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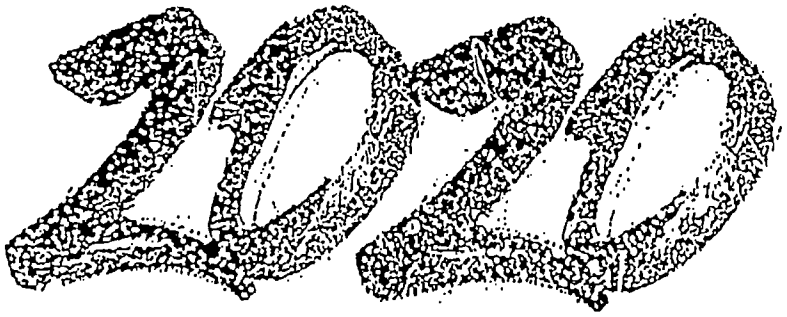
ABSTRACT

A key component to Eastern Iowa Community College District's (EICCD) strategic planning process, called "2020 Vision: A Perfect Vision for the Future," was the publication of the report "An Environmental Scan" in 1989, which summarized major trends occurring in the external environment which may impact the community college, the industries and communities it serves, and social, economic, and political structures and processes. It summarized these trends, events, and issues in five broad categories: (1) the changing population and demographics; (2) the changing workforce; (3) political, societal, and ecological changes; (4) changing technologies and the information explosion; and (5) the world economy. In September 1991, the EICCD began publishing updates to the Scan, each addressing a specific theme and summarizing events, trends, and projections affecting the district. The 2 volumes presented here contain a combined total of 19 updates. The following topics are addressed in volume 1: (1) Acquired Immune Deficiency Syndrome (AIDS)--global spread and implications for health care; (2) health care--the crisis in rural medical care, alternative care, and national trends; (3) health services--growth areas and employment prospects; (4) jobs--business trends, fast growing jobs, economic trends, educational requirements; (5) the American political scene--implications for community colleges; (6) new information and technology--information technology and technology transfer; (7) computer technology; (8) employment prospects for computer technology personnel; (9) the Iowa economy--largest employers in the state, wages, Iowa's goods- and service-producing industries; and (10) health occupations--EICCD's service area, and national health occupations. Topics covered in volume 2 concern: (1) the most important issues facing the EICCD--political changes, educational challenges, job skills of the future, globalization, work force and demographic changes, health and health care, societal issues, volunteerism; (2) kindergarten through 12th grade education--high school graduation rates, illiteracy, drugs and violence, funding; (3) the global population--family planning, population growth and the environment, primary health care needs, gap between rich and poor, refugees; (4) the national population--1990 census data, immigration and state population projections; (5) the Midwest and Iowa populations; (6) the population and demographics of EICCD's service area; (7) Iowa's economic and employment future; (8) the United States economy--job markets, defense industry, environmental protection; and (9) the restructuring of the American workforce--temporary workers, joblessness, stress, and standards of living. In both volumes, references are listed with each update. (PAA)



PERFECT
VISION
FOR THE NEXT
CENTURY

AN ENVIRONMENTAL SCAN
UPDATE

VOLUME 1, NUMBERS 1 - 10

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1992-93

EASTERN IOWA COMMUNITY COLLEGE DISTRICT

AUGUST 1992

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EASTERN IOWA COMMUNITY COLLEGE DISTRICT
DISTRICT OFFICE OF ACADEMIC AFFAIRS AND PLANNING
AUGUST 1992

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INTRODUCTION

In September 1989, the Eastern Iowa Community College District (EICCD) initiated its strategic planning process **2020 Vision: A Perfect Vision for the Future.** This eighteen-month process involved all employees of the Eastern Iowa Community College District, as well as its Board of Directors and community members. This process was undertaken in response to the belief that community college educators must become initiators in shaping their future and the future of their institution; that strategies must be developed to ensure that the community college will be responsive to the needs of the people in the year 2000 and beyond. To do so requires an examination of the external environment and what is known about the future.

The key component in the Eastern Iowa Community College District's development of its **2020 Vision** and its revision of its Mission and Goals was the publication and dissemination of An Environmental Scan. This document summarized major changes occurring in the external environment which may impact the community college, the industries and communities that it serves, and social, economic, and political structures and processes. It summarized these trends, events, and issues in five broad categories:

1. The Changing Population and Demographics
2. The Changing Work Force/Work Place
3. Political, Societal, and Ecological Changes
4. The Changing Technologies and the Information Explosion
5. The World Economy

The scanning information was used by the Eastern Iowa Community College District administration, faculty, staff, Board of Directors, and community members in the formulation of its "vision." This vision is reflected in the revised Mission and the new Institutional Goals of the Eastern Iowa Community College District. Specific objectives to be undertaken to accomplish these goals were formulated, and published in the strategic plan.

Since the publication of An Environmental Scan in 1989, the District Office of Academic Affairs and Planning has conducted numerous workshops for Eastern Iowa Community College District administrators, faculty, professional and support staff, the Board of Directors, and community members regarding how to scan the external environment, and the use of this scanning information in forecasting and planning. The goal is to develop a futures perspective across the entire institution by identifying those trends of most consequence to the Eastern Iowa Community College District for both short- and long-range planning purposes. An update to the strategic plan is published every six months, and includes a progress report for each objective, and any new objectives formulated since the previous planning cycle.

The Eastern Iowa Community College District's District Office of Academic Affairs and Planning began publishing updates to An Environmental Scan in September 1991. Each Update addresses a specific theme, and summarizes events, trends, and projections which may impact the community college. Bibliographic information is included for each entry so that the reader may refer to its source for further clarification and data. Each Update concludes with a section which asks questions regarding the impact of these trends and events on the community college.

An Environmental Scan Update is distributed to all full-time employees of the Eastern Iowa Community College District, its Board of Directors, all community colleges in Iowa, the Iowa Department of Education, the K-12 school districts and other selected organizations and agencies in the Eastern Iowa Community College District's service area, Vocational-Technical Programs' Advisory Committee members, and by special request to other community colleges and agencies.

An Environmental Scan Update, Volume 1, has proven to be a useful planning tool in the Eastern Iowa Community College District. It has kept the external environment and the need to be cognizant of changes occurring around us central to our planning; the information has also been utilized by our career counseling personnel in the advising of students and by faculty in the revision of curriculum and the consideration of new technologies.

AN ENVIRONMENTAL SCAN

UPDATE

Volume 1, Number 1 September 1991

Editor: J. N. Friedel, PhD

AIDS

AIDS: ITS GLOBAL SPREAD

"Living with AIDS is an effort that will last decades, generations, and probably for the rest of human history." (7)

- As of October 1989, a total of 182,500 people with AIDS were officially reported to the World Health Organization (WHO) from 152 countries. WHO estimates the true figure to be over one-half million. (10)

- In 1991, the WHO estimated ten million people worldwide to be infected with HIV. The distribution across the continents is: (17)

Africa	66%
North America	10%
Asia	10%
South and Central America	9%
Europe	5%

- The WHO projects 15-20 million people will be infected with HIV by the year 2000. (12)

- In Africa AIDS has reached tragic proportions with nearly 6 million infected adults and an estimated half million infected infants. As much as 15-20% of the work force in Africa could die from AIDS, and there could be as many as 10 million orphans in the next decade. These estimates may be low, because AIDS deaths may be masked by tuberculosis infections. (12)

- Cubans found infected with AIDS are taken to special rest centers throughout the country where they are isolated from the general population. The government describes these centers as "motel-like" places at which patients can have visits and meet with relatives. (16)

Since there is no prospect for an early cure of the AIDS disease, it is hoped that new drugs and other therapies may delay the onset of the malady. The question has become one of how individuals and groups can live with the disease and learn to cope. (7)

AIDS IN THE U.S.

If trends continue, AIDS will be among the top sources of death for women between the ages of 25 and 44 by 1993. (18)

In the next 15 years, the American AIDS epidemic will become a dominant heterosexual phenomenon, as in Africa. (15)

- Nearly one third of all people with AIDS, and more than half of young children with AIDS, are black. (5)

- According to the Centers for Disease Control in Atlanta: (18)

  Of the 171,876 Americans who have been diagnosed with AIDS, 16,805 were women.

  Of about 1 million people estimated to be HIV-positive, about 100,000 of them are women.

- In New York and New Jersey, AIDS is now the leading cause of death for black women aged 15 to 44. (5)

- Heterosexual transmission of AIDS is increasing in the U.S., accounting for about 5% of the newly diagnosed cases. (2)

- Caring for people infected with AIDS will cost the U.S. $5.8 billion in 1991. The yearly bill will hit $10.4 billion by 1994. (11)

- The AIDS and HIV bill consumes about $1 out of $100 spent on health care in the U.S.; by 1994, it will consume at least $3 out of $100. (11)

- Yearly treatment for a person with AIDS costs $32,000: $24,000 for hospital care, $8,000 for doctors' visits, drugs and other outpatient care. (11)

- The yearly cost of drugs, test, doctors' visits and other health care for HIV infection, but not full AIDS, is $5,150. (11)

- 40% of HIV patients have private insurance, 40% are covered by government programs and 20% have no insurance. (11)

- A genetic pattern has been discovered that protects some AIDS patients from rapid decline. This discovery could improve AIDS treatment by allowing doctors to make better predictions about patients' outcomes. (6)

"Unchecked, AIDS will kill more Americans in the next decade than have died in combat in all of the nation's wars since our founding. Already AIDS has claimed the lives of as many Americans as did the Vietnam War." (9)

AIDS AND HEALTH CARE WORKERS

There is a much greater chance of a medical worker being infected by a patient than the reverse. So far, 40 such cases have been documented. (14)

- The Illinois legislature has passed a bill making it the first state in the nation to require notification of former patients if a health-care provider tests positive for AIDS. (1)
- The Centers for Disease Control has drafted guidelines urging infected doctors and dentists to refrain from procedures involving blood exposure unless a panel concurs and patients are informed. (8)
- The CDC does not recommend mandatory AIDS testing for health care workers. (8)
- Only 4% of all reported cases of AIDS have involved health-care workers, including 1,199 nurses, 679 physicians and 156 dentists and hygienists. (14)

If new guidelines force health professionals to be tested for AIDS infection, it would seem only fair to test patients as well. (14)

TRENDS AND CONSEQUENCES

- If the AIDS epidemic continues to grow, the U.S. economy will stagnate and large sections of great cities will be abandoned to the poor and the sick. (13)
- At the turn of the century, between 6 and 15 million Americans will have been infected with the AIDS virus. A large majority of them will be heterosexuals who do not use IV drugs, and a great proportion will be minorities and poor people with limited access to medical care. (9)
- Fear of catching AIDS will encourage the healthy to flee from the sick, and may lead to irrational attempts to segregate HIV carriers. Government may intrude much more deeply into personal lives and the private behavior. (9)

