond national boundaries. Intensified vying for students is taking place at a time when fiscal support varies and the costs of gearing up technologically are high, making the futures of the most vulnerable tertiary institutions tenuous.

In order to meet the increased demand for technologically literate, if not proficient, workers, institutions of higher learning are being pressured by multiple stakeholder groups. One strategy claiming to increase access and enhance technological literacy has been the use

of computers and the Internet to offer courses and degree programs. However, if less than 2% of the world's population has access to the Internet and most of world's population has never even used a telephone, how can computer-based education truly increase access as it often professes (Keegan, 2000)?

One article could not possibly articulate the complex challenges facing higher educational institutions as they strive to meet the diverse demands of students, businesses, and governmental and non-governmental agencies. However, in an effort to be of some practical merit, after a brief discussion of distance education and relevant terminology and how technology can become a cultural tool, two categories of policy-based concerns for computer-based distance education providers will be discussed. The two categories are:

1. Expanding learning opportunities and access for underrepresented groups; and,
2. Institutional explicit and implicit pressures to offer computer-based distance education.

DISTANCE EDUCATION AND NEW TECHNOLOGY

Belief that learning can take place effectively without the teacher and student being in a room together has been an educational practice for centuries. For example, correspondence courses were regularly offered by institutions in the United States in the 1700s (Willis, 1993). Until 1930, print was the most common medium for distance learning. At the time, correspondence courses, text- and workbooks were the means used to teach pupils. Exchanges of information were primarily individualized and facilitated via the postal service (Hanna, 2000). Correspondence schooling represented at the time an inexpensive option allowing students to learn at their own pace, while offering a post-secondary opportunity to students who might not meet rigorous admission standards of traditional colleges.

By the 1960s, radio and television had been added as means of delivering instruction. Information exchanges were still primarily one way between the teacher and individual student. Later as audiocassettes, video-conferencing, satellite, cable and email innovations emerged, it became possible to have real time two-way conversations not only between professor and students, but also among students (U.S. Department of Education, 1999).

Rapid technological advances not only added to the plethora of distance educational options, but also prompted many working adults to enroll in courses to update skills. For example, many teachers in the new Republic of South Africa have enrolled in The University of South Africa distance courses to compensate for poor initial training (Student Affairs Department of University of South Africa, 2000 ; Vergnani, 2000). Individuals desiring to change careers or position themselves for advancement have also taken advantage of distance education options.

Many of the characteristics that made correspondence education appealing to students and institutions are the same that make computer-based distance education attractive. While initial investments in technology and computer programs are substantive, over time investors believe they will reap the benefits of economies of scale. Unfortunately, technologies are not always universally applicable, depending upon native language, capacity,

and geographical and climatic conditions, for example (Hausmann, 2001). As such, developing nations may find themselves philosophically in favor of computer-based distance education but not command the resources necessary to begin implementation, particularly in light of more critical domestic needs.

From an institutional standpoint, strained budgets and changing student and employer demands have forced many post-secondary institutions to investigate alternative methods of delivering instruction as part of their survival plan. One strategy to increase tuition revenue as well as the numbers of students served has been the creation of computer-based distance education courses. Computers and related technological innovations hold the promise of increasing enrollment without hiring additional faculty or provide classroom space, thus raising revenue without many of the traditional attendant physical plant and operational costs.

The benefits and challenges that accompany the implementation of technologically based distance education are to some degree common among and between tertiary institutions. For example, a common goal of implementation appears to be the need to increase revenue. In the US, distance education options have increased exponentially in the last several years. By 1998, one in three higher educational institutions offered some form of distance education. Nearly 80% of these institutions began offering this new option during this same period, which occurred concurrently with decreases in fiscal support of higher educational institutions (Baldi, 2000).

Despite the many advantages of digital distance education, there are also disadvantages to offering educational options via computers and/or the Internet. One of the consequences of over dependence on technology for the delivery of instruction, is the multiplied impact of the digital divide.

DEFINITION OF TERMS

Distance education, the digital divide, developed and developing nations, policy research and globalization, are just a few terms used that can be interpreted in many ways. In an effort to provide clarity, these and other idioms have been defined.

Distance education takes place when a teacher/professor and student(s) are separated by physical distance (Willis, 1993). *Computer-based distance education* (CBDE) employs micro-computers and the Internet to deliver instruction.

Social problems, such as the need to increase higher educational enrollment, are defined by various stakeholders and include the implicit and explicit social values of policy makers. The culmination of actions or inactions of a social system in response to imposed pressures often result in a formal policy such as the implementation of computer-based distance education. The study of this dynamic process is called *policy research*. Stakeholders, individuals or groups with a vested interest in actions or inactions attendant to a social problem, define problems in unique ways. The stakeholders of note in this writing are higher educational institutions, however, they are only one of many with a vested interest in distance education.

Each direct or peripheral participant in computer-based distance education possesses value-laden opinions about the benefits and/or liabilities associated with

implementation. Proponents argue that distance education does not seek to replace traditional education service delivery, but rather enrich the options available to potential students whose needs are currently not being met (Keegan, 1996). Opponents of the rise in distance course offerings argue that the quality of instruction is jeopardized, intellectual property rights are compromised and institutional governance eroded. Each argument notwithstanding, there seems to be no early evidence that the creation of CBDE courses is on the decline even at prestigious universities such as Oxford and Stanford Universities (Carr, 2000).

The categories *developed and developing nations* often noted in the literature are not intended to reflect any superiority of western European-based definitions of economic or intellectual systems. While this may be the inference in some of the texts cited, the differentiation in this writing refers only to contemporary technological capacity and challenges of countries to include telephone, television, satellite networks and the availability of computer hard- and software. Thus, developed countries would be those countries where computers access is pervasive, and the amenities of electricity, cable, telephone and satellite technology are easily available to a majority of the population. Conversely, developing nations may have some of the above mentioned technology, but the infra-structure is not in place to provide access to the majority of citizens.

Terms referring to universities or other institutions that serve students after compulsory phases of education have many names. *Post-secondary, tertiary or higher educational institutions* are used interchangeably and also include community colleges, technical/trade institutions, and traditional colleges and universities.

Computer-based learning is offered by distance institutions, other higher education institutions also offer computer-based distance education. *Distance education institutions* predominantly or exclusively offer courses and degree programs to students in remote locations. These institutions generally do not have campuses per se, but distribution centers that house operations and are sites for faculty and support staff.

The term *traditional* is meant to refer to the face-to-face interaction between professors and students in lectures or laboratories. Traditional colleges, universities, trade schools and community colleges may also offer courses and programs to students who are unable or unwilling to attend classes on campus. For-profit companies, such as the University of Phoenix Online Campus, are the newest distributors of distance education. These institutions are subject to accreditation bodies, but not the historical commitment to tenure or scholarship generally associated with traditional college and university faculty.

Open university is a term that also merits further explanation. In a very general sense, open universities have very few enrollment criteria for certificate, associate degree or bachelor degree candidates. Minimum age and domicile are generally the only admission requirements. Grade point averages from lower schools or scores on standardized tests are not considered as barriers to admission.

Globalization is actually not a new phenomenon, but rather a trend that has accelerated as a result of technological advances involving communication, transportation, satellites, computers and the Internet. Ever since the industrial revolution countries have become increasingly dependent upon each other for goods and services not indigenously produced. Globalization implies, "the transnational flows of information, commodities, and capital around the globe (eroding technical, political, or legal barriers)... (Schugurensky, 1999 p.285)." Globalization increasingly is applied to education especially when considering instructional delivery capacity using computers and the World Wide Web. Distance education makes it possible to extend one's campus anywhere in the world without the capital expenditures associated with physical buildings.

Digital divide is a frequently used phrase to denote the gap between populations within and between nations relative to technological access and literacy. Simplistically, the digital divide refers to the "disparities in the use of personal computers and the Internet [that] fall closely along categories of income, education, age, and race... (Associated Press, 2000 p. 32)."

Social and cultural reproduction in the Bourdieu (1977) tradition, speaks to the tendency of power and prestige to be conferred on individuals or groups already possessing some degree of privilege. *Social and cultural capital*, refer to the skill sets or attributes that result in a predisposition of access to systems that endow power and preferential treatment.

TECHNOLOGY AS POWER

> *Far from being neutral instruments, computers, like other technologies, are involved in many ways in the construction and use of power: in the way they are designed and built, in how they are sold and to whom, and in how they are used... . The relevant issues are demonstrably not technical ones; [but]social practice.* (Bromley, 1998) p.2

The notion that goods can take on cultural significance was advanced by Bourdieu (1977), who defined a cultural tool as, a good or valued resource worthy of consumption. As a cultural good gains prestige, possession confers certain benefits, also valued by a society. Proficiency with the good enhances ones position because it represents cultural competence. The good, as a result, evolves into another means by which cultural and social capital are transmitted (Bourdieu, 1977).

Bromley (1998) extended Bourdieu's (1977) cultural good theory to include computers. While the computer is the result of innovation and may even profess to be the vehicle of unprecedented access to information, its control and use also make it a powerful cultural tool. One has only to consider the primary language of the Internet (English) and the distribution networks through which computers come to find evidence of Bromley's theory.

As a cultural tool, technological access opens or blocks entrée to volumes of information and opportunities. As the Internet becomes the preferred method of not only transmitting information but also of distance education, individuals without access are disproportionately disadvantaged. Thus, just as the operations and admissions processes of

traditional universities rewarded dominant cultural norms, courses offered via computers and or the Internet do the same (Richardson, 2000).

Given the globalization of economies and educational institutions, the power welded by those who have access to modern technology is exponentially increased and concentrated. Nearly 40% of the citizens in Sweden, Canada and the United States have Internet access (A.T. Kearney Inc., 2000). The Group of Eight (United States, Canada, England, France, Germany, Italy, Japan and Russia) not only possess the resources and intellectual capital within their populations to propel the use of technology, but they also control a significant proportion of the world's fiscal resources. Thus, these countries exert significant control over the development of technology, distribution networks, and scheduling of developing nations' debt service.

Kahn (1998) summarizes the bias created by computer systems in three categories: preexisting social bias; technical bias; and emergent social bias. Preexisting social bias relates to the historical, social and institutional practices that pre-date the information age. For example, the presumed 'superiority' of the western European thought process is evidenced by the way information is transmitted. Technical bias is related to preexisting bias that speaks to the logic of computer programming. These practices are heavily grounded in the aforementioned western European tradition and the money required to own computers serve as a barrier to entry for money. The third bias, the emergent social bias, speaks to the cultural and social values placed on the possession of and use of computers, which may or may not align with designers intent (Kahn Jr. & Friedman, 1998). Each of these biases has the potential of reproducing opportunity for those who already have access to higher educational institutions.

Evidence of the reproduction capacity of CBDE in higher educational access, are already evident in the United States. For example, in the US students most apt to take CBDE courses are middle-class, female, married and well educated (Grill, 1999; Moore, 1998; Thompson, 1998). As more and more institutions offer computer-based distance education the danger exists that they will exclude or severely limit other more universally accessible instructional modes; i.e. correspondence text, radio, and audiotapes. This practice alone would reproduce historical privilege.

Growth and control over Internet language is another example of privilege reproduction, as well as, social and emergent social bias. Initially, to engage in discourse about or even have access to the Internet, understanding of how to operate in an American (social and cultural) context was critical. To date, the Internet has been primarily an English language, U.S.-centric medium despite professions that the Internet is non-geographical. As more countries in Asia and Europe actively embraced information technology, the Internet became more multicultural and multilingual (United States Internet Council, 2000; A.T. Kearney, Inc, 2001).

Reproduction of privilege also brings into question the degree to which policy makers believe human capital is a worthy investment. While not creating the problem of higher educational access for underrepresented populations in developed and developing nations, computers could feasibly exacerbate and widen gaps of educational attainment. At the heart of human capital theory is the belief that investment in humans follows essentially the same principles as capital investment theory (Richardson, 1999).

Service economies are overwhelmingly supported by the expertise and intellect of the workforce, rather than, factory or agricultural output. Unemployed, or under-employed

persons, in this context, represent more than a drain on fiscal budgets, they are also an under-utilized resource. The merit of investing in economically disadvantaged citizens is tied to perceptions about their value to society. Individual preparation (education) is critical to personal economic stability and benefits national economies.

Investment decisions tend to be made because there is a belief that future returns on current expenditures, will outweigh the risks of the investment (Becker, 1993 ; Bell, 1984). When considering human capital investment, the most consequential investment in human capital is education and training. Educational investments that yield increase productivity and economic capacity are beneficial to the individuals and to society and should outweigh the present value of the initial expenditure (Becker, 1993; Schultz, 1960, 1977; Psacharopoulos, 1996; Richardson, 1999).