As the HIV epidemic grows in the 1990s, it will dramatically alter the U.S. economic, political and social landscape. AIDS threatens to intensify social and racial divisions. Many blacks may come to see the epidemic and slow progress in stemming it as a genocidal plot against the underclass. The size of the labor force may be reduced by 1%. The total health care costs for the U.S. could rise by 8%. (9)

AIDS will be an important issue in future political elections. (13)

- The United States will be compelled to nationalize health care and guarantee access to all Americans. (15)
- AIDS will encourage the rapid emergence of a new style of doctor-patient collaboration as the model for the future. (15)
- AIDS will drive science to consider techniques and possibilities that would have been rejected only a few years ago. (15)
- AIDS is likely to become chronic but manageable, contained by many more drugs than the few now available. (15)
- Hospitals and support systems will be severely stressed. (13)
- Insurance companies may have the final word on mandatory AIDS testing of health-care workers. Facing large settlements, the companies will act to protect themselves. They will insist upon testing all health-care workers before insuring them. They will refuse to offer malpractice coverage to physicians who test positive for the AIDS virus. Hospitals staffed by those physicians will not be insured. (3)
- AIDS will produce a revival of religion. (13)
- Because of AIDS, there will be a greater emphasis on marriage and family. (4)
- Marriages may become more stable. (4)
- Illegitimate births may decline as fear of AIDS reduces pregnancies among unmarried women. (4)
- Prostitution may decline. (4)
- Euthanasia may become tolerated or even encouraged for AIDS victims to alleviate their suffering and the heavy cost of caring for them. (4)

AIDS will increasingly become an epidemic of the marginal classes (blacks, Hispanics, and ghetto teens), with much potential for class and racial hatred. (15)

- Prejudice may intensify against groups with a high incidence of AIDS (homosexuals, drug users, blacks, Hispanics). (4)
- People will become more cautious about physical contacts of many kinds. (4)
- Parents will be less willing to let their children play outside and in school-sponsored contact sports. (4)

The nurse shortage will intensify as many medical professionals move to other occupations out of fear for personal safety. (4)

An integrated global strategy must be established or AIDS will return again and again. (15)

- Clothing may become more modest as people downplay sexuality. (4)

- AIDS is inspiring a whole new aesthetic of grief in plays, stories, visual art and dance (e.g., the AIDS memorial quilt). (15)

- AIDS may change the balance of global power if the U.S. has to cope with a major epidemic while the USSR and China remain almost untouched. (13)

AIDS will probably undermine all advances made in the third world economies since the 1950s. (15)

- Major economic instability may be produced in Africa and the tropics, with shaky governments and defaulted loans. (13)

- AIDS may encourage much stronger global cooperation on public health measures and biomedicine. (13)

- Restrictions on travel may become increasingly common as nations try to protect their populations. (4)

- National barriers and demands for blood testing will multiply, impeding immigration, tourism, student travel and overseas operations. (13)

IMPACT & QUESTIONS

1. *Will current health care workers leave their profession due to the risk of AIDS?*

2. *Will new health care programs (i.e. hospice worker) need to be developed due to the increase in number of AIDS patients? What types of programs (i.e. health care, counseling) may need to be developed?*

3. *Will it be more difficult to attract individuals/students into health care programs due to risk of AIDS infection?*

4. *What courses/programs might we develop specifically for people infected with AIDS?*

5. *Do any changes need to be made in our curricula to promote safe work practices for health care professionals?*

6. *Will an increase in AIDS create a need for additional social/support services within the colleges?*

7. *Will there be an increase in the need for local health care workers?*

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AN ENVIRONMENTAL SCAN

UPDATE

Volume 1, Number 2 October 1991

Editor: J. N. Friedel, PhD

HEALTH CARE

CRISIS IN RURAL MEDICAL CARE

Almost 25% of rural hospitals are near bankruptcy. (6)

- Each year in the 1980s, one of every 10 rural hospitals closed. At this pace, a third of the remaining rural hospitals will close by the end of the century. (6)

- In 1986, 64% of the hospitals that closed their doors were located in rural areas. (7)

- A major factor in the financial difficulties of rural hospitals is the difference between what Medicare pays for services in rural hospitals compared to urban hospitals. Medicare pays from 35% to 40% less for a service in a rural hospital than it does for the same service in an urban hospital. (18)

- Rural hospitals rely on Medicare for 41% of their patient revenues. (6)

- There are only 97 doctors for every 100,000 rural residents, 225 per 100,000 urbanites. (16)

- There is only one primary care physician for every 2,857 residents in rural areas compared with one for every 614 residents nationally. (14)

- According to the Association of American Medical Colleges, only 1.5% of the 15,000 medical students graduating in 1990 said they wanted to practice in a small town or rural area. (14)

"We need our rural hospitals. The health of people who grow our food and nourish the nation should not be put in jeopardy because they live in rural areas. They don't ask for hand-outs. They just want to be treated on an equal basis. If we don't provide them with health care, everyone will pay." (18)

-- Dr. Ken Evans, a family physician
Newman Memorial Hospital
Shattuck, Oklahoma

- Almost a fourth of all country doctors are over 60. (14)

- One hundred eleven rural counties have no physicians at all; about two-thirds have no obstetricians or pediatricians. (16)

- Rural doctors have a lower volume of patients. Per capita patient visits to physicians have been lower in rural than in urban areas since 1975. (18)

RECOMMENDED ACTION

- To offset the shortage of doctors in rural areas:

  o Establish scholarships, financial aid, deferred student loan payments, medical school loan forgiveness, practice grants and tax exemptions in return for a period of service. (18)

  o Expand medical placement services and dispersion of residency programs into rural areas. (18)

  o Establish programs to help family physicians cover the cost of malpractice insurance. (18)

  o End the federal government's discrimination in payments between rural and urban areas. (18)

PRIMARY CARE DOCTOR SHORTAGES

Most primary care doctors work 12-14 hours per day, not including emergency calls. (19)

- In the early 1980s, about 40% of medical school seniors chose primary care careers. By 1989, that had dropped to 25%. Experts predict in the next 10 years, only 9% will choose primary care careers. (3)

- A recent study by the Community Service Society of New York blames the primary care doctor shortage on the medical schools which emphasize specialty and research training at the expense of primary care. Moreover, medical students today leave school with whopping debts and many, understandably, seek lucrative employment. (10)

- The Quad-Cities is short 20 to 30 primary care physicians. Since 1988, the Quad-Cities has gained a total of 23 physicians; but it has a net loss of 14 family practitioners, general internists and pediatricians. The Quad-Cities now has 85 primary care doctors, compared with 99 three years ago. (3)

Even though nationally the number of new doctors continues to rise, medical leaders predict a shortage of primary-care physicians--internists, family and general practitioners. (8)

ALTERNATIVE HEALTH CARE

"There is a growing sense that regular medicine gives drugs too readily, is too expensive and too dangerous." (2)
--Andrew Weil, M.D.
Tucson physician

- A trend towards natural healing alternatives is growing by about 20% a year in the U.S.

  - Homeopathy
  - Naturopathy
  - Herbal medicine
  - Chiropractic
  - Acupuncture

  Alternative medicine is based on the principle that the body has a natural healing ability and that doctors simply help the process along. (2)

- For the first time ever, the American Association of Orthopedic Surgeons included a symposium on back manipulation. Research has been conducted by medical experts on chiropractic techniques with favorable results. (4)

- Chiropractors reported a 21% increase in patient visits per week over the last decade. (2)

HOSPICE CARE

- Interest in hospice care has increased dramatically in the past several years. In 1983, 100,000 clients turned to hospices nationwide; by 1990, that number had doubled. (17)

- To be eligible, patients must be diagnosed as having six months or less to live; there must be at least one relative or friend living at home to be primary caregiver and there must be room for whatever equipment is necessary, such as hospital beds or oxygen tents. (17)

- Perhaps the biggest reason hospice care has grown so much is economic studies show hospices can offer a marked cost advantage over hospitals and nursing homes. (17)

- Most major health insurance plans, including Medicare, now cover virtually the entire cost of treatment in hospices meeting standards set by the U.S. Department of Health and Human services. Medicaid pays in about 20 states. (17)

"Probably the most common misconception about hospice is that it is a <u>place</u> where you bring someone who is terminally ill. Most of the hospice organizations assist those keeping terminally ill family members at home." (17)

-- Claire Tehan, Director
Hospital Home Health Care Agency
Torrance, California

As technology advances and efforts to control costs increase, the health care industry will see a steady growth of outpatient care. Only the very ill will be admitted and the cost to care for them will most likely increase. (6)

- Top ten health trends for 1992: (15)

1. Gene therapy testing
2. Finding "chemopreventives" to protect people who are at high risk for cancer
3. Turning back nature's clock: growth hormone therapy for the elderly and postmenopausal women having children
4. A more equitable and compassionate system of health insurance to cover all
5. More reliable predictions of heart-attack risk and clot-busting drugs to unblock arteries
6. Growth of patient power: organizations of victims encouraging more responsive research and care
7. More serious studies of health effects from electromagnetic fields
8. The rise of sexually transmitted diseases
9. Major research on women's health
10. The growing right to die with dignity through living wills

- Bone marrow transplants will be more widely used in cancer patients, increasing survival rates. (12)

- The American Hospital Association in its report Meditrends 1991-92 predicts trends in health care. These include:

  - o More than 1.6 million people will be diagnosed with cancer each year through the 1990s; they will account for 20% of the nation's total health care costs. By 2000, cancer will be the leading cause of death. (5)

  - o Advances in medical technology will drive up the cost of health care. (5)

  - o To make high-tech advances affordable, hospitals may have to specialize in one or two areas and drop services used less often. Hospitals can't be all things to all people. (5)

  - o Hospitals will create in-home services for patients and develop larger outpatient clinics to cut costs. (5)

  - o Treatments may include genetically engineered drugs, replacing surgery, and making home treatment possible. (5)

  - o Many more surgeries will be performed with scopes, which enter the body without large incisions. Result: Lower cost and shorter hospital stays. (5)

  - o Organ-like structures will be made from a mixture of living cells and synthetic materials. (5)

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Applications to U.S. medical schools have dropped by 25% during the five years--1985 to 1990. (19)

- In the past 10 years, female enrollment at medical schools has jumped from 16,315 (25.4%) to 23,501 (36.1%). (11)

- Minority medical enrollment has remained about level with 4,076 black medical students (6.3%) and 3,518 Hispanic students (5.5%). (11)

- Because of financial difficulties and their locations in inner city areas, black minority medical schools are in a crisis situation. In 1990, only 7% of black medical school graduates were from minority medical schools. Meharry Medical College, Nashville, Tennessee, is the top provider of doctors for low-income rural areas and inner cities. (13)