At the risk of sounding dramatic, at no time in history has the direct correlation between investment in intellectual capacity, i.e. education been more extricably linked to economic viability (The Task Force on Higher Education and Society, 2000). The marriage of technology and education is more than a good idea, it is critical to the preparation of individuals' contribution to viable globally-linked economies. As such, arguments that computers and the Internet are powerful cultural goods are not designed to discourage investment, but rather to divulge some of the underlying value systems that influence adoption and implementation of said programs. Consideration of the influence of these often unspoken agenda have the potential of shifting policy strategy to be inclusive in practice as opposed to rhetorical litanies.

Social and capital reproduction's understanding of power and its use are apparent in human capital decisions as large scale human investments tend to be made by political groups. Political bodies, influenced by their value-laden perspectives, determine which groups of people will and will not be the recipients of financial investment. Paradigmatic leanings of policy-makers inform values and drive decisions about which groups deserve human capital support (Richardson, 1999).

In the case of educational issues, variables are no less influenced by the value placed on individuals and groups than any other area of social reform. As a result, social and cultural reproduction and human capital theory reveal overt and covert messages related to technological power and influence in distance education practices. Who to invest in and where limited resources should be allocated result in policy decisions that have global ramifications in a time when the function of national borders has changed. These value-laden decisions inform not only whether to offer computer-based courses at the tertiary level, but also who will be the prime beneficiaries of such offerings.

COMPUTER-BASED EDUCATION AND THE MERGING OF POWER

While information technologies did not create the globalization phenomenon, they have increased the pace of economic, communication and information exchanges between and within nations. Heavy dependence upon computers to facilitate economic transactions has spilled over to tertiary institutions who are expected to develop the requisite individual/human capacity to compete in technologically-driven sectors.

Pressures to meet workforce preparation challenges come from more sources in the context of globalization than just the business sector. For example, universities indigenous to countries no longer compete among themselves for students. Now, colleges

and universities virtually anywhere in the world can feasibly become contenders for students and resources. The cost of offering computer-based distance education, include but are not limited to technological infrastructures but also include costs to students, faculty and higher educational institutions.

There is little debate that there is a significant disparity between computer and Internet access between and within developed and developing nations. However, impressive progress is being made in several developing nations which bode well for other nations. Dropping computer costs and free Internet Service Providers (ISPs) are believed to explain the 136% increase (to 13.3 million users) in online access in Latin America. Brazil followed by Mexico and Argentina is the most "wired" countries as of 1998. Progress is also being made albeit slower in several African countries. Most notably, The New Republic of South Africa has an Internet population of over one million followed by Egypt and Morocco. The only country without direct Internet access as on early 2000, was the Republic of Congo (United States Internet Council, 2000).

Bearing in mind the computers powerful influence as a cultural good, let us consider contemporary concerns of higher educational institutions drawing from some of the experiences of several distance institutions. The two categories are: 1) expanding learning opportunities and access for underrepresented groups; and, 2) institutional explicit and implicit pressures to offer computer-based distance education. Several of the oldest and largest distance education institutions are: The University of South Africa (UNISA) founded in 1946; The Open University of Great Britain (OU) founded in 1969; Athabasca University (AU) in Alberta Canada founded in 1970; and, Regents University (RU) in New York, USA founded in 1971 (Open University of Great Britain, 2001; Information Centre of Athabasca, 1999; Regents College, 1999; Student Affairs Department of University of South Africa, 2000). Consideration of the operations and challenges of these distance institutions is used to provide valuable policy lessons in view of the proliferation of computer-based courses and degree granting institutions.

EXPANDING LEARNING OPPORTUNITIES AND ACCESS

While it is far too early to draw definitive conclusions about the types of students that gravitate toward distance education, trends have certainly emerged. Adults and females between the ages of 25 to 50 represent the largest group currently engaging in distance learning. For example, the average age of students at UNISA and OU are 30 and 34 years old respectively (Open University of Great Britain, 2001; Student Affairs Department of University of South Africa, 2000). In the United States the average age of a distance education learner ranges from 23 to 45 years of age a majority of which are white females (Grill, 1999; Thompson, 1998). Females represent a majority of the student population at UNISA and AU at 55% and 63% respectively (Information Centre of the Athabasca University, 1999; Student Affairs Department of University of South Africa, 2000).

Nontraditionally aged or older students often work and are unable to uproot their lives to attend courses on a campus but still wish to engage in higher education as a way to retain employment, change careers, or position themselves for promotion (Moore & Kearsley, 1996). Other CBDE participants seek to compensate for inadequate education in their past. For example, in South Africa, many UNISA students are Black teachers

improving their credentials to make up for poor educational experiences, which were the result of separate and unequal educational systems during apartheid (Vergnani, 2000).

While adults as students tend to be highly motivated, they can experience anxiety related to classroom settings. Since they are often spending their own money, it is much easier for them to drop out of courses or not return at the conclusion of one course. For these reasons, distance education experiences need to be easily accessible and "user friendly" (Moore & Kearsley, 1996).

Above all the benefits of CBDE, the one indicated most frequently is convenience. One 43 year old graduate student enrolled in computer-based graduate classes, says of her distance learning experience:

> *Now, I work all day, and I come home and log on. I get a list of homework assignments, and even though I work for hours I can dress any way I like, I can walk the dog in between, and if I get phone calls I can answer them* (Allen, 1997 p. 5).

The relationship between the use of technology, power and social and cultural reproduction can be found in a snapshot of students engaged in this particular endeavor. In the United States at least, there is no evidence to support the notion that CBDE increases access. Since participants tend to be female, middle-class, married, mature and already educated, distance education maintains their credentialing opportunities, and their class status. These trends reveal at least on the surface, a reproduction of privilege in the American context. It is unclear whether these same trends of cultural clout at UNISA, OU, or AU.

There does seem to be evidence, by virtue of the numbers of students served by the distance institutions considered, that learning opportunities and expanded access has been achieved to some degree. However, even if new opportunities exist for some populations, at least one-third of the students at OU already have degrees (Blumenstyk, 1999). The present dilemma of UNISA having lost nearly 40,000 students to conventional institutions' distance education offerings, prompted a moratorium on additional distance education. Governmental intervention could be considered an accolade to UNISA's distance education practices and the value placed on distance education students (Vergnani, 2000).

In the US, distance education options have increased exponentially in the last several years. By 1997-1998, one in three higher educational institutions offered some form of distance education (American Council on Education, 1996). Nearly 80% of these institutions began offering this new option during this same period. Increased distance offerings by traditional universities around the world provides some evidence that this practice is gaining credibility as it is increasing considered an economically lucrative enterprise. Offering new courses via computers, however, is also an indication that group considered worthy of human capital investment, is already technological proficient.

Potential barriers to CBDE abound, particularly for individuals and groups historically underrepresented in the academe. Negligible access to modern technology, i.e., the digital divide, exists within and between nations and is multiplied in this context. In the US, African American and Hispanic households are 1/3rd less likely to have access to the Internet than their White counterparts. Income and educational attainment also play a

significant role in creating and sustaining disparities between populations (National Telecommunications and Information Administration, 1999).

Poverty, regardless of the country it is found, appears to be the greatest hindrance to attaining access to computers and the Internet. Even though the costs of microcomputers have decreased the decline has not been appreciable enough to benefit impoverished populations in developed and developing nations (United States Internet Council, 2000). Recurrent themes of access and money breeding educational opportunity are an example of not only Bourdieu's (1977) reproduction but also Kahn's (1998) social bias.

One way to broaden educational opportunity has been the adoption of an open admissions policy. Another strategy has been to offer a wide variety of degree/program options. Each of the distance institutions noted in Table 1, offers a wide variety of courses that range in average completion time from one year to five years.

In addition, three of the four are open universities, meaning some of the barriers to traditional higher educational matriculation do not apply. Even with these minimal entry requirements, the population served continues to be mostly female and nontraditionally aged, i.e. mature students. UNISA, OU, AU and RU offer courses and degree programs not only to domestic students, but to students around the world. Three distinct categories of instructional delivery continue to be used: correspondence text, audio or television-based instruction, and computer-based instruction with computers increasingly preferred delivery system.

Evidence of the digital divide and its potential economic ramifications on individuals and economies necessitates a fundamental shift in the access question. Equal opportunity is an irrelevant proposal, since treating all students equally does not address the institutionalized barriers some people face before they even see a computer. Digital inequities will only be effectively addressed if equitable access is a goal. Equity would demand a disproportionately high fiscal investment in populations and nations without widespread computer and Internet access.

EXPLICIT AND IMPLICIT INSTITUTIONAL PRESSURES TO IMPLEMENT COMPUTER-BASED DISTANCE EDUCATION

A negative consequence of global interdependence is that education has become even more politicized because of intensified economic consequences associated with educational attainment and productivity. Inability to compete in an increasingly technologically-driven marketplace threatens to deepen concentrations of poverty and steepens the slope to individual and national economic self-sufficiency. For universities, external pressures intensify the need to produce more graduates equipped to compete in the world of work. Another dimension of external pressure is competition for students facilitated by the Internet. Implicit costs of historical funding patterns in developing nations in particular, have negatively impacted technological readiness and subsequently the ability of institutions in these nations to compete effectively for students.

TABLE 1: DISTANCE EDUCATION INSTITUTIONS

Institutional Consider-ations	UNISA	Regents	Athabasca Univ	Open University
Founded	1946	1971	1970	1969
Students	Avg. Age = 30 Females + 55% 111.000 students	Not available	20,000 in 1999-2000 Females = 63% Under 25 = 43%; 25-44 = 56%	Average age = 34
Institutional Funding Base	Government Subsidized	Private	Government Subsidized	Government Subsidized
Curricula/Degree Programs	Certificates, Bachelors, Masters and Doctoral degrees	Associates, Bachelors and Masters degrees	Bachelors and Masters and Advanced Graduate Diplomas	Bachelors and Masters Degrees
Admissions Requirements	Matriculation certificate and Matriculation examinations	Open enrollment	Open enrollment	Open enrollment Must be 18 years old Living in EU, Switzerland or Slovenia

Adapted from: (Student Affairs Department of University of South Africa, 2000); (Information Centre of the Athabasca University, 1999); (Open University of Great Britain, 2001); (Regents College, 1999)

Developed and developing nations seem to have fulfilled Schultz's (1977) predictions that an overemphasis on physical capital as collateral for loans would prohibit or at least significantly limit funds available for human capital investment, in this case education. As a result, output capacities of higher educational institutions, not to mention lower schools in developing nations have contributed to the sustained lag behind developed nations. These funding decisions, heavily influenced by developed nations and non-governmental agency's (NGOs) collateral preferences, have multiplied disadvantage in developing nations thus widening the educational and digital divide.

An underlying assumption that students possessing the capacity to complete courses via computer are worth human capital investments, potentially reward the rewarded.

While opportunities for higher education via computers has been the foci of this discussion, the role of the business community should not be ignored. New business and employment opportunities are increasingly available to persons possessing the skills valued by business enterprises thus transforming technological proficiency into a powerful skill set. This becomes of critical importance when considering employment opportunities, and the sorts of products or commodities valued by consumers.

Adding to the complexity of tensions between institutions, faculty within institutions, between nations and between students and institutions are the pressures of globalization. Un-met needs of students around the world, and the generally accepted premise that more education increases individual and national economic capacity, intensify the need for innovative instructional strategies and policy intervention. Yet, if the tool used to open opportunities only targets the already empowered, how will increased access be achieved?

Historically, institutions offering distance education did so as their primary teaching/learning strategy and to a large degree provided educational opportunities for individuals previously excluded from academic pursuits. Now, however, the delineation between pure distance-learning institutions and traditional higher educational concerns are blurring as computers are being used deliver distance instruction. Despite its long history of offering courses and degree programs, increased distance offerings from other South African institutions, UNISA experienced a decreased of 41,000 students between 1995-1999, 21% (Vergnani, 2000; Student Affairs Department of University of South Africa, 2000).

Strained budgets and changing student and employer demands have forced many post-secondary institutions to investigate alternative methods of delivering instruction one of which has been CBDE. For example, in the United States between 1986 and 1994, annual government appropriations for full-time students have declined from $9,083 for public universities to $7,393 respectively (U.S. Department of Education, 1997). One institutional response to replace revenue has been the increase of tuition and fees.

Development of the networks necessary to support general access to the Internet, require massive capital expenditures. The development of multimedia distance education programs or courses entails expensive endeavors. For example, since development of distance courses is fundamentally different than traditional courses, OU takes from two to three years to develop the complex packages to include support systems. The price tag for each course has been estimated to exceed $2.5 million dollars (Blumenstyk, 1999). Thus, in order to justify these costs the population of users needs to be enough to justify the outlay.

When considering the exorbitant costs of creating networks for more people to engage in distance education the costs of not investing also should be considered. The industrial revolution resulted in a demand for goods that produced income for manufacturers and those involved in supporting the labor intensive enterprise production. In an information age, traditional markets, will remain but not provide the greatest opportunity to income. Taking this premise a step further, the income gap between developed and developing nations (those who reaped a disproportionate share of the revenue from the industrial revolution and those who did not) in the context of digital goods will be repeated. Thus, as the profit margin for labor intensive goods be squeezed and opportunities to apply and produce digital goods decreased the result would be a widening of the economic gap between nations (Keegan, 2000). Diversion of new technologically based enterprises from developing nations to those who current have the infra-structure to

support large scale could be economically catastrophic or at the very least increase the narrow concentration of global power, money and resources. The relevance of these concerns to computer-based distance education is actually not far fetched. Investment in technological infra-structures for educational purposes can also be networks that support business enterprises.

Time is ripe for developed nations to take advantage of, for example, G-8 countries' professed commitment to educational equity and computer access. Rather than discounting the paternalistic colonial investment, use these **investments** to better the prospects for indigenous citizens. Broader visions of how to reap some economies of scale from educational investments could convert digitally deprived over time into technological powers in their own right.

Beyond the purchase of hardware, there is a need to examine the ramifications of offering post-secondary courses in traditional settings versus establishing remote locations for the delivery of instruction (Richardson, 1997). Traditional settings in this context will refer to the practice of face-to-face regularly scheduled interactions between professors and students. This is an important distinction given the "traditional" instructional delivery in some of the institutions considered is exclusively distance in focus.

The economies of scale, reductions of per unit production costs yielded by increasing the numbers of products sold, that can be the result of online distance education hold great potential for meeting the needs of these young people.

Economic interdependence in a globalized economy is not unidirectional. While developed nations possess the resources to invest in developing nations, failure to "share the wealth" will eventually boomerang and surface in economic sustainability. In the US, thousands of entry level computer jobs continue to go unfilled because of low unemployment rates and institutional practices that carefully invest in the same populations repetitively ignoring masses of potential employees from traditionally underrepresented groups. Developed nations need to be careful not to be so cocky as to discount the impact on not investing in the billions of persons outside their borders and not expect repercussions.

POWER and POLICY MERGE

> *"There is no single digital divide buts lots of overlapping ones: between old and young, men and women, rich and poor, blacks and whites, northern hemisphere and southern hemisphere and, above all, between developed and developing nations* (Keegan, 2000)

Power to influence computer-based distance educational practices by higher educational institutions is wielded by the technologically proficient (individuals and nations). Since it is highly unlikely that the influence of computers and the Internet's on education and commerce will decrease in the foreseeable future, this concentrated group controls a disproportionate share of resources. Tertiary institutions policy makers are precariously perched between historical exclusionary practices and strategies that actually increase educational participation. There are many advantages computer-based distance programs offer institutions and students.

On one hand, educational institutions reproduce inequality through historical practices of exclusion, and value of dominant cultural norms and skill sets and on the hand,

educational institutions provide expanded economic (Carnoy & Levin, 1993). Motivation to implement distance education opportunities differs between developed and developing nations. Developed nation benefits include: increased competition for students, declining costs of computers and related technologies, decreased per pupil expenditures over time, and the shifting needs of students and business sectors are some of the reasons distance education may be a good investment. More than half of the world's higher education students live in developing nations (The Task Force on Higher Education and Society, 2000). Thus, for developing nations, increasing participation within and beyond national borders may provide additional sources of funding and high initial expenditures overtime could reap benefits for the business as well as educational sectors.

Students who previously did not have the opportunity to pursue post-secondary studies may do so at their own pace at convenient times. In many cases, earning degrees over the Internet, after the initial computer and access expenditures, is a less expensive proposition than attending a traditional tertiary institution. Since new technology provides the prospect of two way interaction and rapid responses to questions, course work is not as solitary an endeavor as in days past.

Acknowledgement that computer use represents more than just technology is the first step toward creating technologically-based distance education offers that truly increase higher educational participation. Non-technologically or industrially driven economies have had to make difficult fiscal choices. Under-funded developing nations in the in the Information Age find themselves on the precipice of a digital chasm as developed national propel the technological and knowledge frontier further and further forward (The Task Force on Higher Education and Society, 2000).

All the news however is not bad. As is evidenced by the success of UNISA, it remains possible for nations who did not appreciably benefit from the industrial revolution to benefit from the technological boom. One step toward enhancing global competitiveness, is to adopt non-conventional strategies to increase educational participation, particularly at the tertiary.

While it is beyond the scope of this review to discuss lower schooling, lower schools are the pipeline through which post secondary students pass. Some of the difficulties faced by underrepresented populations in developed and developing nations are significant. Student must endure poor learning environments and even if they manage to get to school, overcrowding, dilapidated facilities, inadequate libraries and laboratories may thwart educational achievement. Without careful attention to college preparation and technological exposure at young ages, the possibility of computer-based distance education as a tool for increased access is of no effect.

The good news about computer-based distance education is that many of the above stated dilemmas can be addressed and mitigated by microcomputer use. For Theoretically at least, the Internet is the channel through which volumes of information flow and are available regardless of the inquirers location. Thus, an inadequate library can be of no consequence is the student has access via the Internet to stellar libraries around the world.

Additional benefits of computer-based distance education are that distance education can be just as effective as traditional teacher/student interactions relative to learner outcomes (U.S. Department of Education, 1999). Distance students tend to be non-traditionally aged, thus simultaneously increasing motivation to persist to degree completion or drop-out because of conflicting familial, or job-related demands.

Underrepresented groups could feasibly be beneficiaries of the new options computers make possible for students. There is little evidence to support the notion that placing classes on the World Wide Web increases access to groups historically underrepresented in institutions of higher learning. Participants need to note only have computers, but also be relatively proficient at their use to take advantage on the many opportunities to earn degrees via the Internet. On the other hand, institutional practices could adopt an approach different than the one in place in the United States given the population already engaged in distance education.

Proliferation of distance education courses and degrees via computers is evidence of its popularity as the latest craze to supposedly broaden access to higher education. There is however, significant dissonance between the proclaimed goals of distance as a liberator of opportunity and practice. The question yet to be answered is whether higher educational institutions in developed and developing nations have the resources and will to expand learning opportunities and access to those currently disengaged in the higher educational process. The question remains to be answered whether aspects of the digital divide through distance education will be bridged or the chasm widened to create a "new underprivileged digitariat (Keegan, 2000)", more dispossessed than they were during the industrial revolution.

There is little question that distance education is changing the higher educational paradigm. Related policies impact not only "non-traditional" off campus students, but on campus students as well. Students on campuses around the world are increasingly exposed to computer-based instruction as a n integral part of coursework across disciplines. Thus the real question may not be whether notions of power merge with higher educational policy relative to computer based distance education but rather, how fast and pervasive will the impact of computers and the Internet be to existing educational systems.

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ORGANIZATIONAL CLIMATE AND ORGANIZATIONAL COMMITMENT: A STUDY OF HUMAN INTERACTIONS IN TURKISH PUBLIC SCHOOLS

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The purpose of this study was to determine the strength of the relationship between each dimension of organizational climate [supportive principal behavior, directive principal behavior, engaged teacher behavior and frustrated teacher behavior], as measured by the Organizational Climate Description Questionnaire for secondary schools (OCDQ-RS) and organizational commitment of teachers, as measured by the Organizational Commitment Questionnaire (OCQ) in secondary public schools in the city of Bursa in Turkey. As expected the organizational climate of the school was related to the teachers' organizational commitment. Furthermore, the study confirmed that OCDQ-RS and OCQ are stable across cultural settings.

INTRODUCTION

The good image of leadership in educational settings is essential in understanding the nature of the school as a workplace and the quality of human interactions in schools. In a school workplace where there is a high quality of interactions among organizational members, teachers will commit themselves to work harder and make their work experience more meaningful. The purpose of this study was to investigate the relationship between organizational climate and organizational commitment of teachers.

ORGANIZATIONAL CLIMATE AND ITS MEASUREMENT

Climate research has been a subject of numerous reviews because of its importance in analyzing and understanding organizational behavior and the attitudes of individuals in organizations (Gilmer, 1961; Tagiuri and Litwin, 1968; Litwin and Stringer, 1968; Hellriegel and Slocum, 1974; James and Jones, 1974; Schneider, 1975, 1990; Joyce and Slocum, 1979; Payne and Pugh, 1976; Anderson, 1982; Poole, 1985; Tierney, 1990; Maxwell and Thomas, 1991; 1991; Denison, 1996). The definition, theoretical foundations, the nature of the organizational climate construct, and early empirical findings of climate studies have been examined in these works. Most of the studies of climate in educational settings are conceptually and intellectually based on these early theoretical works.

In educational organizations, Halpin and Croft's (1963) study provided the major underpinnings for climate research. Halpin and Croft were the first two researchers who conceptualized, developed, tested, and explained the domain of organizational climate in educational settings. Halpin and Croft's (1963) study, conceptually and intellectually, is a vital one. However, this original measure of climate is dated and inappropriate for secondary schools (Hoy *et al.*, 1991; Hoy and Sabo, 1998). Therefore, Kottkamp *et al.* (1987) developed a new school climate measure, the Organizational Climate Description Questionnaire-Rutgers Secondary (OCDQ-RS), based on the Halpin and Croft's concept of open to closed. The revised instrument contains 34 items and describes the openness of teacher-teacher and teacher-principal interactions. The OCDQ-RS measures two aspects of principal leadership: supportive and directive and three aspects of teacher behavior: engaged, frustrated, and intimate. The basic dimensions and interactions of the OCDQ-RS form general dimensions of school climate-openness. Openness of the climate refers to "a school climate where both the teachers' and principal's behaviors are authentic, energetic, goal directed, and supportive" (Hoy and Tarter, 1997a, 46-47). That is, the open school climate refers to a high degree of authenticity and the quality of human interactions in schools. The closed school climate is the antithesis of the open.

Researchers use organizational climate as a personality metaphor to view the nature and quality of interactions in schools and found that it is related to many other organizational variables. The studies show that there was a relationship between the levels of climate and faculty trust in colleagues (Hoy *et al.*, 1992; Tarter *et al.*, 1995; Tschannen-Moran and Hoy, 1998; Turan, 2001), commitment of teachers (Tarter *et al.*, 1989), school effectiveness (Hoy *et al.*, 1990; Tarter *et al.*, 1995) and student achievement (Sabo, 1995; Hoy and Hannum, 1997). Research findings indicate the importance of organizational climate studies in understanding the quality of organizational life in educational settings.

ORGANIZATIONAL COMMITMENT AND ITS MEASUREMENT

Organizational commitment has been an important part of organizational studies and the focus of research in recent years because of its demonstrated linkages with the quality of life in organizations (Meyer and Allen, 1997; Mowday, *et al.*, 1982; Becker, 1960, 1992; Mathieu and Zajac, 1990; Morrow, 1993; Brooks and Seers, 1991; Reichers, 1985; Glisson and Durick, 1988; Wiener, 1982; Allen and Meyer, 1996; Brown, 1996). Mowday *et al.* (1982) provide an extensive review of theoretical and empirical studies done on the concept of organizational commitment. In organizational commitment research, two distinctions have been made between attitudinal and behavioral commitment. Mowday et al. (1982) describe two approaches as follows:

> Attitudinal commitment focuses on the process by which people come to think about their relationship with the organization. In many ways,

> it can be thought of as a mind set in which individuals consider the extent to which their own values and goals are congruent with those of the organization. Behavioral commitment, on the other hand, relates to the process by which individuals become locked into a certain organization and how they deal with this problem (p. 26).

In this study, organizational commitment is defined in terms of attitude which views commitment as the degree of an individual's identification and involvement in a particular organization (Mowday *et al.*, 1979; Mowday *et al.*, 1982). This is the most extensively used approach to study organizational commitment (Morrow, 1993). The object of attitudinal commitment is the organization (Mowday *et al.*, 1982). Attitudinal commitment involves the measurement of an attitude or mind-set, along with other variables presumed to be the antecedents to, or consequences of, commitment (Meyer and Allen, 1991, 1997). Mowday *et al.* (1982) defined organizational [attitudinal] commitment as "the relative strength of an individual's identification with and involvement in a particular organization." This definition involves at least three factors:

1. A strong belief in and acceptance of the organization's goals and values;
2. A willingness to exert considerable effort on behalf of the organization;
3. A strong desire to maintain membership in the organization (p. 27).

In their review of empirical studies, Mowday *et al.* (1982) found a rich collection of findings with respect to both the antecedents and consequences of organizational commitment. They noticed that the majority of these studies are correctional in nature. The authors identified four antecedents of organizational commitment: personal, role-related, structural, and work experience (DeCotiis and Summers, 1987).

Research that has studied personal correlates of commitment focuses on the effects of age, tenure, educational level, gender, marital status, work values, perceived competence, ability, salary, and various personality factors on commitment (Marsden *et al.*, 1993; Mathieu and Zajac, 1990; Aryee and Hang, 1990; Mowday *et al.*, 1982; Angle and Perry, 1981; Hrebiniak and Alutto, 1972; Grusky, 1966). Furthermore, Mowday *et al.* (1982) noticed that research indicates commitment has been found to be related to achievement motivation, sense of competence, and other higher-order needs. Personal characteristics of commitment suggest that individual differences must be taken into account in studying organizational commitment and are worthy of further investigation (Mowday *et al.*, 1982; Meyer and Allen, 1997).