- The high cost of medical education may be one factor discouraging potential minority applicants. The average debt for medical students who borrowed money was $42,374 at graduation in 1989, up more than $4,000 from 1988. For minorities, the debt burden averaged about $6,000 higher. (11)

- In the last 30 years, tuition at public medical schools increased 277%, to a median $5,810; tuition increased 403% at private schools to $17,794. (9)

- In 1990, the average medical school graduate owed $46,224 in college loans, 77% more than 1980 graduates. (9)

- The number of medical school applicants, which declined through most of the '80s, has increased by 15% in 1990 to 33,600, more than twice the space that the country's 126 teaching institutions have available. Applicants include former investment bankers and lawyers who have been laid off and are now looking for safer careers. Many schools don't like the motives of some of the applicants--some are only interested in making more money. (1)

IMPACT & QUESTIONS

1. *What are the implications of the crisis in rural medical care for Iowa? What steps can the community college undertake to help alleviate the crisis?*

2. *Many of the North and Central American indian cultures are trying to blend traditional medicine with scientific medicine. What are the implications of this, as well as the trends toward natural healing alternatives and preventive medicine, for health programs?*

3. *As the population of the state of Iowa continues to age, hospice use will increase. Are the children of aged parents prepared to deal with the issues associated with caring for their parents? How can the community college work cooperatively with other social agencies to meet this growing social phenomenon?*

AN ENVIRONMENTAL SCAN

UPDATE

Volume 1, Number 3 November 1991

Editor: J. N. Friedel, PhD

THE HEALTH SERVICES

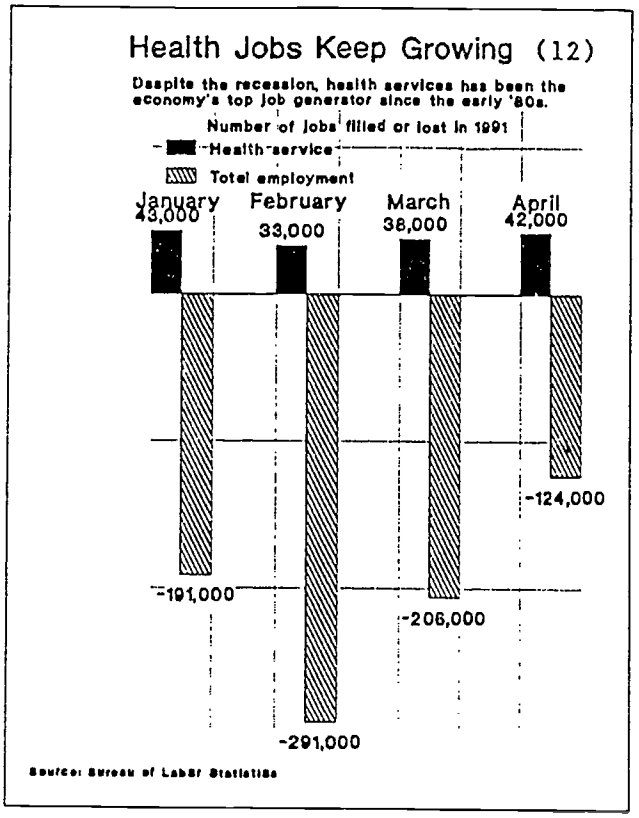
THE HEALTH SERVICES: A GROWING PROFESSION

- 3 million health-services jobs have been created since 1981, a 55% increase. (10)

- In 1990 605,000 health-service jobs were created, a 7.7% annual growth rate. (10)

- From July 1990 through April 1991, the U.S. economy lost more than 1.4 million payroll jobs. From July 1990-April 1991, health-service employment grew 4.7%, or 390,000 jobs. In April alone, 124,000 payroll jobs disappeared overall, while health services added 42,000. (10)

More than 60% of all health care delivered in the United States is provided by members of the health care team other than physicians and nurses. (11)



"Anyone entering the health care field today will have a guaranteed job for life. Opportunities are everywhere, as the demand is national, in both rural and urban settings." (10)

- Home health care is the fastest-growing sector within health services--18.1% last year to nearly 319,000 jobs, including nurses, physical and respiratory therapists, aides and technicians. (10)

- The role of doctors and nurses is expanding. Utilization review companies hire doctors and nurses to screen claims and pre-approve requests for hospitalization, surgery and other costly procedures to curb unnecessary hospital stays. (1)

NURSING: FIELD OF HIGH DEMAND AND LOW SUPPLY

"It is becoming clear that we are headed for a period of severe nursing shortage--the kind that leads to declining levels of quality care." (8)

-- Claire M. Fagin, Dean, School of Nursing
University of Pennsylvania

"The old stigma of being a nurse is gone. It's no longer a wimpy thing to do. Suddenly, students are breaking down the doors to get into nursing." (21)

-- Renee Sims
Austin Community College, Texas

- Between 1981 and 1989, the number of licensed practical nurses dropped 23%. (23)

- According to the American Association of Colleges of Nursing, the supply of registered nurses falls short by 200,000, even though the 1.1 million nurses now practicing in hospitals are more than ever before. (23)

- Hospitals averaged a 12% vacancy rate in nursing in 1990. (2)

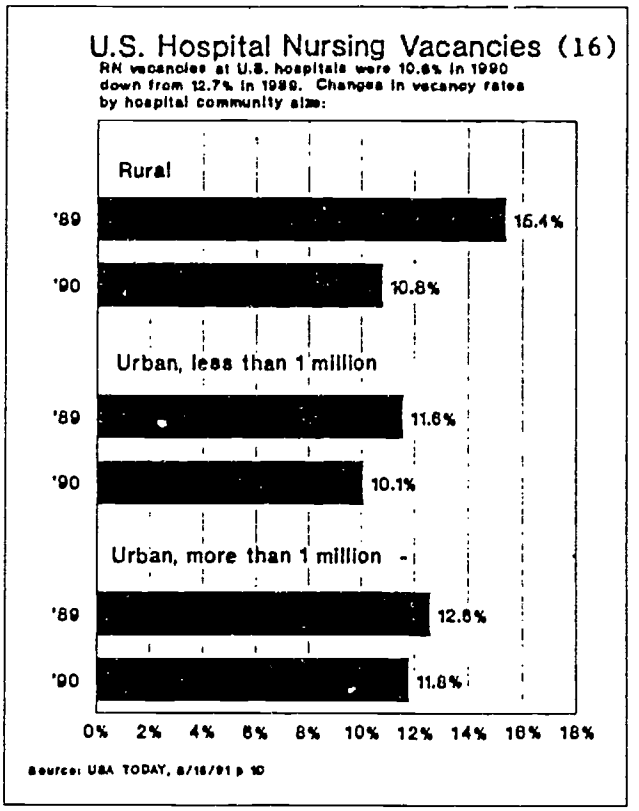
- The nursing shortage is most severe in the Southeast where the vacancy rate is 12.8%; lowest in New England at 5.3%. (21)

- In the near future, more nurses will be needed outside acute care organizations, and there will be an increased need for technically skilled nurses in acute care. (21)

- There are an estimated 15 job openings for every nurse-midwife. The profession has a limited number of candidates, because it draws upon registered nurses, who already are in short supply. (6)

- Only 3% of nurses are male. (23)

The image of nurses is evolving into that of specialty-trained practitioners with independent duties. Nurses are seeking more autonomy and equality with oth- - health care providers. (25)



- Nurse training programs are growing across the country. People are waiting in line for days to apply for classes. Officials cite several reasons for the boom: (21)

  o Guaranteed work.
  o Improved pay and working conditions.
  o A swing back to service-oriented values.

- The nursing role will include managing and coordinating care. There will thus be a growing demand for higher levels of educational preparation. In 1980, 5% of RNs held a masters degree. By the early twenty-first century, at least 10% of nurses will have a masters degree. (8)

"The [nursing] shortage will continue to ease as the larger enrollments work their way through school. But the demand for nurses is still growing. [Patients] leave hospitals and take [health care] technology home with them, increasing the need for home-visiting nurses." (21)

-- Leslie Champlin
American Nurses Association

- The aging population will require chronic and long-term care. Community care and self-care will become increasingly important. (9)

The use of multi-skilled health practitioners will increase as hospitals and health care institutions continue to function under severe financial constraints. (11)

- Demand for radiology technologists in nuclear medicine and sonographers will continue to increase as the use of high tech equipment to diagnose and treat diseases increases. (17)

- The use of multiskilled health practitioners (MSHPs)--persons who are cross-trained to provide more than one function, often in more than one discipline, offer potential in addressing the shortage of nurses and allied health practitioners. MSHPs enable health care settings to meet their needs for cost-effective personnel by not having to hire full-time and often unavailable single-skilled professionals in each area. (11)

- Hospitals are encouraged by the Joint Commission on Accreditation of Hospitals to hire bilingual staff and provide interpreters to help patients with language barriers. (7)

- Of the 130,000 practicing U.S. dentists, 4,000 specialize in the care of children. That number is steadily growing along with the percentage of women in the field. (24)

WHERE THE JOBS ARE (2)

Some of the major health-service occupations, their typical training requirements, sizes, and expected growth through the year 2000.

Health Occupation	Training	Number	1990s Growth
Registered nurse	2-4 yrs.	1,577,000	+39%
Nursing aide	1-3 mos.*	1,184,000	+32%
Licensed practical nurse	1 yr.	626,000	+37%
Laboratory tech.	1-4 yrs.	242,000	+10%
Medical secretary	1-6 mos.*	207,000	+58%
Medical office assistant	1-6 mos.*	149,000	+70%
Radiologic tech.	1-3 yrs.	132,000	+66%
Dental hygienist	2 yrs.	91,000	+18%
Physical therapist	4 yrs.	68,000	+57%
Respiratory therapist	2 yrs.	56,000	+41%
Surgical technician	6-12 mos.	35,000	+56%
EKG technician	1-6 mos.	14,000	+10%

Source: U.S. Department of Labor * Usually on-the-job.

Medical Jobs in Iowa

Hospital jobs in Iowa are expected to grow 6.1% [1991-96], with employment rising from 53,354 to 56,600. (14)

- Community health nurses are especially in short supply, and their need will increase as outpatient and clinic services and home health care expands. The focus of community health nurses is on disease prevention through public health departments, home health agencies, schools, clinics, hospitals, or businesses. (13)

Even in a slow economy, managed care managers are unlikely to find their jobs in jeopardy since their assignment is to cut costs." (13)

- Managed care managers are a new breed of specialist; in the past three years, one-third of the Fortune 500 companies have hired these specialists whose purpose is to keep medical costs down. These managers develop relationships with hospitals and physicians, and negotiate discounts in exchange for directing employees to them. (13)

- The growing need for immunologists and infectious disease specialists is due to both the AIDS epidemic and national efforts to reach inner-city children who have not been properly immunized. It is estimated that between 1986 and 2020, the number of immunologists will grow by 80% and the number of infectious disease specialists by 95%. This is more than double the increase for all other specialties. (13)

- The need for clinical ethics consultants will grow. Clinical ethics is the process of identifying, analyzing and resolving the moral problems of a particular patient's care. Ethics consultants fill several roles such as: professional colleague, negotiator, patient and physician advocate, case manager and educator. The clinical ethicist should be able to negotiate at the bedside, in hospital conference rooms, with third-party payers and with hospital management. (19)

- Non-traditional medical care services that will be in demand: (9)

  Home care
  Volunteer networks
  Work site elder care programs
  Lay education
  Professional geriatric education
  Health promotion
  Self-care
  Corporate wellness programs
  Religious congregational support groups
  Self-help groups

HEALTH CARE PAY

- Overall health care pay rose 6% in 1990. (2)

- RN pay has risen an average 8% a year the past three years. The 1990 average entry-level salary was $24,768, while after five or six years, it averages $37,168. (2)

- X-ray technologists and physical therapists command pay of $20,000 to $45,000 a year. (2)

- Medical office assistants start around $12,000, seldom going beyond $25,000 year. (2)

- Home health aides earn minimum wage. (2)

- Doctors made an average $155,800 in 1989, after subtracting business expenses, including malpractice premiums. (15)

- Surgeons, the highest paid physicians, averaged $220,500 in 1989. (15)

- The average yearly income for family practice physicians is $87,000--about $23 an hour, based on 70 hours a week. (5)

- In 1989, family doctors under age 36 earned an average of $90,600 annually; surgeons, $169,500 according to the AMA. (20)

- The typical annual average salary for managed care managers is $5[illegible],000-$75,000, while the upper range salaries are $125,000-$150,000. (13)

- The Feminist Majority Foundation, citing an American Medical Association study, reported that women physicians in 1988 earned only 62.8% of the pay received by male doctors. That was a decline from 1982, when female doctors received 63.2% of the pay of male doctors. (22)

- Malpractice insurance costs continue to rise. Average malpractice insurance payment by specialty area are: (18)

Specialty	Annual Premium
Obstetrics-Gynecology	$37,000
Surgery	25,000
Anesthesiology	21,700
Radiology	13,300
General practice	9,000
Pediatrics	7,800
Psychiatry	6,300
Pathology	5,500

Source: American Medical Association

- There is a loss of morale in the medical profession because of competition, governmental regulation and malpractice concerns. In a Gallup poll for the AMA, 40% of the physicians surveyed said they would definitely or probably not select medicine if they had a career choice to make again. (4)

IMPACT & QUESTIONS

1. *Most colleges have waiting lists for admittance into their nursing programs; nonetheless, there is a shortage of nurses. What strategies can be undertaken to alleviate this shortage?*

2. *The role of nurses in the field is being redefined and expanded. What are the implications of these on our programs and curricula?*

3. *The aging of America's population continues to impact health care and the health professions. What are the implications to the programs and services offered by community colleges?*

4. *What role might community colleges play in the non-traditional medical care services that are being developed; i.e., self-help groups, corporate wellness programs, work site elder care programs?*

5. *Advances in medical technology and our ability to prolong life has given rise to the study of clinical ethics. What dilemmas are posed for future health professionals, and what is the role of the community college in building an awareness and knowledge regarding ethical issues and their resolution?*

6. *What can we do to better educate the public, especially our young people, regarding the growing need for health professionals and the variety of career options available to them?*

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AN ENVIRONMENTAL SCAN

UPDATE

Volume 1, Number 4 December 1991

Editor: J. N. Friedel, PhD

JOBS

BUSINESS TRENDS FOR THE 1990s

John Naisbitt in his report 223 Hot, New Future Business Trends for the 1990s cites the following growth areas by industry:

BIOTECHNOLOGY

Production and sales of genetically engineered crops, animals and drugs

BUSINESS SERVICES

Temporary-employment agencies
Employee-leasing firms
Remedial education and training firms
Mobile office-supply services
Short-term leasers of computers, fax machines and other office equipment
Customized conference arranging
Electronic graphic services, such as laser typesetting
Companies catering to small businesses' space and personnel needs: shared office suites, secretarial and dictation services
Global-trade specialists
Hispanic marketing agencies
Ethics training
Time-management services
Laboratory testing and counselors for illegal drug use
Accounting services for home-based businesses
Small-business broker services

CHILDREN'S SERVICES

Day-care providers
Nanny agencies
Remedial-education centers for young people
Specialized education facilities for tots, ages three months to four years
Children's fitness centers
Clothing and furniture stores and restaurants catering to children

COMMUNICATIONS

Software and database systems
Information-management consultants
Cellular phone services
Mass fax mailers
Fax vending machines
Interactive video production
Image processing
Color copiers
Custom computer software

CONSTRUCTION AND BUILDING

Infrastructure construction companies
Home remodelers
Retirement housing
Do-it-yourself home-improvement outlets
Home-inspection businesses
Prefabricated and customized sunrooms

ENTERTAINMENT AND TRAVEL

- Bed-and-breakfasts
- International travel specialists
- Cruise travel agencies
- Bowling
- Videotape-delivery services
- Auto specialists: quick-service lube and oil change centers, muffler shops, brake parts and diagnostic shops, car washes
- Interactive television sales, service and programming
- Customized music cassettes

ENVIRONMENT

- Pollution-control companies
- Recycling and other environmental services
- Waste-to-energy facilities
- Manufacture and sale of environmental products for homes and offices: newspaper binders, trash-can dividers, can crushers

FOOD

- Low-fat chicken restaurants
- Aquaculture businesses
- New varieties of microwave foods
- Self-heating, self-cooling foods
- Prepared, ready-to-heat-up supermarket foods
- Ice-cream alternatives: frozen yogurt, shaved ice, other frozen desserts
- Low-cholesterol and low- and no-fat foods
- Low-calorie restaurants
- Health-food snacks in theaters and video stores
- Upscale snack shops
- Brew pubs
- Bottled water
- Home food-delivery services
- Exotic-foods restaurants
- No-alcohol bars

HEALTH CARE

- Home health-care agencies
- Home obstetrics-care products
- Diet and fitness centers
- Physical and occupational therapy
- Diagnostic substance manufacturers and distributors

THE MATURE MARKET

- Travel services for seniors
- One-day denture services
- Eye-care and hearing aids
- Wheelchair rentals
- Job-placement services for seniors
- Senior day-care centers
- At-home nursing care
- Live-in companion services

PERSONAL SERVICES

- Home-delivery and personal-service companies
- Middle-income financial planning consultants
- No-frills, quick-service day cleaning
- Concierge services for office and apartment tenants
- Personal travel consultants
- Closet organizers
- Mobile auto-maintenance and repair
- Pet and plant sitters
- Wedding and special-event planners
- Office-plant rentals

RETAILING

- Specialty discount retailers
- Prewrapped gifts
- Museum shops
- Independent bookstores
- Footwear
- Educational games stores
- Formal evening gown rentals

SECURITY

- Antitheft tags and similar devices for retailers
- Museum security specialists and systems
- Computer-security consultants
- Security technology vendors
- Private security agencies
- Employee honesty tests
- Robot guard services

This information is based on John Naisbitt's report 223 Hot, New Future Business Trends for the 1990's published by John Naisbitt's Trend Letter. Used with permission. (202) 337-5960. (800) 368-0115.

THE TOP 50 FASTEST GROWING JOBS IN THE U.S.

	Occupation	Estimated Total Employment 1988	% Growth Projected	Numerical Growth
1.	Paralegals	83,000	75	62,000
2.	Medical assistants	149,000	70	104,000
3.	Radiologic technologists	132,000	66	87,000
4.	Homemaker-home health aides	327,000	63	207,000
5.	Medical record technicians	47,000	60	28,000
6.	Medical secretaries	207,000	58	120,000
7.	Physical therapists	68,000	57	39,000
8.	Surgical technologists	35,000	56	20,000
9.	Securities and financial services representatives	200,000	55	109,000
10.	Operations research analysts	55,000	55	30,000
11.	Travel agents	142,000	54	77,000
12.	Actuaries	16,000	54	8,500
13.	Computer system analysts	402,000	53	214,000
14.	Physical and corrective therapy assistants	39,000	52.5	21,000
15.	Social welfare service aides	91,000	51.5	47,000
16.	EEG technologists	6,400	50	3,200
17.	Occupational therapists	33,000	49	16,000
18.	Computer programmers	519,000	48	250,000
19.	Service sales representatives	481,000	45	216,000
20.	Human services workers	118,000	45	53,000
21.	Health services managers	177,000	42	75,000
22.	Corrections officers	186,000	41	76,000
23.	Respiratory therapists	56,000	41	23,000
24.	Receptionists	833,000	40	331,000
25.	Electrical and electronics engineers	439,000	40	176,000
26.	Employment interviewers	81,000	40	33,000
27.	Registered nurses	1,577,000	39	613,000
28.	Flight attendants	88,000	39	34,000
29.	Licensed practical nurses	626,000	37	229,000
30.	Recreational therapists	26,000	37	9,500
31.	Management analysts and consultants	130,000	35	46,000
32.	Computer and office machine repairers	128,000	35	44,000
33.	Podiatrists	17,000	35	5,700
34.	Information clerks	1,316,000	34	441,000
35.	Guards	795,000	32	256,000
36.	Engineering, science and data processing managers	258,000	32	83,000
37.	Nursing aides and psychiatric aides	1,298,000	31	405,000
38.	Aircraft pilots	83,000	31	26,000
39.	Dispensing opticians	49,000	31	16,000
40.	Lawyers and judges	622,000	30	188,000
41.	Childcare workers	670,000	30	186,000
42.	Actors, directors, and producers	80,000	30	24,000
43.	Nuclear medicine technologists	10,000	30	3,000
44.	Meteorologists	6,200	30	1,800
45.	Social workers	385,000	29	110,000
46.	Computer and peripheral equipment operators	316,000	29	92,000
47.	Underwriters	103,000	29	30,000
48.	Landscape architects	19,000	29	5,500
49.	Engineering technicians	722,000	28	203,000
50.	Physicians	535,000	28	149,000

Source: Farr, Michael. America's 50 Fastest Growing Jobs. Martin, Kathleen, ed. Indianapolis, IN: JIST Works, Inc., 1991, 201 pages.

The above table lists in descending order those occupations projected to grow the fastest through the year 2000; i.e., those with the greatest percentage increase over 1988 performance levels. Thus, paralegals rank as the fastest growing occupation, increasing 75%, from 83,000 to 145,000 by the year 2000. Registered nurses, on the other hand, rank 27th, increasing 39% (or 613,000) from 1,577,000 to 2,190,000 by the year 2000. (3)

HOTTEST CAREER TRACKS

In a survey conducted by U.S. News & World Report, 200 members of the Society for Human Resource Management predicted the hottest career tracks in 20 professions.