Role-related correlates of commitment studies examine the relationship between commitment and its relation to employee roles and job characteristics. Mowday *et al.* (1982) state that three related aspects of work role have the potential to influence commitment: job scope or challenge, role conflict, and role ambiguity.

Structural correlates of commitment studies examine the influence of organizational structure on commitment. Researchers have studied the relationship between such variables as organizational size, formalization, functional dependence, organizational decentralization and their relationship with commitment. It has been found, for example, that formalization, functional dependence, and decentralization were related to commitment but size and span of control were found unrelated to organizational commitment (Morris and Steers, 1980; Mowday *et al.*, 1982). Other studies have focused on perceptions of the fairness of policy and its influence on affective commitment in the workplace (Meyer and Allen, 1997).

Work experience correlates of commitment represent the fourth category of major antecedents of organizational commitment. According to Mowday *et al.* (1982), work experiences are viewed as a major socializing force and as such represent an important influence on the extent to which psychological attachments are formed with the organization. Meyer and Ellen (1997) state that work experience variables are the strongest and most consistent correlates with affective commitment. In work experience studies, researchers examined the relationship between such variables as organizational dependability, feelings of personal importance to the organization, employee expectations, perceived pay equity, group norms regarding hard work, leadership style, and social involvement in organization and organizational commitment (Mowday *et al.*, 1982; Meyer and Allen, 1997).

In addition to antecedents of commitment, studies also focus on the consequences of commitment. Job performance, tenure, absenteeism, tardiness, turnover and their relationship with commitment are examined. In respect to tenure and relationship, positive correlation was found between increased tenure and increased commitment. The relationship between commitment and absenteeism was found but not entirely consistent (Mowday *et al.*, 1982; Angle and Perry, 1981; Reichers, 1985). Mathieu and Zajac (1990, 184) noticed, "One might expect a slight negative correlation between commitment and lateness, because lateness is a relatively spontaneous act and is also influenced by a wide array of factors beyond the control of an individual worker." Finally, as consequence, commitment was found to be significantly and inversely related to subsequent turnover (Mowday *et al.*, 1982).

In addition to these correlates of commitment, the literature has included some other factors that are related to organizational commitment (Dornstein and Matalon, 1989). These new correlates include employment by alternatives outside the organization (Curry *et al.*, 1986) and the individual's reference groups and role-sets outside the organization (Reichers, 1985). However, research on organizational commitment in educational organizations is limited and unsystematic (Reyes, 1990; Tarter *et al.*, 1990; Tarter *et al.*, 1989). Hrebiniak and Alutto (1972) found that there were significant relationships between organizational commitment and teachers' age, years of total experience, marital status, and gender. Reyes (1989) found the relationship between gender and size of school district. Reyers' works indicate that men are less committed than women and the level of teachers' commitment was higher in smaller districts than larger ones. Furthermore, Tarter *et al.* (1989) found that

there was a significant correlation between the set of leadership variables and organizational commitment of teachers in secondary schools.

RESEARCH HYPOTHESES

It was hypothesized that:

H.1. There is a relationship between overall organizational climate of the school and the teachers' organizational commitment.
H.2. There is a positive relationship between supportive leader behavior and the teachers' organizational commitment.
H.3. There is a positive relationship between engaged teacher behavior and the teachers' organizational commitment.
H.4. There is a positive relationship between directive leader behavior and the teachers' organizational commitment.
H.5. There is a negative relationship between frustrated teacher behavior and the teachers' organizational commitment.

RESEARCH METHODOLOGY

The hypotheses in this study were tested using 900 teachers in 40 secondary public schools in the city of Bursa in Turkey. Bursa is the seventh largest metropolitan city of Turkey. The Turkish Ministry of Education appoints all the principals and teachers. All teachers are tenured according to Turkish education law with almost fixed salaries and social-medical benefits.

The authors of the OCDQ-RS and OCQ provided permission to use the instruments in this study. Permission to conduct this study was also secured from both the Turkish Ministry of Education and the director general of education in the city of Bursa. After the permissions, the English version of the instruments were translated and evaluated by experienced teachers who are bilingual in Turkish and English. The translators and evaluators were asked to evaluate the OCDQ-RS and OCQ in terms of their appropriateness with respect to Turkish education, values, and culture. After this initial step, the instruments were translated into Turkish and then back translated into English by bilingual teachers to verify the accuracy of the translations. The instruments were administrated as part of a faculty meeting. The five hypotheses were tested using the Pearson Product Moment correlation. In order to test the first hypothesis of this study, the correlation coefficient between the general index of organizational climate and organizational commitment was computed. The second through fifth hypotheses were tested using correlation techniques.

RESEARCH FINDINGS

Hypothesis 1. The existence of a statistically significant relationship between overall organizational climates of schools and teachers' organizational commitment was found. The correlation coefficient of .780, which is significant at the 0.01 level.

Hypothesis 2. A statistically significant relationship between supportive leader behavior and the teachers' organizational commitment was found. The correlation coefficient between supportive leadership behavior and teachers' organizational commitment is .519, which is significant at the 0.01 level.

Hypothesis 3. A statistically significant relationship between engaged teacher behavior and the teachers' organizational commitment was found. The correlation coefficient between engaged teacher behavior and the teachers' organizational commitment is .732, which is significant at the 0.01 level.

Hypothesis 4. A statistically significant relationship between directive leader behavior and the teachers' organizational commitment was not found. The correlation between directive leader behavior and the teachers' organizational commitment was -.267, which is not significant.

Hypothesis 5. A statistically significant relationship between frustrated leader behavior and the teachers' organizational commitment was found. Correlation between frustrated teacher behavior and the teachers' organizational commitment is. -360, which is significant at the 0.05 level.

DISCUSSION AND CONCLUSION

For Hypothesis One there is a statistically significant relationship between overall organizational climate of schools and teachers' organizational commitment. The findings of the study indicated that most of the schools participating had a closed organizational climate. Twenty-six schools had a closed climate and 10 schools had an open organizational climate. From the data, it is hard to comment why these schools have closed climates. Hoy and Tarter (1997b, 54) stated, "the climate profile is the beginning of a process of diagnosing and eventual change, not an end in itself." The organizational climate of schools, however, indicates that the quality of life in some of the schools may not be good. The schools that have a closed climate are predicted to lack an authentic and caring organizational climate. It can be stated that the schools where the climate is closed are likely to be characterized by manipulation, game playing, and politicking. Hoy *et al.* (1998) state that:

> . . . schools with a closed climate are not pleasant places for the principal, the faculty, or the students. The principal distrusts the actions and motives of the faculty, does not support teachers, is rigid and authoritarian, and is perceived as burying the faculty in needless paperwork. Principal behavior is controlling. The faculty in a closed

> climate is apathetic, self-involved, uncaring about students as well as one another, and unwilling to accept responsibility (p. 45).

Based on the findings of this study, it appears that the schools in the present study are not pleasant places for the leaders, the teachers, and the students to lead, teach and learn respectively. The teachers' and leaders' behavior are not authentic, energetic, goal directed, and supportive. The principals are likely to distrust the actions and motives of the faculty. Principal behaviors tend to be rigid and authoritarian. Faculty members are apathetic, self-involved, uncaring about students and one another and are unwilling to accept responsibility.

For Hypothesis Two supportive leader behavior was related to organizational commitment and associated with open climate. The findings of the study and the climate-openness profiles of supportive leaders behavior indicate that most of the schools had supportive leader behavior scores, which are slightly above average. It appears that the principals are trying to create better places for learning and teaching but at the same time their behaviors tend to be rigid and authoritarian.

For Hypothesis Three engaged teacher behavior is correlated with the teachers' organizational commitment. Engaged teacher behavior refers to high faculty morale. Twenty-eight schools had low engaged teacher behavior and eight schools had engaged teacher behavior. It appears from this study that the teachers' morale is very low. They are probably not proud of their schools. They may not enjoy working with each other. The schools are not pleasant places to work. In brief, the teachers likely do not work together as well as they loved to create a positive organizational climate for teaching and learning and they are not committed to their students.

For Hypothesis Four there is no significant relationship between directive leader behavior and the teachers' organizational commitment. Although the study did not indicate the existence of a significant relationship between directive leader behavior and organizational commitment of teachers, the data and the climate-openness profiles of directive leader behavior indicated that thirty-three schools had very high directive leadership behavior. High directive leader behavior refers to "rigid and domineering supervision." The school leader "maintains close and constant control over teachers and school activities down to the smallest details" (Hoy *et al.*, 47). Based on the findings of the study, it appears the school leaders maintain close control over teachers and school activities. Schools with a directive leadership behavior are characterized by rigid and domineering inspection. Control is the central concept that characterizes the function and role of educational leaders in Turkish educational context. However, this study does not provide answers to the source of this type behavior. It seems likely that the bureaucratic, centralized, and politicized structure of Turkish educational system as a part of social, political, and economical arrangements might contribute to this controlling and authoritarian-oriented leader behavior.

For Hypothesis Five there is a significant relationship between frustrated teachers' behavior and the teachers' organizational commitment. Frustrated teacher behavior refers to the excessiveness of routine duties, administrative paperwork, and

assigned non-teaching duties. It also refers to the level of disrespect in the workplace. The annoying and irritating behavior of teachers typify the relationships. Thirty-three schools had frustrated teacher behavior' scores which are below average and three schools had frustrated teacher behavior's scores which are above average. Based on the findings of this study, it appears that the teachers are very much dissatisfied with the general pattern of interference from school administration and colleagues. This pattern of interference distracts teachers from the task of teaching. Routine committee assignments, faculty meetings, and paperwork tend to be excessive and boring. Moreover, irritations, annoyances, and interruptions distract teachers from their fundamental task of teaching.

RECOMMENDATIONS FOR PRACTICE AND RESEARCH

- Principals appear to have an essential role in maintaining the open organizational climate and commitment of teachers to the school.
- Supportive leadership behavior and engaged teacher behavior are associated with the perceived organizational commitment of a school. Leaders in schools should attempt to find ways to improve faculty morale and concern with the personal and professional welfare of teachers.
- Further study should examine the nature of supportive leadership behavior in detail and compare it with different leadership styles.
- A study could examine in detail the nature of directive leadership behavior in the context and administrative/bureaucratic structure of the educational system.
- Qualitative studies (case etc.) could examine in depth general factors related to climate and commitment. The cultural, political, and economical context of education in Turkey and other developing countries need to be studied and linked to education.

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COMMON HIGH SCHOOL SCHEDULE TYPES: IMPLICATIONS FOR TEACHING, LEARNING, AND ASSESSMENT

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This manuscript reports the results of a longitudinal study examining the relationships among three common secondary school scheduling types and average composite scores on the ACT Assessment. Included in this study were 568 public high schools in Illinois and Iowa: 351 using eight-period daily schedules, 161 employing eight-block alternating-day models, and 56 employing 4x4 semester models. In addition, this paper sheds light on two different approaches to teaching and learning methods that when coupled with scheduling, can greatly influence the power of learning. Merely adopting a different scheduling approach without engaging in any additional reformation within a school likely will have little effect, if any, on student achievement.

INTRODUCTION

The current school reform movement has stimulated the nation's secondary school faculties to critically examine traditional educational practices and the corresponding relationships to student achievement. Reports published in recent years, in particular, *A Nation At Risk* (National Commission on Excellence in Education, 1983) and *Prisoners of Time* (National Education Commission on Time and Learning, 1994) have criticized traditional school scheduling structures and have challenged educators to implement more engaging instructional methods. Partly in response to numerous criticisms of secondary education, the National Association of Secondary School Principals (NASSP), in their *Breaking the Ranks* report (NASSP, 1996), encouraged principals to design high school organizational structures that promote active student engagement and emphasize depth of content over surface treatment. In addition, they were asked to develop flexible scheduling models that facilitate these changing instructional practices.

What are some of these changing practices? Schools are moving away from traditional teacher-directed model with students seated passively at their row-arranged desks. Some classrooms are moving towards a workshop setting, with students actively involved in the learning process and teachers coaching and facilitating. Many schools have moved from structured eight-period days to more flexible forms of scheduling. In the next two sections, practices revolving around theory and highlights of scheduling types will be addressed. The ultimate ending is to note through the literature review how, when coupled, they might have a positive influence on student achievement.

THEORY AND SCHEDULING

Throughout much of the past century, classroom practices tended to align with behaviorist learning theory which promotes teaching as a highly diagnostic and prescriptive

process (Ornstein & Hunkins, 1998). In the behaviorist approach curriculum content normally is presented in small increments and student practice immediately follows each step (Rosenshine, 1986). Although classroom practices are changing, behaviorism continues to play a significant role in classrooms today.

In the past few decades, research on cognitive processing has begun to influence classroom practices (Rosenshine, 1995). In contrast to behaviorist theory that primarily focuses on the teacher's role as transmitter of knowledge, a different view of learning has emerged, constructivism, which emphasizes the student's role in the process of learning. Building upon the work of Jean Piaget, Lev Vygotssky, and others, constructivism is based upon the premise that individuals must be engaged socially in the learning process, actively creating knowledge from their existing knowledge base, beliefs, and personal experiences (Brooks & Brooks, 1993, Glatthorn, 1994). To assist them in constructing new learning, students are encouraged to participate in context-bound, real world problem solving and engage in metacognition (Glatthorn, 1994; Leinhardt, 1992).