PROFESSIONAL AREA	HOT TRACK
Accounting	Forensic Accounting
Architecture	Health Design
Computers	Systems Analysis
Education	Assessment
Engineering	Electronic Engineering
Environmental Management	Industrial Hygiene
Finance	Loan Workout
Food Service	Food Distribution Management
Health Care	Managed Care Management
Human Resources	Diversity Management
Insurance	Environmental Claims
Law	Employment Law
Manufacturing	CAD Drafting
Marketing	Product Management
Medicine	Infectious Diseases
Nursing	Community Health
Paraprofessional	Physician Assistant
Sales	Financial Product Sales
Science Research	Materials Chemistry
Telecommunications	Network Management

Source: "Best Jobs for the Future: Salary Survey." U.S. News & World Report. November 11, 1991, pp. 88-102.

TRENDS IN MAJOR SECTORS OF THE ECONOMY

- Fields likely to shrink include defense, farming, household equipment and appliances, housing (except remodeling or retirement-orientated housing), regional shopping mall development, and tobacco. (2)

- There will be an explosion of overseas franchising, especially as 1992 and unification of the European Community approaches. (2)

GROWTH OF SERVICE JOBS

- By the year 2000, almost four out of five jobs will be in industries that provide services. The expansion in the service sector is fueled by changes in consumer tastes and preferences, advances in science and technology, legal and regulatory changes, changes in the organization and management of business. (2)

HEALTH CARE

In terms of job creation, health care will be one of the most important industry groups. Hospitals will continue to employ the most health care workers. (2)

Employment in the health industries is projected to grow from 8.2 to 11.3 million by the year 2000. (2)

- The fastest growing jobs in the service sector will be those that require the most educational preparation. (2)
- More than half of the new jobs created by the year 2000 will require education beyond high school, and one-third will require a college degree. (2)
- Seven of the fastest growing occupations between now and the year 2000 will be health related. Outpatient care facilities and the offices of other health practitioners (i.e., chiropractors, psychologists, optometrists) will increase the fastest. Private and public hospitals will grow more slowly than other health industries, but faster than the average for all industries. (2)
- Computer and data processing services is expected to grow five times faster than the average for all industries. (2)

BUSINESS

Employment in business services is expected to jump from 5.6 million to 8.3 million by the year 2000. (2)

- Personnel supplies services (i.e., temporary help agencies) is the largest industry in this group and will add the most jobs. (2)
- Research, management, and consulting will have rapid growth. (2)
- "Expert systems" are knowledge-based computer programs that try to replicate the expertise of humans; they use data bases of expert knowledge and programmed rules to make decisions. The increasing need for marketing-support and credit-card evaluation programs alone could account for a $5 billion expert system industry worldwide within the next five years. The need for artificial intelligence-oriented workers could grow as much as 25% a year through the 1990s. (2)
- Catalog sales grew by at least 10% annually during the 1980s. Sales topped $93 billion in 1990, an average of $370 per American household. It is anticipated that the mail-order business will continue its expansion through the 1990s. (2)
- Firms that specialize in ergonomics, the science of designing work places that emphasize efficiency and safety, will continue to increase through the 1990s. Growing work place health risks are: exposure to blood-born diseases, repetitive-motion injuries, VDT radiation, and stress. (2)
- In both the U.S. and Europe, plastics recycling is a leading waste-management priority and growing industry. (2)

Increased demand for kosher foods gives rise to new businesses. (2)

- A boom in kosher foods is occurring due more to quality consciousness than to religion. Kosher foods make up about 1/3 of all packaged goods sold in supermarkets; non-Jews buy 2/3 of all kosher food products because they are perceived as fresher and healthier. Many mainstream food companies market certified-kosher food products, while other companies are being created that deal exclusively with kosher foods. (2)

EDUCATIONAL REQUIREMENTS FOR THE NEW JOBS

During the 1990s, 18.1 million jobs will be added to the U.S. economy. (2)

- Occupations that require more education will generally grow faster than occupations with the lowest educational requirements. (2)
- Almost all of the fastest growing jobs will require training beyond high school. (2)
- In many of the occupations that require little formal education, employment will stagnate or decline due to office and factory automation, changes in consumer demand, and increased use of imports. (2)
- Opportunities for high school dropouts and people unable to read will become increasingly limited. (2)

IMPACT & QUESTIONS

1. *Small and medium size businesses targeted to meet the needs of market niches will expand in the 1990s. Continued automation of office functions, the need to compete globally, increased minorities in this country, and the rise of home-based businesses will give rise to specialized services. What will be the impact of these changes and new services on the EICCD as an employer? What impact may these changes have on both our credit and non-credit offerings, as well as services to students? How will the structure of our curricula be affected?*

2. *Successful new businesses will be targeted for specific market niches. What new market niches are in the future of the EICCD?*

3. *Temporary help agencies will be the largest industry in the business sector. What will be the impact of this growing industry on our programs? What will be its impact on the labor force and the quality of life obtainable by people employed as "temps"? What are the positive benefits as well as the disadvantages of the growth of this industry?*

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AN ENVIRONMENTAL SCAN

UPDATE

Volume 1, Number 5 January 1992

Editor: J. N. Friedel, PhD

SPECIAL ISSUE: REFLECTIONS ON THE AMERICAN POLITICAL SCENE

This issue of An Environmental Scan Update is dedicated to a discussion of the current U.S. political scene and its implications for community colleges. Joel Lapin, Professor of Sociology and Acting Director of Development at Catonsville Community College (Catonsville, MD), is our guest writer for this issue. Mr. Lapin has conducted two workshops on environmental scanning in the EICCD and will be returning to the EICCD to facilitate an additional workshop for faculty on February 28, 1992.

REFLECTIONS AND IMPLICATIONS FOR COMMUNITY COLLEGES

The current domestic political scene is complex, varied, and very changeable. While numerous political trends can be identified, four trends seem to reflect the "mood" of a significant number of Americans (and perhaps the "mood" of a number of significant Americans as well). While not exhaustive by any means, these trends characterize the current scene and suggest a future political environment that will shape community colleges.

• TREND ONE: *The Politics of Passion Has Replaced the Politics of Reason*

Increasingly, voters align themselves with self-interest groups that are dedicated to promoting a narrow agenda and value system. Examples of the self-interest groups growing more visible are:

- The passionate "right-to-life" advocates and opposing "choice" advocates;
- The gay and sexual rights advocates;
- The anti-tax raising groups;
- The anti-affirmative action groups; and,
- The privacy advocates.

In many communities, people have become politically active as part of a NIMBY (Not In My Back Yard) group opposed to such projects as the location of dumps and half-way homes, and the construction of shopping malls and new roads. NIMBYs are motivated by actual or perceived threats to their valued property, health, and ways of life. People stake out positions and become intransigent in an emotional defense of their values. Calls to reason in the political

arena and appeals to national or community interest are lost or ignored. Individuals and groups promote and protect their "rights" while devaluing and ignoring their "responsibilities" inherent as members of society. Passionate positions and ideological tunnel vision often sweep reason aside.

- TREND TWO: *Political "Balkanization" is Growing*

Our "mosaic" society, like the Balkan states, is increasingly characterized by competition and conflict. Americans identify with numerous subcultures because of the nation's diversity of age, ethnic, racial, regional, occupational, and other groups. Examples include "baby-boomers", seniors, Hispanics, working mothers, white Southerners, union workers, and so forth. Appeals to these groups by politicians and the adoption of positions that these groups are believed to advocate suggest that political strategies and decisions are influenced by key support groups or are thwarted by competing key groups.

- TREND THREE: *The Politics of Resentment and Frustration is Rising*

Many Americans feel ignored by politicians and the powerful and feel deprived of benefits that others receive. The explosion of self-help and other support groups over the past few years suggests that more Americans are willing to declare that they have been "victimized." Some view themselves as victims of dysfunctional families (spouse, child, and elder abuse), sexual, religious, or substance abuse. Americans look around and perceive that schools don't teach; the economy doesn't have jobs; and the streets are unsafe. The truly pessimistic (or realistic, depending on your view) conclude that "nothing works." The stress of daily life becomes overwhelming for many. In urban areas, a daily commute may be filled with congestion and smog, and certain sections of cities may be avoided. These contribute to the feeling of being held hostage to a dangerous physical and social environment--and almost everybody feels victimized by the rich and the powerful.

The setting is one that supports festering resentment toward those alleged to be responsible. Americans are "fed up" with politicians and greedy, unethical businessmen. Disgraced savings and loan bankers like Charles Keating, white-collar criminals like Leona Helmsley, and Wall Street brokers such as Ivan Boesky and Michael Milken are a few examples from the marketplace.

- TREND FOUR: *The Politics of Apathy Has Been Replaced by the Politics of Anger*

Americans' frustration often manifests itself in physical, verbal, and political aggression. Examples include support for David Duke, a surge in ethnic and racial violence on campuses, the rise of neo-Nazis and similar hate groups, and the ouster of incumbent politicians. When Americans are "fed up," they react. They vote "against" rather than "for" politicians and issues. The reputations of those running for office are questioned and even attacked. A recent article in The New York Times (11/10/91) noted that the message to incumbents is clear: "Fight for change or die!"

A populist anger has broken out and is finding support, especially in states having the worst economic conditions. Rebellion against incumbent politicians, "tax and spend" policies, and "business-as-usual" practices is solidifying and can be seen in the recent state elections of New Jersey, Pennsylvania, Massachusetts, Kentucky, Mississippi, and Connecticut.

This political mood reflects a recognition by Americans that difficult times are here to stay. This mood is a result of many overt and covert events and of issues that are complex and interrelated. In my view THE MOST FORMIDABLE REASON FOR THE CURRENT POLITICAL SCENE IS THE TREND OF INCREASING INEQUALITY BETWEEN THE HAVES AND HAVE NOTS IN AMERICAN SOCIETY. Inequalities associated with education, housing, health care, jobs, income, power, race, age, and sex have exacerbated the gap between the rich and the poor.

In comparison to the world's population, most Americans are not deprived. However, when Americans evaluate how they are faring compared to others in our society and come to know they are not likely to meet their expectations, a sense of relative deprivation prevails. As a result, "resentment is much more likely to develop among the relatively deprived in a rich society than among the objectively deprived in a poor society." The extent to which this trend continues will shape much of the political scene in the future.

THE FUTURE

From the preceding reflections, one might predict two distinct consequences:

- First, we can expect a call for adherence to greater ethical standards by business and government officials and representatives of authority (police, professors, religious leaders, etc.).

- Second, the politics of the 1990s will continue to be characterized by change and will be shaped to a great extent by the trend towards increasing inequality.

If the increasing inequality persists, then relations among ethnic minorities and economic classes will be marked by ever increasing tension. The challenge to the political system by those representing the "reactionary right" and the "revolutionary left" will grow. More political activism will occur, especially by minorities that seek greater political influence. If economic improvement and prosperity occur, it will be reflected in the political mood and system. And, if economic decline and hardship increase, it will be reflected in conflicting competition.

How can we monitor the effects of trends? A respected environmental scanner and forecaster, Graham Molitor, maintains that indicators of political changes can be found by looking at "bellwether jurisdictions". For example, California, Massachusetts, and Oregon are foremost in environmental protection issues; Florida is a bellwether state in privacy and health matters; and Colorado leads in the use of petitions, initiatives, and referendums, the tools for bypassing the state legislative process, thus allowing change-agents to take their measures directly to the voters. Following Molitor's line of thinking, these special "bellwether" states indicate the future political climate of our nation.

IMPLICATIONS FOR COMMUNITY COLLEGES

The points of view in this article suggest a number of implications for community colleges. Among the more obvious are the following:

- Community colleges must do all they can to preserve access and assure success for all students as a means to reduce inequality and to minimize polarization between the haves and have nots.

- With immigrant and minority populations increasing in the United States and enrolling in the nation's community colleges, colleges should promote an understanding of and a respect for differences in people and their points of view.

- Community colleges should promote a cultural climate marked by respect and should do what is necessary to reduce ethnocentric and demagogic behaviors, and ethno-racial violence.

- As the labor force will increasingly be composed of immigrants, non-whites, and women, community colleges should assure that career programs educate students to understand and respect differences in people and their points of view.

- Community colleges should reflect a commitment to promote an understanding of obligations we have to others in our community and society, and to assure the preservation of our democracy.

- Community colleges should assess their political and financial support systems if, as expected, there will be increasing generational conflict among the elderly, baby-boomers, and the young over valuable resources and benefits.

- The growing emphasis on practicing ethical behavior suggests that college faculty and staff should not be viewed as the ideological extension of an interest group or prevailing political power, and that they conduct their professional lives according to the highest standards of their profession.

- Ernest Boyer, President of the Carnegie Foundation for the Advancement of Teaching, maintains that criticism of higher education reflects a shift in attitudes from viewing higher education as a public good toward a narrower view of higher education as a private gain. Community colleges, therefore, should try to regain and improve public support by promoting the contributions of education to improving the quality of life in their communities.

AN ENVIRONMENTAL SCAN

UPDATE

Volume 1, Number 6 January 1992

Editor: J. N. Friedel, PhD

NEW INFORMATION AND TECHNOLOGIES

THE INFORMATION EXPLOSION

All the technological knowledge we work with today will represent only 1% of the knowledge that will be available in 2050. (4)

"The number of scientific articles and journals published worldwide is starting to confuse researchers, overwhelm the quality-control systems of science, encourage fraud, and distort the dissemination of important findings." (3)

-- William J. Broad
New York Times

- Developed countries have ten times as many scientists and engineers per capita as the developing world. The gap between their spending on research and development grew three-fold from 1970 to 1980. (4)

- There are at least 40,000 scientific journals publishing more than a million new articles each year, and experts estimate that the literature doubles every 10 to 15 years. Reasons for the explosion of scientific journals and articles are: (3)

  o The number of scientists in the U.S. more than doubled from 1976 to 1986, rising from 959,500 to 2,186,000.

  o The publish-or-perish ethic among researchers is stronger now than ever, encouraging shoddy, repetitive, useless or even fraudulent work.

  o New technology is lowering barriers to science publication.

The Information Revolution has enabled many people formerly insulated from outside influences to compare their lives with those of people in other countries. This knowledge has often raised their expectations, and citizens in many undeveloped and repressed lands have begun to demand change. This trend can only spread as world telecommunications networks become even more tightly linked. (4)

INFORMATION TECHNOLOGY

Long-term economic prosperity will depend upon people's success in developing, mastering, exploiting and marketing information systems. At present, information technology is being used effectively by only a small proportion of the people who could benefit from it. (2)

Too many companies are selling complex, overloaded gadgets that consumers can't figure out. There is now a growing trend towards simplicity of design and simplifying difficult manuals. (7)

- Many attempts to implement information technology have been doomed because of neglecting the personal side. New technologies must be designed and introduced with an appreciation of the needs and reactions of those who will use them. (2)

- Displaying information in a way that people can understand is so important in the growing service economy that a new discipline, information design, is beginning to take form. Graphic designers are joining with product designers, social scientists and engineers to create user-friendly "interfaces". (7)

- Information technology was supposed to reduce the amount of paper: Instead, computers are creating a need for more paper, not less. From 1959 to 1986, U.S. consumption of writing and printing paper increased 320%. (8)

TECHNOLOGY TRANSFER

The first industrial revolution started at the end of the eighteenth century and was based on coal. The second industrial revolution was based on petroleum and electricity as new energy sources. Now, at the end of the 20th century, a third industrial revolution has begun based on the computer and information sciences. (9)

"At the core of CEO issues this year is the determination of individual U.S. companies to halt, and potentially reverse, the decline in U.S. technology leadership." (1)

-- Ernest & Young

- The Council on Competitiveness, a high-powered group of business, labor and education leaders, says the U.S. has good universities and top researchers, but it stumbles badly when it comes to turning scientific know-how into successful products. U.S. industry is quickly losing its technological edge over economic competitors such as Japan and Germany. (10)

- From 1963 to 1988, the share of U.S. patents going to foreigners rose from 18.6% to 47.3%. Americans received 53.3% of the 96,727 U.S. patents issued in 1990--the same as in 1989. (1)

  The top four U.S. patent grantees in 1990 were Japanese. Four U.S. companies made the top ten list: General Electric, Eastman Kodak, IBM, and North American Philips. (1)

"Pioneering research and Nobel prizes are not enough. Unless ideas can be pushed, pulled or cajoled from the laboratory to the market-place, America's jobs, standard of living and, ultimately, national security will be at risk." (10)

-- Council on Competitiveness

Japan's success in technology has been based on the discoveries of others. For the past decade, Japan has tried to learn the secrets of western scientific creativity. (5)

The U.S. may be subsidizing Japan's scientific progress as Japanese interests buy access to high-technology research programs at U.S. universities. (6)

-- Center for Public Integrity

- The U.S. universities are granting greater access to scientific research to the Japanese, at a price that does not even come close to the cost to the American taxpayer to create that research base. Thus, the U.S. is subsidizing technology transfer to Japan. (6)

- Since 1986, the Japanese government and business organizations have invested more than $175 million in American colleges and universities, with two-thirds of these funds earmarked for scientific research and teaching. The largest recipient is Harvard University. By financing such research, the Japanese sponsors are better able to negotiate licensing agreements, arrange cooperative ventures to gain access to research, obtain information about research findings before they are made public, and create long-term relationships with universities. (6)

Japan wants to have its own Einsteins and Newtons, rather than following the lead of Western science. (5)

- Teams of Japanese scientists are traveling to Western labs to learn how to foster creativity. (5)

Japan is concerned that "techno-nationalism" will limit their access to U.S. labs and their discoveries through basic research. The Japanese government and its corporations are trying to discover ways to challenge their researchers to be original thinkers and not just "tinkerers" of imported ideas. (5)

Though the Japanese government and universities are spending less on fundamental science, private corporations are now devoting almost 1% of revenues to basic research. Their new labs are designed for synergy; i.e., free discussion and the bringing together of disciplines. (5)

In the event that their own researchers fail, many Japanese firms are setting up research and development labs in the U.S. and Europe in order to maintain access to Western ideas. The road to creativity will be difficult for the Japanese, for as they are quick to point out, creativity is not a part of their culture. (5)

Japan's largest computer company, NEC, has a Fundamental Research Laboratory "designed to promote a free atmosphere for scientists and engineers to follow broad themes of research with long-term horizons". These scientists are called "gold-collar workers". (5)

IMPACT & QUESTIONS

1. *The technological knowledge we have today represents a very small percentage of the knowledge that will be available in upcoming decades. What impact will the explosion of knowledge have on keeping credit courses and business and industry courses current? What impact will the explosion of knowledge have on the morale of students and faculty as they face constant change?*
2. *Will new technologies be affordable to community colleges? What innovative ways may community colleges obtain such technologies?*
3. *If new technologies need to be communicated to users, what opportunities are presented to community colleges for training students in technical communication skills?*
4. *What is the role of community colleges in technology transfer; i.e., taking basic (scientific) research and developing it into marketable products and services?*
5. *What impact will educational "waste materials" have on the comnity college; for example, increased paper consumption and out-of-date technical equipment?*
6. *How would the Japanese business and education cultures affect our community colleges?*

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AN ENVIRONMENTAL SCAN

UPDATE

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COMPUTER TECHNOLOGY

In the 1990s, computer technology will become an intellectual utility, widely available and ultimately as common as the telephone. (15)

GROWING USE

- According to the U.S. Bureau of the Census, nearly 50% of U.S. children aged 3 to 17 were using a computer at home or at school in 1989, up from 30% in 1984. (6)

  Twenty percent of adults over age 18 reported using a computer at home, work or school in 1989, up from 18% in 1984. (6)

  Nearly 75% of households with a parent with four or more years of college were reported to be using computers. (6)

- According to market researcher, Link Resources Inc., consumers spent close to $4.9 billion on home PCs in 1990. But most didn't buy a big name brand unit, like IBM, Apple, or Tandy. Instead, they opted for IBM clones that cost about the same—but had far more power and many more standard features. (9)

- About 2 million Americans subscribe to on-line information systems. The three most popular are Prodigy, CompuServe and GEnie. (18)

"Computers affect just about everything we do these days. Everything from your credit rating to your safety when you step aboard a jetliner, to operating your business." (19)

-- Leonard Lee
Former IBM Systems Engineer

PERSONAL COMPUTERS

"In ten years, PCs will become as pervasive as phones are today, and in sizes and shapes we can't envision now. Everyone will have one. It is going to change the face of our very society." (8)

--Richard D. Sanford, Chairman, Intelligent Electronics Inc.