In an effort to eliminate instructional inconsistencies among secondary institutions, in 1909 the College Entrance Examination Board adopted the Carnegie Unit, which mandated a total of 120 hours of classroom instruction, based upon 40-60 minutes class sessions and an academic year of 36-40 weeks (McNeil, 1996). This drive toward standardization was heavily influenced by the scientific management era, which emphasized efficiency, mass production, and work uniformity; the daily-period schedule was created during this period as an organizational solution to the problems of efficiently educating mass numbers of students in response to the industrial age.

Scheduling models remained relatively unchanged until the introduction of modular scheduling in the late 1950s. Instructional responsiveness was the hallmark of this model, because class sessions could be flexibly structured according to the number of modules (units of time, typically in increments of 10-15 minutes) needed to teach a concept (Trump & Baynham, 1961). Modular scheduling afforded varied course formats, with classes meeting daily or scattered throughout the week in differing module lengths. The use of modular scheduling peaked in the early 1970s, when approximately 15% of the nation's high schools used this approach (Goldman, 1983). Unfortunately, the tremendous flexibility of the model was both its greatest strength and most significant weakness. Varied class lengths meant that many students were unscheduled and unsupervised at various times throughout the school day, leading to potential disciplinary problems. Consequently, although it is still utilized in a small number of schools today, flexible modular scheduling faded from the secondary scene in the late 1970s, and most schools returned to daily-period scheduling.

In the late 1980s, critics began challenging the instructional effectiveness of daily-period models, arguing that they reinforce the use of lecturing, contribute to excessive fragmentation of the instructional day, discourage in-depth exploration, and inhibit curriculum integration. Block scheduling emerged partly in response to these criticisms and was rapidly becoming integrated into schools by the early 1990s.

LINKING CLASSROOM PRACTICES AND SCHEDULING TO ACHIEVEMENT

How are instructional practices, scheduling, and student achievement connected? The most commonly used method of assessing achievement is through examining performance on standardized test scores. This study is limited in that it did not have data

from the Iowa and Illinois high schools included in this study regarding the classroom practices and/or the theory of implementation they promoted. The study did, however, have a standard test and related scores from the ACT Assessment with which to follow trends over time. The literature review seems to support constructivist instructional practices coupled with block scheduling, and behaviorist practices with standard daily-period schedules. This study followed block scheduling as it related to scores from the ACT. Thus the study is limited in that data was unavailable regarding theory. The researchers can only link the relationship of standard test results as they relate to achievement based on literature review.

COMMON SCHEDULING APPROACHES

As has been mentioned, the daily-period model has been the scheduling mainstay for decades. With this approach, 6-8 classes typically meet each daily, with each session's 45-55 minutes in duration. However, a variety of block models have been piloted in the nation's schools in the past 20 years, including hybrid models that include both block and daily-period combinations. Block sessions typically are 80-90 minutes in length; nearly double the timeframes of the daily periods. After nearly two decades of experimentation, two block approaches have emerged as the most commonly used: 4x4-semester model and eight-block alternating-day model. With the 4x4 model, students complete four classes each semester for a total of eight courses per year. In the eight-block alternating-day, approach, students receive instruction in one-half their courses on rotating days and continue in these courses throughout the year. It is estimated that approximately 30% of the nation's secondary schools now use some form of block scheduling (Rettig & Canady, 1999).

Secondary schools adopt block scheduling for a variety of reasons some reasons including the following: to provide course flexibility for students, enhance the quality of the educational experience, improve instructional strategies, and provide increased time for learning (Hackmann, 1999). A review of literature discloses that most block scheduling reports tend to be anecdotal case studies, focusing primarily on school climate issues, implementation issues, teacher morale, and student motivation. Instructional issues are given scant review other than to discuss in general terms the need to have "hands-on" learning activities. The primary focus of these publications appears to center around the act of implementing the models, rather than addressing how block models can support instructional approaches to lead to improved achievement.

IMPACT OF BLOCK SCHEDULING ON ACHIEVEMENT

Many faculties decide to implement block scheduling only after extensive research and discussion, and after reaching consensus on their reasons for this change. However, some educators do not understand that teaching, learning, and scheduling are highly interdependent. Consequently, if they are unable to describe how scheduling changes are intended to facilitate student learning and improve achievement (Wagner, 1998), they most likely will be unable to identify and use the instructional strategies that make the most effective use of the larger blocks of time.

In this current era of school accountability, educators would be remiss to execute reforms without considering the potential effects on student performance. To date, the

research base related to block scheduling and student achievement is relatively sparse and inconclusive. The College Board (1998) determined that students enrolled in semester-blocked schools generally received lower scores on Advanced Placement Calculus and U. S. History examinations than students enrolled in yearlong daily-period classes. Blocked schools in Virginia demonstrated greater percentile gains in the subjects of reading and math than traditionally scheduled schools (Thayer & Shortt, 1998-1999), but students in blocked schools scored lower on Canada's Third Provincial Assessment of Science than their peers in traditional schools (Bateson, 1990).

On the other hand, Pliska, Harmston, and Hackmann (2001) found no differences in mean achievement levels among all eight-period, eight-block, and 4x4-semester schools in the states of Illinois and Iowa. Pedersen (2001) also found no significant differences in student achievement between blocked and non-blocked Iowa high schools on the Iowa Tests of Educational Development, a standardized test completed by high school juniors. In the mathematics areas of algebra and geometry, Lockwood (1995) found no statistically significant differences on the basis of schedule type. Wronkovich, Hess, and Robinson (1997) determined that schedule type could account for a significant percentage of variance in mathematics achievement after controlling for covariates, with the positive relationship favoring traditional daily-period scheduling.

The present study was intended to add to the existing knowledge base of the achievement/schedule type relationship through using a longitudinal design and carefully controlled schedule types. Specifically, this study investigated trends in mean ACT Assessment English, Mathematics, Science Reasoning, and Reading score levels for public high schools in Illinois and Iowa that employed a traditional eight-period schedule or block scheduling (4x4-semester or eight-block alternating-day) for years 1995 through 2001, and had continuous data available for two years pre-implementation through four years post-implementation.

The selection of data from secondary schools from the states of Iowa and Illinois was appropriate for the purposes of this study, because the percentage of schools in these two states utilizing block scheduling (27%) closely parallels Rettig and Canady's (1999) estimate of 30%. Furthermore, a high percentage of these states' graduating seniors participate in the ACT Assessment: 71% in Illinois and 67% in Iowa (ACT, 2001).

The three scheduling models were selected for use because in Illinois and Iowa, the eight-period schedule is the most commonly used daily-period model, and the eight-block alternating-day and 4x4 semester models are the most commonly used block models. Only schools with "pure" models were used; those implementing hybrid models or variations from the standard scheduling approaches were excluded from the sample. After controlling for these factors, this study included a total of 568 schools: 351 using eight-period schedules, 161 with an eight-block alternating-day model, and 56 with the 4x4-semester plan.

PARTICIPATING SCHOOLS

A total of 568 high schools in Illinois and Iowa implemented pure 4x4-semester or eight-block alternating-day schedules, or used traditional eight-period daily schedules in the mid- and late 1990s. Mean ACT Assessment English, Mathematics, Science Reasoning, and Reading scores were calculated for 19 schools with 4x4-semester and 101 schools with eight-block alternating-day schedules that had implementation years between 1994 and 1997, inclusive. The blocked schools maintained their schedule types for at least four years post-

implementation. Because implementation years differed for some schools, means were calculated and identified relative to the academic year of implementation, rather than calendar year. As such, they spanned two years pre-implementation of block to four years post-implementation. These schools were used because they were the only *pure* 4x4-semester or eight-block schools in the two states that reported continuation of their initial block-type schedule for at least four years post-implementation as of May 2001.

The decision to include two years pre- to four years post-implementation was based on two primary factors. First, along with having a non-block schedule type included in the study to provide one baseline for comparison, having data from one and two years prior to implementation affords another baseline against which to compare average achievement. Second, the longitudinal study followed schools through four years post-implementation in order to have data representing schools that have had most graduating seniors educated under the 4x4 or eight-block systems for the duration of their high school experience.

Analyses were conducted for all high schools in the two states that continuously employed a *pure* eight-period daily schedule for the time period spanning 1995 to 2001. One school was eliminated from final analyses because it represented the only outlier in the dataset (i.e., Composite means exceeded 29 for all years). Results for the 330 remaining schools using a daily schedule were also described using the "two years pre- to four years post-implementation" language, although a scheduling change never was implemented. The artificial "implementation" year for daily schedule schools was defined as the modal implementation year for the block scheduled schools (e.g., 1997). This decision was made in an effort to ensure that as many schools as possible provided data from the same chronological years. In sum, 450 of the original 568 schools met the identified criteria for time, duration, non-outlying performance, and type of schedule use. Subsequently, these schools were included in the study.

The complexity introduced by the presence of both school-level (e.g., schedule type) and student-level variables (e.g., ACT Assessment scores) was addressed by aggregating all student-level data to the school level. Because some information may be lost in such an approach, subsequent studies may utilize more complex methodology that incorporates *both* student- and school-level data.

Given the descriptive nature of the analyses, two other factors supported the decision to use school-level data:

1. Students within a given school often, as a group, exhibit achievement levels that will differ systematically from other schools. As a result, each school within each type of schedule would represent a distinct *group* of students.
2. Selection of student records is the result of high school attended, rather than being based on a random sample.

These two factors suggest that schools represent *clusters* of students within schedule categories. The presence of clusters supports the researchers' use of school-level data. In using such data, however, conclusions necessarily will focus on the relationship of schedule type with aggregate student achievement, rather than individual student achievement.

The ACT Assessment was selected for one primary reason: Using a standardized metric such as that embodied in ACT Assessment scores has the benefit of minimizing susceptibility to the potential for grade inflation and biases in student evaluation procedures that may occur when utilizing less standardized measures.

RESULTS FOUND IN THE SCHEDULING TYPES

4x4-Semester Schedule

Change in achievement as a function of time relative to implementation of a 4x4-semester schedule was nearly the same, regardless of content area. There was negligible change in student achievement between two years pre- and four years post-implementation under the 4x4-semester schedule. Simply saying that a negligible overall change occurred, however, would gloss over startling results from interim years. Specifically, achievement in all content areas experienced a substantial drop between the implementation year and three years post-implementation. However, between the third and fourth years post-implementation, Reading scores were stable and scores on English, Science Reasoning, and Mathematics tests demonstrated a moderate increase.

Eight-Block Alternating Day Schedule

Results for the eight-block schools showed that from two years pre- to four years post-implementation, negligible change occurred in any of the content areas. Unlike the precipitous drop in achievement observed following the implementation year for 4x4-semester schools, the eight-block schools demonstrated generally flat profiles for all four content areas. Observed changes were negligible.

Eight-Period Traditional Schedule

A comparison of means over time resulted in generally negligible changes. The only exception to this tendency for negligible change was Mathematics mean change between the "implementation" year and 1 year post-"implementation", corresponding to graduation years 1997 and 1998. This moderate increase was 0.5 scale score points (ES=0.27). Many factors can give rise to such a change in Mathematics, including the population tested, student course-taking patterns, and the use of new technology, such as calculators. The actual amount of influence on mean scores that calculator use had was unclear, and though success can be achieved in Mathematics without a calculator, their use may have made some difference in the Mathematics scores. This moderate change in Mathematics means did not manifest itself in block trends, as data from block schools was classified relative to implementation year, rather than relative to chronological year (as eight-period schools were).

Though means for eight-period schools changed little over time, what little change that did occur tended to move in a positive direction. So, unlike 4x4-semester and eight-block alternating-day schools, eight-period schools demonstrated a tendency toward increasing achievement, regardless of content area, and had few discernable patterns in variability and skewness.

In summary, the eight-block schools and eight-period schools exhibited achievement levels that were similar to one another over time. Schools with 4x4-semester schedule had superior achievement up to and including the year of implementation but tended to drop substantially in subsequent years. The drop brought 4x4-semester schools to levels of achievement at or below those of the other schedule types. With the exception of Reading, 4x4 semester schools exhibited the slight increase in content area scores at the fourth year post-implementation.

DISCUSSION

This study is the first to investigate student performance on a standardized test by utilizing a large population of schools spanning district boundaries as well as state lines. It represents the first phase of an ongoing study assessing the effectiveness of class scheduling models, by examining the relationship between schedule types and student achievement as measured by the ACT Assessment Composite and subtest scores. In general, the findings suggest that the scheduling type used within a school does not enhance the ability to explain variation in ACT Composite scores when examined at the school level.