- Personal computers dominate the computer industry. The 1990 worldwide sales of $93 million topped the $53 million for mainframes (which included software and other peripherals). (14)

- Surveys project a tenfold growth both in personal computers and their processing capability. "Expert systems" will allow users to have the knowledge of the most-renowned heart surgeons, scientists, and even cooks, available to anyone, anywhere in the world. (7)

- Processing power and operating speeds for computers are still increasing. By 2000, the average personal computer will have at least 50 times the power of the first IBM PCs and 100 or more times the power of the original Apple II. (5)

- Chipmakers predict doubling microprocessor power every two years, as they have done throughout the 1980s—thus by the late 1990s, desktop computers will have power surpassing today's supercomputers. (8)

TECHNOLOGICAL ADVANCES AND USES

- A new computer introduced in 1991 could be as revolutionary as the original personal computer. It has no keyboard; you write directly on the screen with a special stylus. The notepad can read and manipulate hand-written letters, numbers and drawings. The notepad converts hand-printed words almost instantly into type and formats the text into sentences and paragraphs. (17)

- One of the newest computer developments to hit the market is the "pentop" computer, a cross between pen-based and desk-top computers--but it is really electronic paper. Currently being produced and marketed by Momenta, one can flip up the screen and plug in a separate keyboard to convert it to a regular notebook-sized computer, able to run traditional PC software; or, flip down the screen to convert it to an inclined writing tablet able to absorb an "electronic ink". (2)

- Market analysts are bullish on the "pentop" technology—with estimates of sales to top those of laptop and notebook computers by 1994. (2)

- By the mid-1990s, midget PCs will understand spoken commands. (14)

- Prentice Hall Publishers is offering computer programs customized to its five physics textbooks that allow users to simulate real-life situations. (16)

- Researchers at the University of Maryland discovered that physics majors learn their subject matter more thoroughly with computer-assisted teaching than without it. This concept is being expanded to non-physics majors through CUPLE, or the Comprehensive Unified Physics Learning Environment. CUPLE uses computer programs, interactive video disks, and electronic sensing devices that can be plugged into a computer. (23)

- The computer program "The Great American History Machine", created at the Carnegie-Mellon University, teaches students to think like historians. Software serves as a substitute for the collections of primary documents that historians might use.(22)

- IBM has introduced a specialized computer that can turn masses of numbers into highly detailed, full-color motion pictures. The Power Visualization system can execute 2.5 billion math operations per second. Adding to the machine's power is its ability to pull in, from another supercomputer, as many as 100 million characters of information per second. (20)

- Many changes will occur in personal computer networking. Using digital key pads of their mobile homes, commuters will use their personal home computers to set burglar alarms, start air conditioners, and program their VCRs. Home owners will be able to unplug their broken appliances into diagnostic outlets, dial the manufacturer, and be told what has gone wrong. (4)

- New computer technology is aiding in the recovery of abducted children. "Age progression", a new computer technology, allows artists to age pictures of children who have been missing a long time. The technique enables the artist to merge the picture of the missing child with photos of parents or older siblings to simulate growth. The National Center for Missing and Exploited Children in Arlington, Virginia, has "aged" 100 children, ten of whom have been found. (1)

"In ten years, maybe five years, you will see a general-purpose programming language for several applications." (3)

--Brad Myers
Carnegie-Mellon University, Pittsburgh

- Researchers, software companies and computer makers are out to make programming so easy that even a novice can quickly put together sophisticated routines. Graphics and diagrams are replacing the words in traditional programming.

  Relying on a concept known as visual programming, one picture or diagram is worth many lines of computer code. A simplified computer programming language, called CT, has been developed by a researcher at Carnegie-Mellon University which can be used on any type of personal computer.

  Researchers don't expect pictures to eliminate all the words in computer programming. Instead, they predict a marriage of the two and, eventually, the addition of voice commands to make a computer do what people want it to do. (3)

"Increasingly, people who have no background in computers are able to do very sophisticated analytical work." (12)

-- Jim Paris, Vice President
Urban Decisions Systems, Los Angeles

Experts think synthetic holograms will benefit the military and medical imaging. A more distant possibility is holographic television. (21)

- At MIT's media labs, scientists working with General Motors have developed "synthetic holograms"—laser-generated three-dimensional images that appear to float in the air—created purely from computer data, not concrete objects. (21)

These holograms have allowed designers to display color models of their work within 24 hours, rather than spend a month making clay models. (21)

COMPUTERS: FRIEND OR FOE?

Thailand's computer system will have the potential of being one of the most repressive surveillance systems in the world. (10)

- By 2006, Thailand's Interior Ministry will have completed its computerization of the country's social services. The system will have stored vital data on 65 million Thais in a single, integrated computer network. Every citizen over the age of 15 will be required to carry a card which will bear his/her color photo, various pertinent facts, and an identification number. The system can be linked to other systems to cross-reference criminal records, tax records, religious and family information, etc.

Thailand's $50 million computer system and its sophisticated software runs on three mainframes, and is a relational data base.

Thailand's system is being considered for adoption by Indonesia and the Philippines.

Singapore has purchased more than $12 million worth of computer equipment from NEC, including a machine-readable ID-card system, a laser-engraved thumbprint, and an automated fingerprint-identification system.

Guatemala, in spite of its long history of human rights violations, purchased computer surveillance software from Israel in the 1980s.

Taiwan will award contracts totalling $270 million for its own computer surveillance system. (10)

While the U.S. and other Western nations have placed limits on what they permit computers to do with sensitive personal data, third world governments are purchasing systems from the U.S.'s biggest computer firms with the potential of establishing "big brother". (10)

If the U.S. fails in making strides toward computer security and caution, it will be increasingly difficulty to sell American hardware and software in a global market. (11)

"Tomorrow's terrorists may be able to do more damage with a keyboard than with a bomb."(11)

- The U.S. relies on computers for practically everything, from banking to health care. It does not ensure that the information is secure from accidental deliberate attack. One computer software controlling a radiation therapy machine resulted in at least three patient deaths. In Computers At Risk, the National Research Council concluded that thieves could steal more with a computer than with a gun. (11)

VIRTUAL REALITY

Virtual Reality (VR) is a computer-created sensory experience that so completely immerses the participant that he/she can barely distinguish the "virtual" experience from a real one. (13)

- Setting up several networked VR work stations anywhere in the world will create "distance training" and teleconferencing where not just your voice and image are projected--but all of your senses. (13)

- A DataGlove uses position-tracking sensors and fiber optic strands running down each finger. The glove gives the computer information it uses to create a replica of the user's hand within the computer. Real objects can also be attached to sensors, which allow them to become part of the imaginary environment. Some applications for the DataGlove include: (13)

VR turns learning into an active, physical process. Tasks are learned faster and knowledge retained longer when training is given a physical dimension. (13)

  - In robotics, the handling of hazardous materials by robots.
  - Use by astronauts to control the repair work of robots from inside the spaceship, space station, or even from Earth.
  - Training in manual tasks--allowing students to superimpose their hand over the hand of an expert to follow along. The trainee can repeat the motions over and over and receive immediate feedback.
  - Medical students learning surgical techniques and jet airplane pilots could benefit from the new technology.

- The sensor-studded DataSuit allows the user to include his/her entire body in the VR experience. DataSuits allow teaching people tasks involved in the body movements of sports, physical therapy, and dance. (13)

IMPACT & QUESTIONS

1. How will the growing use of computers affect community college curricula? Will computers become integral to departments that do not emphasize them now?
2. How will technological advances in the ability to input computer data—for example, input of handwritten and spoken data—affect curricula and affect day-to-day college operations?
3. If sophisticated programming becomes the domain even of the novice, what effect will this have on the programming profession and its training?
4. How will the growing use and evolution of computers affect community college expenditures?
5. Should community colleges take a stand in the philosphical debate that is sure to come regarding the use of computers to ever increasingly engage in surveillance of citizens' personal lives?
6. Will computer security be an issue for community colleges?
7. What are the applications of "Virtual Reality" and "DataGlove" for community college training programs? Will these technologies be accessible to community colleges?

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AN ENVIRONMENTAL SCAN

UPDATE

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Editor: J. N. Friedel, PhD

EMPLOYMENT PROSPECTS FOR COMPUTER TECHNOLOGY PERSONNEL

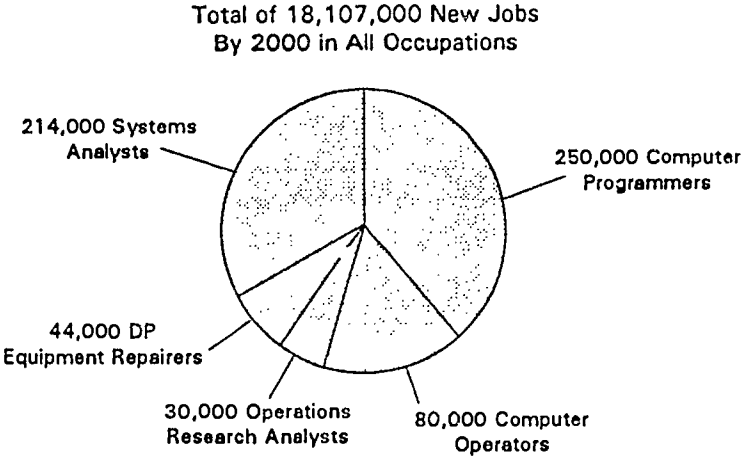
NATIONAL LABOR MARKET DATA

- The Labor Department projects that more than 18 million new computer-related jobs will be created from 1988-2000. These jobs make up 3.4% of all new jobs that will be created by the year 2000. (9)

- Employment of computer programmers is expected to grow much faster than the average for all occupations through the year 2000 as computer usage expands. (2)

- The Labor Department advises that, in general, persons with the most education and training will have the best job opportunities. (9)

Labor Department's Estimate of Civilian Job Growth, 1988-2000, For Selected Computer-Related Jobs, Assuming Moderate Economic Growth.



Source: U.S. Dept. of Labor

"Median earnings of programmers who worked full-time in 1988 were about $30,600 a year. The middle 50% earned between $22,100 and $33,900 annually. The lowest 10% earned less than 16,700, and the highest 10% more than $49,500. (2-p.217)

- Jobs for both systems and applications programmers should be particularly plentiful in data processing service firms, software houses, and computer consulting businesses. (2)

- The greater use of packaged software that can meet the needs of many users may moderate the growth in demand for applications programmers. (2)

- In the 1990s, advances in programming languages will make it possible for people who can't even program their VCRs to customize software. The object-oriented technology reduces programs to discrete building blocks of preprogrammed code that PC owners can string together. (4)

- Job prospects should be good for college graduates who are familiar with a variety of programming languages, particularly newer languages that apply to computer networking, data base management, and artificial intelligence. (2)

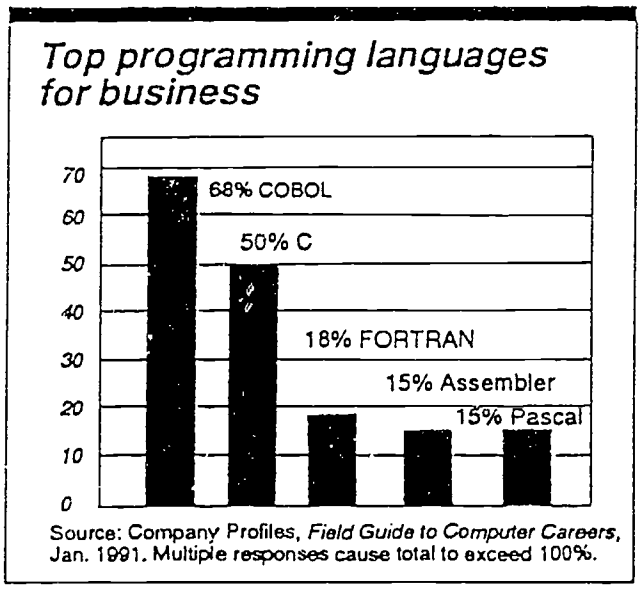
WANTED

IDEAL ENTRY LEVEL SYSTEMS PROFESSIONAL

Dynamic computer industry leader seeks motivated Computer Science grad with a 3.0 GPA and good COBOL or C programming skills for a challenging position.