The findings in this study suggest that teachers and administrators considering changing scheduling approaches need to weigh various factors and consider scheduling alternatives carefully. If the scheduling type is modified with no accompanying changes in other facets of the school (e.g., professional development related to instructional methods, consideration of differing learning needs of students), then the restructuring initiative likely will not be effective (Dougherty, 1998; Shortt & Thayer, 1995). A review of the literature, both anecdotal and empirical, suggests keys for successful block scheduling. These include, but are not limited to, the following: understanding the process of change, involving stakeholders, and providing professional development geared toward changing instructional methods (Hackmann, 1995).

Future research would benefit by analyzing data from the individual school level. For example, investigating whether such strategies as involving faculty in researching proposed models, gaining the support of a critical mass of faculty for any scheduling change, engaging in sufficient pre-implementation training, and/or providing sufficient time for lesson planning and preparation could affect the successful implementation of the scheduling reform.

It has been posited that secondary faculties may need several years of instructional experimentation and practice before any academic improvements facilitated by a scheduling change can be realized (Wronkovich et al., 1997). This observation parallels findings related to the effectiveness of employee involvement on organizational performance (Denison, 1990).

One limitation to this study was that being able to control for teaching strategies and individual classroom culture. Principles of theory must drive practices and, as Elmore (1995) strongly advocates, "principles of practice should drive structure." (p. 370). It seems reasonable to conclude that faculties first should reach consensus on their theories regarding the teaching-learning process and then create a scheduling structure that allows them to put their theories into practice. When educators' pedagogical beliefs are too far removed from the primary theoretical source notes Sergiovanni (1996), they often end up with distorted practices that are not an adequate match for school purposes. This study suggests that the block scheduling restructuring initiative may not be the panacea that some advocates believe it to be. Since scheduling models do not exist in a vacuum, the mere adoption of a new scheduling approach—absent the concurrent implementation of additional reforms—likely will have a marginal effect, if any, on student achievement. Scheduling reforms are interrelated with other organizational components that promote teaching and learning, such as a commitment to constructivist practices and the informed selection of instructional methods that reflect a learner-centered approach to instruction. Simply stated, a scheduling change, in and of itself, is not enough.

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HIGH DEFINITION INSTRUCTIONAL PLANNING FOR TEACHER EFFECTIVENESS

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High Definition Instructional Planning (HDIP) is explored as a system for enabling teachers to improve students' academic performance so that no student is left behind. It demonstrates to teachers how to (a) use a student profile analysis to identify low achieving students, and how to identify the social factors that explain their failures, (b) construct lesson plans to promote the teaching of higher order thinking skills, and (c) measure a teacher's delivery process in the classroom to quantify the amount of higher order thinking skills (d) utilize the data for feedback and change process.

INTRODUCTION

According to the Federal Government the latest educational mantra is 'no child to be left behind. The National Council for Teacher Education (NCATE) requires that ' all children learn'. Hence, teacher educators, school administrators and teachers alike need to demonstrate that ultimately all educational planning is only as good as demonstrating learning outcomes as 'measured by all students learn' and 'no child is left behind'. Persaud (1993), and Persaud and Turner (2001) explain that high definition planning (HDP) is a process for defining a problem as accurately as possible in terms of (a) failure of the outcomes, and (b) the causes for failure. A solution is chosen if it is most effective as compared to alternatives for counteracting the causes in order to improve the outcomes. Implementation, and transaction processes ensure the alignment of the solution to eliminating the causes in a timely and cost effective manner. In the evaluation process, the solution is examined for effectiveness in eliminating the causes and achieving the expected outcomes.

Conceptually, it was shown by the arguments of Dewey (1939), Cartwright (1973) and Deming (1986):

If a problem P is defined in terms of its causes,
Then, P = P(c1, c2, c3, Cn).
Since, a solution S is assumed to equal P when the problem is effectively solved,
S = S(C1, C2, C3, Cn).

Therefore, the solution must counteract the causes as the basis for resolving the problem. The model is researchable in the sense that P can be defined as the failure of the dependent variable(s), and Causes (C1 to Cn) as the independent variables. Solution(s) (C1 to Cn) can be defined in terms of the programs activities to resolve the problem. The model predicts that if a problem is not solved, P neither was nor defined accurately, or the solution was not selected to counteract the causes or both.

It was demonstrated that HDP could be utilized for enhancing school effectiveness. This paper examines its utility to the classroom teacher in enabling all students to learn so that no student is left behind. In high definition instructional planning for students' achievement (HDIPSA), a teacher in each classroom needs to (a) define the students who are failing, and the causes for failure (b) plan instruction to counteract the causes, implement, and evaluate effectiveness for feedback purposes.

DEFINING THE PROBLEM: STUDENTS FAILURTE AND POSSIBLE CAUSES

A. *Sources of student data and data entry*

A Teacher needs to demonstrate that he/she has targeted low achievers, and defined the causes for failure accurately as far as possible. We provide a Student Profile Analysis Method (SPAM) to facilitate a scientific approach. A teacher, Persaud-White (1993-2002) collaborated with Persaud and Turner over the years in the application of this process.. Table1 uses a random sample of Persaud-White's data (1992-93) to demonstrate the steps.

1. Rank order students' test scores and place in column 1 as the pre-test.
2. Use the second column for post-test scores.
3. Use the third column for gain scores, and calculate gain scores
4. Place in successive columns the following data: students' gender, race if applicable, parent type (single =1, and both parents =2), parental occupation (1 = unemployed, 2 = semi-skilled, skilled), (3 = Skilled), (4 = highly skilled, lower managerial). The main point is to categorize in order to show income differences in terms of your specific occupational environment).
5. Additional columns could be created to assign data that might be collected on: completion of homework, self-esteem, motivation, learning styles (if an instrument was administered, or judgment made on the basis of test scores), attendance, conduct or behavioral rating, free lunch status, sibling order, occupational and/or educational aspirations, hobbies, parental involvement, etc.
6. Microsoft excel software could be used to input and analyze the data.

B. *Conducting Data Driven Problem Analysis or Needs Assessment*

In our example (Table 1) the teacher made the following analysis of the data:

a. Females (coded 1) obtained the lowest test scores (35 & 39 percentiles)
b. The females happened to be African American (coded 1)
c. Both females were from two parents (coded 2) family, therefore gender was not a major issue.
d. The female parents' occupations were unskilled and semi-skilled. Therefore, occupational differences was the better explainer of differences in test scores
e. Males (coded 2) were in the majority at the high end of the scores (90-99 percentile). These males were in the majority: White Students (coded 3), two parent families of highly skilled and lower managerial occupations.

f. Learning styles probably differed in accordance with differences in test scores. The teacher made this conclusion based on the fact that test items tend to vary from recall knowledge to higher order thinking skills. Students who performed poorly tended to miss the difficult higher questions. A review of items missed by students tended to confirm this opinion.

TABLE 1: Language Arts Iowa Test of Basic Skills (ITBS) Language Arts Percentile Scores by Selected Causal Variables

Student N	Language Arts (ITBS) Pre-test	Language Arts (ITBS) Post-test	Gain Scores	Gender	Race	Parent Type	Parent Job
1	35	55	20	1	1	2	3
1	39	65	26	1	1	2	3
3	46	78	30	2	3	1	3
4	48	81	33	1	2	2	3
5	68	81	13	2	1	2	3
6	69	91	22	1	3	1	3
7	78	89	11	2	1	1	3
8	79	81	02	1	1	2	3
8	85	97	12	2	3	1	4
9	86	91	05	2	1	2	4
10	90	96	06	1	1	2	4
11	90	92	02	1	1	2	4
12	96	99	03	2	3	2	4
13	96	99	03	2	3	2	4
14	97	99	02	2	3	2	4
15	98	99	01	2	3	2	4
16	99	99	00	1	1	2	4

The conclusion was that though differences in gender, race, parent type were all causal variables for student academic achievement, the key variable was occupation, as found by Coleman (1866) & Reid (1964). However, since the requirement is that "all children must learn" it is necessary to select curriculum, and teaching strategies so as to respond to the differences in each child.

(i) *Interpreting Test Data in Relation to Students' Learning Styles*

In Figure 1, we aligned the variation in students' learning styles (vertical axis) to their variation in test scores, and parents' occupation (horizontal axis). In the figure, the learning styles' orientations vary with differences in students' test scores and parent occupation.

This model facilitates teachers in estimating the learning orientations of students in relation to test scores, parent occupation and education etc. without using complex questionnaires. Indeed, the model provides a major functional use for data driven instruction based on the results of standardized test scores provided by school systems.

The range of test scores are categorized into quartile and aligned with the order of parent occupation consistent with the research literature (Coleman et al, 1966; Reid, 1964, Hossler and Stage, 1992). As Coleman suggests: students in the same classroom with the same school facilities, by the same teacher, curriculum, methodology, and tests, etc. vary in their academic performances because of social class differences, since all other variables are constant. Bernstein (1961) conceptualized the process whereby variation in social class contributes to differences in students' test scores. He explained, based on data on White students in London that lower social classes socialized their children in command and restricted verbal language of short sentences consistent with their poverty. They must use directive language and behavior to gain compliance for the distribution of scarce resources. Their values, reasoning and verbal ability are forged and developed by the conditions of poverty. On the other hand, middle class students are socialized in elaborate verbal language of complex sentences and reasoning based on the abundance of alternative supply and consumption consistent with their wealth. The school's standardization is in middle class language, and, hence, middle class students outperform lower social class students. Based on Bernstein's studies, Hess and Shipman (1965) conceptualized and provided data on African American families in California that tended to show that lower social classes socialized their children in restrictive command language structure while the middle classes socialized their children in elaborate reasoning verbal structure. It can be concluded from research and the conceptualization of Freire (1971), Baratz and Baratz (1970) that lower social classes are not devoid of reasoning skills, but that their reasoning skills have developed within the context of their social experiences of poverty. Indeed, Baratz and Baratz examined the delivery of early childhood program to "disadvantaged students, and suggested that the program delivery assumed that such students had a deficit with respect to the middle class curriculum when in fact the students had a different learning styles based on their early socialization in homes of poverty. Their higher order thinking skills could be utilized to explore the middle class curriculum, if teachers would re-conceptualize the curriculum within the social and cultural experiences of such students.

The model (Figure 1) is self-explanatory. Concrete, feeling oriented learners like to touch and feel objects as a basis for conceptualizing knowledge. This orientation might correspond to low academic achievers, who might profit from listening to tapes and touching objects as a way for developing imagery about their feelings, and using them to verbalize and write about their feelings. Students who like to do things, and always construct objects are usually out of their seats moving around, sharpening pencils, etc. Again these students as low performers, could be engaged in drawing, role-play and construction of objects as a basis of conceptualizing knowledge, etc. Some students are passive, while not fully learning through listening to the teacher's explanations of the subject matter. Such students might be visual learners and like to see pictures as a way of conceptualizing knowledge. They might be at the middle or above the middle range in test scores. The use of drawing, and multi-media presentation could facilitate higher order conceptualizing of knowledge. Some students might be passive listeners, who because of their greater verbal ability are able to conceptualize and memorize knowledge as the teacher delivers it through

lectures/explanations. These students might still become more holistic learners by the variety of methods utilized to stimulate other learners into becoming more verbal in orientation.

(ii) *Affirmative Action in the Classroom: The Teacher as an Affirmative Educator*

In order to cater to the specific needs of each student in a classroom where there are differences in students' academic performances, learning styles and home background, the teacher must function as an affirmative educator. Some form of affirmative action needs to be undertaken for the purpose of leveling the playing field for all students so that no student is left behind. In order to conduct affirmative action, the teacher needs to:

(a) Develop learning objectives based on the differences in academic performance of Students, aided by the philosophical vision that the lower performers will rise into high performers
(b) Choose the curriculum to match the learning level and interests of each child.
(c) Re-conceptualize the written subject matter into general concepts that could be related to students' social experiences
(d) Use varied explanations, questions, and answers to re-create the students' social experiences in terms of higher order thinking skills (Bloom's taxonomy) to parallel the concepts of the subject matter to be taught
(e) Use varied explanations, questions, and answers to align the higher order thinking skills into the actual subject matter to be taught.
(f) Test and grade students when he/she has found by informal, and non-evaluative tests that all children have learned.
(f) Use the data re-cycle the process in a spiral manner.

(iii) *Definition of Knowledge: The Same Knowledge Exists in Different forms*

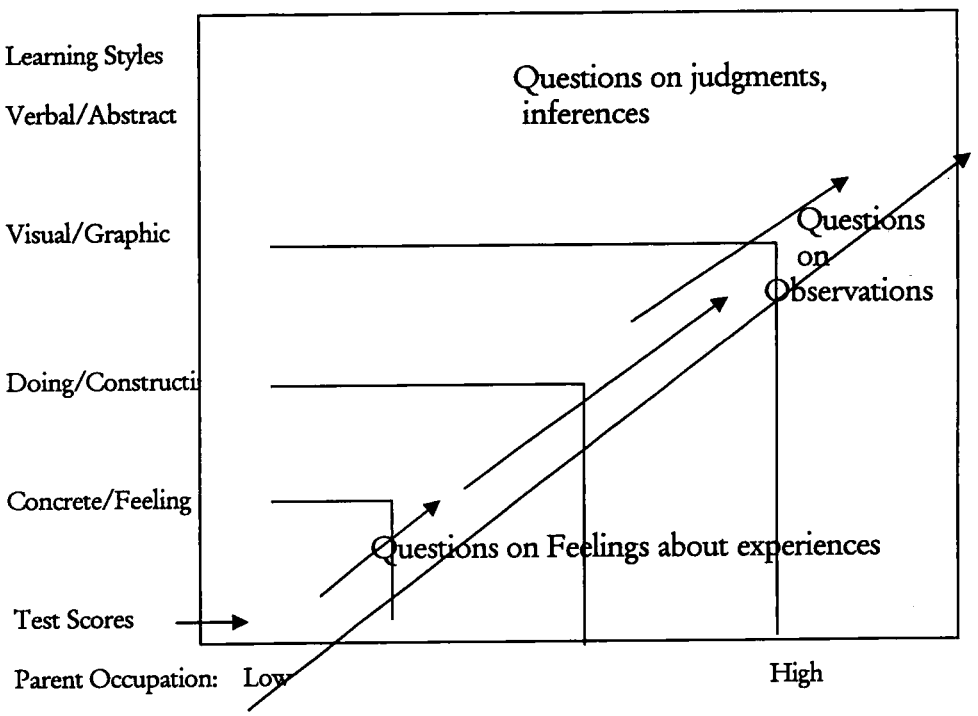
The same knowledge can be transformed into different content and methods, a teacher should be allowed to vary the standard curriculum or program materials into the various experiences of students in order to counteract the learning styles and parent occupational differences in the classroom. Based on Leinhardt's (1992) definition, knowledge of content is conceptualized as follows

a. Knowledge is a complex network of ideas, facts, principles, action, and scenes
b. The same knowledge exists in multiple forms
c. Prior knowledge influences the acquisition of new knowledge
d. Knowledge acquisition is social in nature
e. Knowledge is acquired through time

Without this understanding about knowledge, it is not possible to manipulate a given content or standard/objective to teach to different learning styles in the same or different classrooms. When NCATE, State and Federally directed curricula emphasize standards, they also contradict the basic tenets about knowledge, and make it difficult if not impossible for teachers to teach in relation to different learning styles. Therefore, such standardization in

the directive stated cannot possibly teach so that "all students learn, and no student left behind".

FIGURE 1: Learning Styles in Relation to Parent Occupation, and Questioning Process



A teacher needs to know the knowledge to be taught in its various forms: literal meaning, inferential meaning, lower and higher order thinking skills, and related dispositions, parallel meanings in the students' experiences, and dispositions. He/She should identify and know the meanings that are related to previous knowledge in same subject area as well as related subject areas. This is the most critical task of teacher planning. By definition, program materials are standardized so that all teachers teach the materials in the same way. This forces the presentation of knowledge in a standard format and contradicts learning styles and brain based learning principles.

CONDUCTING HIGH DEFINITION INSTRUCTIONAL LEARNING PLANNING SYSTEM (HDIPS) FOR TEACHER EFFECTIVENESS

As observed in the above discourse, it is critically imperative that the teacher knows the same subject matter in a variety of forms, especially that of the social experiences of students of different learning styles. This aspect is essential for institutionalizing affirmative action in the planning and transaction of lessons. This strategy is demonstrated in figure 2 in

order to transform the knowledge of the given subject matter as a basis for teaching to the different learning styles (demonstrated in Figure 1 above).

Planning the Lesson

1. *Identify Learning Objectives in terms of Knowledge, Skills, and Dispositions*

A teacher should identify learning objectives in terms of knowledge, skills and dispositions as follows:

Knowledge and understanding: Identify the basic facts or main ideas in the given subject matter and demonstrate understanding

Skills: Identify issues that are related to every day experiences, and apply, analyze, evaluate, synthesize in terms of every day experiences; interpret inferences in terms of social experiences. Identify issues in the subject matter, and analyze, evaluate, synthesize in terms of the intentions of the intentions of the subject matter; identify and explain inferences.

Dispositions: Identify social principles such as concepts of right and wrong, cooperation, tolerance for diversity, in the poem, and demonstrate significance for our dispositions and behavior

2. *Content: Specifying and Developing Content*

   a. Identify content that would teach the selected objectives
   b. Ensure the content is related to the social experiences of the low achievers as well as that of all other students, or break down the regular curriculum to relate to the learning styles of all students
   c. Extract the essential literal and inferential meaning of the content
   d. Transform the content into the social experiences of all students.

In terms of the student profile analysis (Table 1) the teacher is advised to select materials that are related to the experiences of low achievers, African Americans, and that of low social and economic groups. The materials should provide opportunities to examine their experiences so as to teach: (a) Knowledge and understanding about facts, (b) Higher order thinking skills in terms of Bloom's Taxonomy (c) Dispositions to work hard and not give up even in seemingly impossible situations, cooperate with and tolerate people of different values and opinions.

In planning to teach the selected content, the teacher should recognize that the essential meaning of some content is often couched in the middle class language of the textbook. If the content is paraphrased and taught in the form stated in the textbook, students of high social class and achievement are likely to gain an advantage over low achieving students. It might be more productive to identify the essential meaning to be taught, and remove it from a middle class language structure. In this form, the knowledge can be transformed into language structure and experiences that every student can recognize

easily. This is especially so in language, social studies, and science where the textbook authors must make observations that exist in reality.

3. Identify and Develop Explanations, Questions, and Ways to Use Students' Answers

The teacher frames questions to enable each student to recall knowledge about his/her social experiences that match that of the textbook. This provides basic recall knowledge and understanding. Next, the teacher asks questions to seek knowledge about comparative experiences. By asking the students to make judgments about similarities and differences and or inferences, the teacher encourages the students to analyze their social experiences in terms of higher order thinking skills. Therefore, these questions are prepared to enable students' of concrete, feeling and doing orientation to re-analyze their social experiences and put these frames into abstract learning. Next, the teacher frames questions to link the knowledge, skills, and dispositions obtained from the social experiences to that of the textbook. The intention is that students will see the connection between their social experiences and the concepts in textbooks, and make such transformation over time, on their own.

The teacher needs to plan these questions in advance or he/she will not be able to explore the range of social experiences and make corresponding connections to textbook knowledge.

(i) In terms of Figure 2:

a. Frame explanations and questions that would solicit students' responses about their corresponding social experiences
b. Plan to utilize the answers to develop a model of content skills to be taught
c. Identify opportunities to teach understanding about right and wrong in the context of diversity, and explore the consequences for our dispositions: justice, cooperation, and tolerance
d. Frame questions to solicit answers in the areas identified in Figure 2
e. Anticipate wrong answers and figure out follow up questions
f. Identify various phrases that can convey recognition and rewards to students
g. Anticipate and state how explanations, questions, and answers will be utilized to integrate the concepts to be taught.
h. Indicate the questions to be asked for assessing students' performance during the teaching and learning process for feedback purposes.

(ii) In addition, build a network of social connections and learning opportunities to support low performing students by:

a. Using cooperative learning, role-playing, drawing, multi-media, and project work to organize peers in the classroom to facilitate integration of students of different learning styles so that each child becomes integrated in the use of all learning styles
b. Using parents to facilitate the learning environment in the homes
c. Using mentoring by peers in the cooperative learning process
d. Linking students on the phone in a mentoring process on homework
e. Using senior siblings or relatives to function as mentors in social skills development, and completion of homework.

TEACHING AS AN INTERACTIVE PROCESS

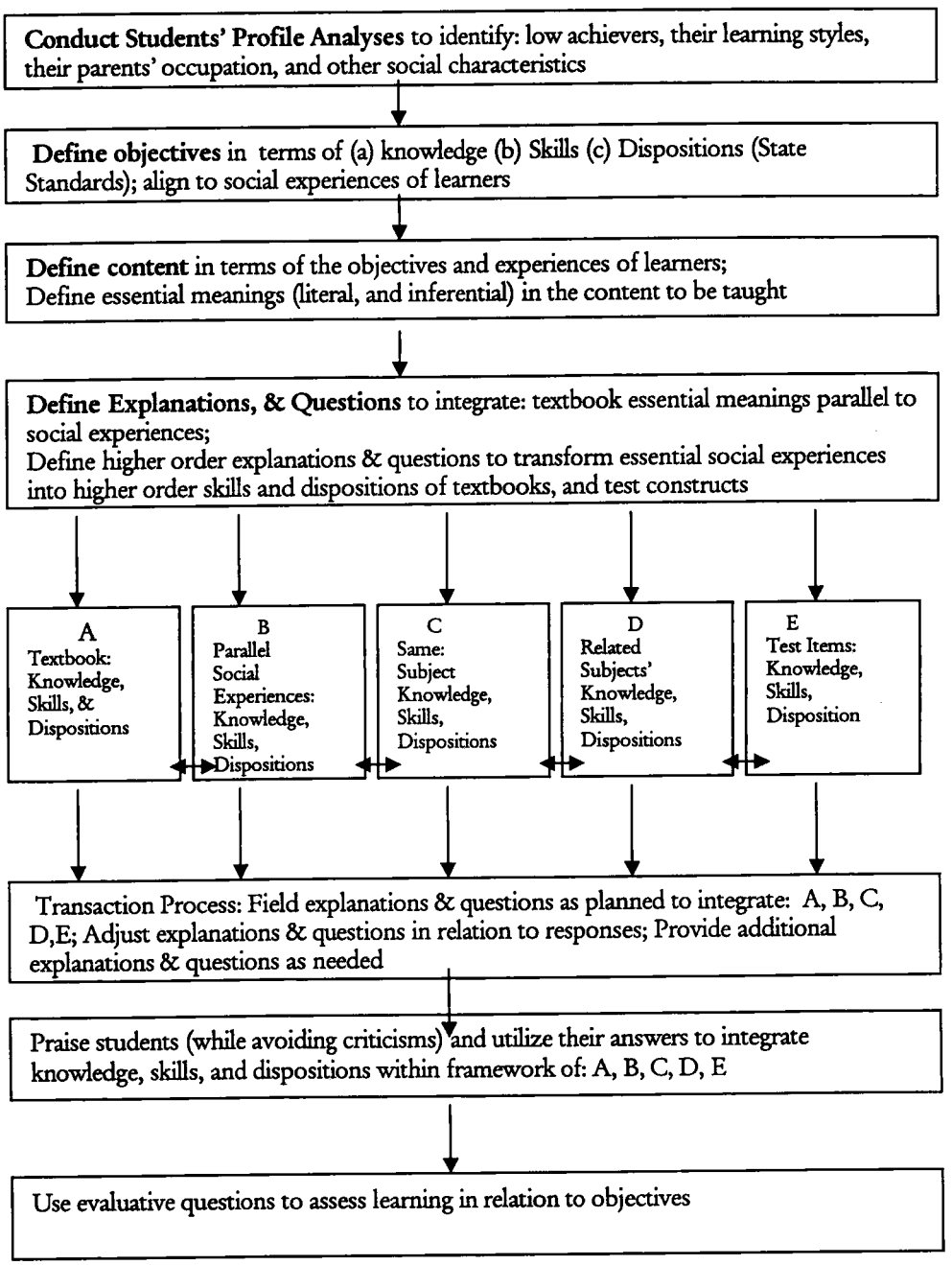
When the lesson is planned, it has to be transacted in the classroom as a living, interactive process between the teacher and students, so that all students are involved in the domain of the higher order thinking skills as per Bloom's taxonomy (knowledge, understanding, application, analysis, evaluation synthesis). In the High Definition Teacher Empowerment Evaluation Model (HD TEEM) shown in Table 2, the teacher prepares questions on higher order thinking skills (application, analysis, evaluation, synthesis, and additionally, inferences) along each category in Table 2: procedural communication, textbook concepts, textbook inferences, students' social experiences, previous knowledge taught in the same subject, related subject areas, test constructs. The teacher also plans to use students' answers to develop higher order thinking skills.

The teacher or his/her peer could score the teacher on each dimension. The table indicates that a teacher ought to begin with the social experiences of learners in order to teach higher order thinking skills. When the teacher begins with social experiences, all students, low achievers as well as high achievers, are involved. The concrete feeling and doing oriented learners are then given an opportunity to move up to higher abstract thinking skills as shown in Figure 1 above. We need to demonstrate this aspect practically.

PRACTICAL APPLICATION: PLANNING FOR TEACHING

We demonstrate the practical aspect of lesson planning by elaborating on aspects of Persaud/White's (2002) lesson plan that was first developed in 1992, and updated over time. The lesson planning indicates the teacher's in-depth knowledge, skills, and dispositions for teaching. According to research (McBer's, 2000) effective teachers have extensive content knowledge and possess a bank of appropriate teaching strategies, which they apply to their knowledge of the ways in which students learn. The poem by Langston Hughes is used to demonstrate how to plan and teach a lesson so as to enable concrete, feeling and doing oriented students to extend their learning styles to observation and abstract thinking in the same lesson.

FIGURE 2: Lesson Planning and Transaction Process for Teacher Effectiveness



TEACHER PLANNING STEPS

Conduct needs assessment: The teacher identified the learners' needs as indicated in the student profile analysis in Table 1. African Americans and low achievers need curriculum materials that speak to their social and cultural backgrounds. Low achievers tend to be oriented to concrete, feeling and doing learning styles. Hence, they have a need for materials to be personalized in their social experiences and for expressing themselves in role-play, or practical activities.

Setting the Objectives

The teacher chose objectives in accordance with the learners' needs as identified, and categorized these into the following dimensions:

Knowledge: Each student will identify: the knowledge about the literal meanings of the poem as related to their social experiences in response to teacher questions for that matching the meanings to the social experiences; the poet's method for conveying feeling and mood in the poem; similes, metaphors, and personification; functions of rivers, and the relationships between the rivers of two continents; the ethnic groups and their respective functions in economic production on the plantation

Skills: Each student will: analyze, evaluate and synthesize their social experiences so as to form a model of the meanings of the poem in response to teacher questioning; develop inferences about such meanings; apply the model obtained from their social experiences in the analysis, evaluation and synthesis of the poem; analyze other poems related to the one being studied; related subject areas such as geography, economic mode of production, and corresponding social relationships

Dispositions: Each student will: draw inferences that have significance for developing their sense of justice, cooperation, tolerance, and creativity in adversity in response to teacher questioning. Students will role-play life on the plantation, etc., and develop perspectives about their feelings as a result of reading the poem

Selecting the Content

The teacher chose the particular poem to cater to the needs of low achievers as well as the social history of African Americans, since African Americans were associated with low achievement as well as lower occupations in Table 1. Further, the poem was most likely to teach for dispositions to be creative in extreme adverse conditions when most others would have given up. This was intended to motivate the students to work harder and with purpose in the classroom.

The teacher read the poem and defined (a) literal meaning (b) inferential meaning (c) corresponding students' social meaning (d) Previous knowledge covered in same subject (e) related knowledge of other disciplines (f) concepts and analyses that are related to ITBS and other testing objectives as shown in Table 2 (note: if this is not done, there is likely to be little impact on standardized test results).

TABLE 2: High Definition Teacher Empowerment Evaluation Model (HD TEEM)

CATS: Categories of Acts by Teacher & Students	Teacher Lower Order Thinking Skills: Explanations, Questions & Answers Initiated	Students' Lower Order Thinking Skills: Explanations, Questions & Answers Initiated	Teacher Higher Order Thinking Skills: Explanations, Questions & Answers Initiated	Students Higher Order Thinking Skills: Explanations Questions & Answers Initiated
1.Procedural Communi-cation				
2.Textbook Concepts/ Knowledge				
3.Textbook Inferences				
4. Students' Social & Life Experiences				
5.Previous Lesson Concepts/Know-ledge taught: same subject				
6. Interrelated Subjects' Concepts				
7. Test Concepts/ Items				
8. Use of Students' Ideas: Praising, Building on Ideas,				
8. Rejecting: blaming, Criticizing				

Literal Paraphrased Meaning

The poet writes from the perspectives of African Americans, and says he has known ancient rivers (older than blood flowing in humans) in both Africa and America. He has known pure rivers (Euphrates, Nile) in Africa where he bathed in the river earliest of times (when dawns were young), slept on the banks, built houses, and pyramids and grew deep and rich (like the rivers) in civilization. He knew the sound (singing) of the Mississippi river which bulged with mud (muddy bosom) as it approached New Orleans where Lincoln cleansed (freed) it into gold (productivity) at the end of slavery (muddy bosom turning all golden at sunset).

Most teachers will be satisfied with this literal translation, and explain and ask questions to convey such knowledge and literal paraphrased understanding. High Definition teachers go beyond this.

Literal questions that traditional teachers ask

- What is your meaning of the poem? Or, What does the poem mean to you?
- Why does the poet draw our attention to the Congo, Nile, Euphrates and Mississippi rivers?
- Where are these rivers located?
- Why does the poet repeat lines?
- What gives the poem its mood and feeling?
- Explain the meaning of the phrase "my soul has grown deep like the rivers".
- What are the similes, metaphor, and personification in the poem. Identify.

When the teacher asks these questions only the high achievers are capable of answering. Therefore, these questions increase the gap between the high achievers and low achievers, so that the low achievers are left behind.

Consequently, high definition teachers would not utilize these items in the way they are framed. High definition teachers begin with the inferential meaning.

Inferential Meaning

The poet intended to show us that true learning comes from both good and bad experiences. Africans had great experiences building the pyramid on the Nile, but it is the harsh experiences on the muddy delta of the Mississippi that created the blues, etc. Both experiences made them a deeper, mature soul. By contrast the planters who lived on the higher ground had only one experience of dominance, and could not be as creative. Symbolism of the river: clear on higher ground (occupied by Whites), muddy lower down (occupied by African slaves, who previously had a great culture). Both experiences are necessary for maturity. The inferred principle is that we learn through diverse experiences, and our creative juices are inspired in response to difficult circumstances – "necessity is the mother of invention." Locked in role of domination and dominated, neither group could free itself. It took the exceptional mind of Lincoln to liberate them. The principle to be discerned is that when people are locked in their plight or are ignorant, they need a liberator, or teacher to free them. Now both groups are free to interact. Diversity leads to creativity

like the black and white keys of a piano. The poet anticipates even higher forms of creativity and productivity in the free interaction of diverse groups. America itself is richer by this interactive diversity.

Since, the same knowledge exists in multiple forms, we can reasonably expect that each student in the classroom has a parallel knowledge to that of Langston Hughes. He has couched an everyday experience in the tools of the poet. When we screen out his language structure that defines the basic meanings, students could recognize the perspectives of Langston Hughes in their everyday experiences. The following questions demonstrate this.

Objective to enable students to develop a model of learning that derives from contrasting experiences such as persons' experience, geographic experience, etc.

1. What is a good experience you have had? Explain.
   This question allows even the weakest student to provide an opinion by merely recalling an experience. It also teaches the student the disposition that the teacher as a significant other values his/her experiences

2. What is a bad experience you have had? Explain.
   Again all students can respond. Therefore, there is equity in the classroom as the teacher has equalized the playing field by providing affirmative action to the weakest students.

   Both questions allow the students to recall knowledge about their experiences relevant to the inferential meaning of the poem. In order to move the knowledge base from a recall of information to analysis and evaluation, we need to ask questions on comparison of the two recall knowledge.

3. Tell me, which experience do you value and why?
   Clearly, all students, including low achievers, could respond to the question. Therefore, the question teaches low achievers how to utilize their experiences to think in terms of higher order thinking skills as required by the poem.

4. If a person has only good experiences or only bad experiences, is he/she better as compared to someone who has experienced both good and bad?
   Many answers will be generated by the question, and the teacher can facilitate an understanding that contrast in experiences complement one another so that one understands the meaning of bad in relation to good.

   *In four questions, the teacher is able to obtain the essential meaning of the poem, and the students have yet to read the poem. The method enables the students to analyze their social experiences in terms of higher order thinking skills in relation the poem

5. Think of your kitchen sink or bath. What kinds of water flow from the two faucets? Answers: cold and hot. How do you know one is cold and the other hot? Can you feel what is hot unless you know what is cold?

6. Think of a swimming pool where children play and swim. How do you describe this end? How do you describe the end where adults swim? Answers: shallow and deep
7. Think of a man or woman, how do you describe him/her as compared to a boy or girl? Answer old versus young
8. Think of a river, identify and describe the source, and the mouth? At which end is the water shallow and clear, and which end is the water deep and muddy? Why?

**The class could generate several contrasting experiences, and identify the appropriate vocabulary which describe them. These could be placed on the "chalk board" for the purpose of comparison, and provide an opportunity for all students to build their vocabulary in order to convey their thoughts in complex sentences.

These questions allow even the weakest student to provide an opinion by merely recalling an experience. It also teaches the student the disposition that the teacher as a significant other values his/her experiences. The teacher, then reads the poem, and/or gets the class to do choral reading so as to generate a group feeling, and involve even the most marginal students, emotionally. Similarly, questions were framed to solicit responses to develop an understanding of the literal and inferential meaning. Questions were framed to explore among others such principles or issues as possible.

We cannot know the meaning of something unless we see it in terms of its differential contexts: past, present, future. We should not judge a book by its cover. We should not judge others or a whole people unless we are totally aware of the full cycle of events about them. To solicit such meanings, the teacher asked such questions as:

How did Africans live on the banks of the Nile? What did they contribute to civilization? How did the same people live on the Mississippi delta? What were their social and economic conditions in relation to White? Was it a fair relationship as compared to the relation between management and workers today? What would you consider to be fair and just working conditions at the workplace? What did they contribute to the American economy? Did they ever give up because of the unjust conditions? What did they contribute to the culture and music of America? What is the significance of the "blues" and New Orleans? Name a Black American celebrity who lived in New Orleans? What does this say about the character of African Americans? Why was the Mississippi described as muddy in that part? What is the significance as compared to the Nile? Rivers are pure everywhere, different people corrupt them. Why was it necessary for Lincoln to free the slaves, or what is the significance of the role of Lincoln in the poem? It takes an enlightened mind (Lincoln) to free a river from corrupting people. We must value and appreciate our experiences good or bad. It is the contrasting experience that makes us deep and mature (poet stated the line before first, and after the last experience).

Questions were framed to cover all aspects of the objectives. It is fairly easy to ask questions for identifying similes, metaphors, and personification, etc.

- What techniques or devices did the poet use to indicate similarities and differences (comparison and contrast)

  - use of "like" (as in similes) to indicate similarities.
  - use of contrasting experiences to demonstrate cyclical feeling and development.

- How was imagery built in the poem? Personifying things to show their impact on people:
  - Congo (like a mother) lulled me to sleep
  - Mississippi sings with a muddy bosom
  - Use of people, person through time, place, events, situations, to build imagery cyclical events

(c) *Define Previous Knowledge taught in the same subject area*

Think of the Poem: Mother to Son by Langston Hughes: How does the meaning relate to the Negro speaks of rivers? In this poem the boy is urged to tough out his bad experience, because it makes the man. Life is a cycle of good and bad experiences, to survive the bad experiences and profit from them is the greatest and most creative learning of all.

> What is real learning according to Langston Hughes, the sweet constructive life on the Nile or the hard muddy life of the Mississippi delta? Which offers greater opportunity for creativity {singing of the blues, jazz!). Identify and explain the techniques of the poet to convey feeling and mood?
>
> Think of The Novels by Steinbeck: The Pony, and The Pearl.
>
> The boy wants a pony, he can only get it as a result of the mother's death. He must witness the pains of the birth and death in order to get his pony. Life is a struggle, birth is a result of pain, the new comes up at the expense of the old. There can be no gain without pain?
>
> What message was conveyed in "Negro Speaks of Rivers" that is also conveyed in "The Pony". The creativity of African Americans came as a result of pain working in the plantations.

The theme of the corrupting influence of money is explored in the pearl. Students can compare how the plantation owners put their crops and money above the soul and welfare of humans who are different. Kino is happy and appreciates the natural surroundings in which he lives with his wife and baby. Then he finds a pearl. Once everyone realizes he has found a pearl of great price, the cycle of evil begins culminating in the death of the baby.

> Questions that could tie the essential meaning of the pearl with the Negro speaks of rivers:
>
> Is it money that is evil or greed? Did the planters need all that money for themselves? Should people seek wealth over and above the welfare of their fellow human beings? How did the slaves use their emancipation? How did Kino use his new found wealth?

Define related knowledge in different subject areas

The Poet took us to Africa through time and to the Mississippi. In doing so he raised concepts about geography, persons, people, events, and situations. The teacher developed questions to explore comparison of: continents, rivers and their structure and functions, origins of civilizations, pyramids, rivers, corrupting and purity aspects of man

Test Construction: The teacher explained techniques or learning skills related to testable concepts, etc., and provided examples of test construction using the content of the poem.

Activities: The teacher

- Organized students to use their creative perceptions of the poem to dramatize
(a) life on the Nile, and (b) life on the plantation.
- Played Paul Robeson's, Ole Man River
- Conducted choral reading
- Asked students to draw their feelings about the poem: Life on the Nile versus life in Mississippi.

Asked students to "write your own poem either in response to poet or your own feelings."

- Asked students to draw the events as stated in poem and/or in accordance with your own imagination

CONCLUSION

High definition instructional planning is a holistic process that defines the causes of the learning problems of different social groups. It identifies and develops strategies for utilizing the social experiences and contexts of learners in order to teach for higher order thinking skills. Then, it utilizes the skills so developed by students in the context of their social experiences to understand, and analyze, etc. the content to be taught. Therefore, it provides teachers with a technique for bridging the gap between the social environment of students and the academic requirements of the school's curriculum. In this sense it is expected to be more useful than other models.

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