Exposure to IBM and/or DEC platforms and knowledge of DB2 or IMS environments a plus. Internship or work experience preferred. Good interpersonal and communication skills important. (9)

This profile is based on data compiled from the Field Guide Company Profiles (January 1991).



Source: Company Profiles, *Field Guide to Computer Careers*, Jan. 1991. Multiple responses cause total to exceed 100%.

- Applicants who know both programming and operating languages, especially if the languages are closely related, have significantly better chances of landing the job of their choice. (2)

- More computer programmers will be creating and maintaining expert systems as well as using the new generation of programming tools. (2)

- Many companies are having difficulty filling a variety of jobs, especially those requiring technical aptitude or highly specialized training. Among those in heavy demand are computer specialists. (5)

LABOR IMBALANCE IN THE U.S. (5)

Occupational specialties in heavy and weak demand, from a 1990 labor-market analysis for 193 job categories:

THERE AREN'T ENOUGH:

• Physical Therapists	✓ • Computer Scientists	• Biological Scientists
• Registered Nurses	• Physicians	• Dentists
• Veterinarians	• Dietitians	• Vocational Counselors
• Electrical Engineers	• Pharmacists	• Legal Assistants
✓ • Computer Systems Analysis	• Chemical Engineers	• College Professors

THERE ARE TOO MANY:

• Telephone Operators	• Typists	• Photographers
• Butchers and Meat Cutters	• Water Transport Workers	• Stenographers
• Rail Transport Workers	• Statistical Clerks	• Metalworkers
• Telephone Installers	• Barbers	• Firefighters
• Machine Operators	✓ • Data Processors	• Plumbers

Data Source: University of Michigan Institute of Labor and Industrial Relations.

Programmers in the West and South earn somewhat more than those in the Northeast and Midwest. Salaries tend to be highest in mining and public utilities, and the lowest in retail trade, finance, insurance, and real estate. (2-p. 217)

- Though a tight job market awaits college graduates, the outlook for engineers, computer science, and nursing majors appears good. In 1991, the salary estimate for a bachelor's degree computer science major is $33,238, an 8.3% increase over 1990. (1)

- Employers, looking for ways to cut costs, are reducing in-house training. As a result, many employers prefer to hire applicants with previous experience in the field. It is recommended that people who want to become programmers should enhance their chances by combining work experience with the appropriate formal training. (2)

To enhance employment prospects, students can participate in "college work study" programs or undertake internships. "Students can also improve their employment prospects by taking courses such as accounting, management, engineering, or science—allied fields in which applications programmers are in demand." (2)

LOCAL LABOR MARKET DATA

In October 1991, a survey was conducted of 96 business computer programming-related businesses in the EICCD service area and the Illinois Quad Cities that were believed to be employing business computer programmers. A total of 34 surveys were returned; this represents 35% of the total population polled. Thirty-three of the responses were considered valid. Of the 33 respondents, 21 (64%) indicated their organization uses mainframe computers. 30 (91%) indicated they use microcomputers. (7)

Job Categories	Average Minimum Educational Level	Average Annual Salary Range	Total Number of Openings 10/91 to 12/94
Data Entry	High School Diploma	$13,000-15,999	18
Computer Operator	High School Diploma	$16,000-19,999	8
Operations Analyst	Associate's Degree	$20,000-24,999	3
Programmer	Associate's Degree	$25,000-29,999	20
Programmer/Analyst	Associate's Degree	$30,000 & over	32
Systems Analyst	Bachelor's Degree	$30,000 & over	15
Systems Programmer	Associate's Degree or Bachelor's Degree	$30,000 & over	15
			111

N=33 employers in the EICCD service area and the Illinois Quad Cities.

- About half of the respondents who use microcomputers, use microcomputer programming languages to create their own business applications. The most most common languages are BASIC, DBASE III or IV. (7)

- The most commonly used mainframe language is COBOL. IBM's are the most commonly used mainframe and midrange computers in the local area. (7)

- The primary microcomputer training needs of local employers are operating system, word processing, spreadsheet, hardware/equipment use, and database management. (7)

- The most frequently cited mainframe computer training needs are data communications, networking operating systems, management information systems, and data base management. (7)

- Business computer programmers also need skills emphasizing accounting, communication, and human relations. (7)

- There will be less in-house programming in favor of buying outside packages due to increased power of central processing units (CPU's). (7)

EMERGING LOCAL TRENDS IN THE FIELD OF COMPUTERS

- Businesses are heading toward standardization of hardware and software in a network environment. This trend requires companies to invest in training and/or acquire in-house system administrators. (7)

- More education and training in personal computers will continue to be needed in the following areas: languages, tools, networks, communication links, hardware, and troubleshooting. (7)

- There will be a long term reduction in the number of people needed to support mainframe systems. (7)

ARE COMPUTERS TAKING JOBS?

- AT&T will be replacing 6,000 long-distance operators with a computer that can understand speech and relay phone calls. (6)

- The potential is great for low-level service workers (i.e., people who take reservations, process orders, handle catalog calls) to lose their jobs as "hearing computers" become widespread. (6)

- At the 1992 World's Fair in Seville, Spain, AT&T will demonstrate a voice-recognition system that could replace translators. (6)

- Texas Instruments has developed a voice system for the F-16 fighter jets so that pilots can activate systems by speaking. (6).

- "Imaging technology in which information from printed documents is photographically entered into computers or transmitted offshore will eventually replace many rural data entry jobs." (8)

Apple Computer's announcement that it is developing a PC that can recognize words spoken quickly has wide implications for white collar workers. Since bosses will be able to dictate directly to a typewriter/PC that will type, that aspect of the traditional role of secretaries may become expendable. Generally, typing by humans will be less frequent or necessary. (6)

IMPACT & QUESTIONS

1. *What effect will advances in programming languages and increased use of packaged software have on the college's curricula?*

2. *What are the implications of these computer technology trends on our local businesses and industries?*

3. *In light of the trends presented in this scan, what steps can the colleges take to enhance the employability of the Business Computer Programming graduates?*

4. *What effect will the advances in programming and operating languages have on the management information systems of the EICCD? On our faculty, support staff, and administrators?*

5. *What kinds of staff development might be necessary for the employees of the EICCD in light of these advances?*

6. *How will "hearing computers" impact the office environment, the EICCD as a work place, and our programs? Will corporate America continue its trend of replacing people with technology?*

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Special acknowledgment to Cindy Lake, EICCD Assistant Director for Program Development and Alternative Delivery Systems, who coordinated the local labor market assessment of business computer-programming-related businesses, and assisted in the compilation of information presented in this issue.

AN ENVIRONMENTAL SCAN

UPDATE

Volume 1, Number 9 April 1992

Editor: J. N. Friedel, PhD

IOWA

WHERE THE JOBS ARE

The Thirty Largest Employers in Iowa (1)

1. Hy-Vee Food Stores, Inc.
2. Deere & Company
3. University of Iowa
4. Rockwell Internation Corp.
5. U.S. Post Office
6. Wal-Mart Stores, Inc.
7. Principal Financial Group
8. Iowa State University
9. IBP, Inc.
10. Des Moines Independent Community School Dist.
11. Sisters of Mercy Health Corp.
12. K Mart Corporation
13. Iowa Department of Transportation
14. Mercy Hospital Medical Center
15. Iowa Methodist Medical Center
16. United Parcel Service
17. The Maytag Company
18. Sears Roebuck & Company
19. Aluminum Company of America (ALCOA)
20. Oscar Mayer Foods Corp.
21. Target
22. The Britwill Company
23. Younkers, Inc.
24. U.S. West Communications
25. Pioneer Hi-Bred International, Inc.
26. Fareway Stores, Inc.
27. J.C. Penney Company, Inc.
28. Cedar Rapids Community Community School District
29. Meredith Corporation
30. Iowa Department of Human Services

Taken from: State of Iowa Conditions of Employment 1991, Iowa Department of Employment Services, October 1991, p. 17.

IOWA WAGES - Both Iowa and the U.S. experienced a 3.5% increase in the average weekly wage for production or non-supervisory workers in 1990. The average weekly wage in private industry in Iowa in 1990 was $300.70 compared to the national average of $346.04. (1)

- Workers in Iowa's industries averaged 33.3 hours per week while the U.S. average was 34.5 hours per week. Varying greatly from industry to industry, mining has the highest average at 47.6 hours while wholesale and retail trade is the lowest at 29.4 hours per week. (1)

- The average hourly rate in Iowa in 1990 for private, non-farm payrolls was $9.03, $1.00 less than the national average. The highest rate of $12.60 per hour was paid to workers in the transportation, communication and utilities industry. Trade paid the lowest hourly rate in 1990, an average of $7.15. (1)

IOWA'S BASE GOODS-PRODUCING INDUSTRIES

- From 1986 to 1991, the growth of manufacturing employment in Iowa surpassed the U.S. performance. (1)

- The two largest manufacturing industries in Iowa are food products and industrial machinery. Together, they comprise 40% of manufacturing employment in 1990. Through 1996, the greatest potential for job growth in Iowa is in these two industries. (1)

- In sharp contrast to the national scene, construction was Iowa's leading growth industry in 1990. Construction jobs grew by 10.3% over 1989 levels. (1)

- Through 1996, the manufacturing industries of chemicals and transportation equipment are expected to decline. The transportation equipment industry is primarily comprised of plants that manufacture recreational vehicles and automobile parts.(1)

- Since the early 1980s, manufacturers in Iowa have become leaner, and have worked to modernize and install the latest technological and management (i.e., TQM) processes. In 1990, manufacturing represented 19.3% of Iowa's non-farm employment, compared with 21.7% in 1980. (1)

- Industrial machinery is Iowa's leading manufactured export product, followed by food products. Primary metal products, chemicals, and electronic equipment are also leading export products, but comprise a much smaller share than industrial machinery and food. (1)

- Canada and Japan are Iowa's best customers. (1)

  ° The value of exports to Canada far surpass that to any other country and consists primarily of industrial machinery followed by a much lesser degree by food products, transportation equipment, chemicals, and rubber and plastics products. (1)

  ° 80% of manufactured goods exported to Japan are food products. (1)

IOWA'S SERVICE-PRODUCING INDUSTRIES

Low-skilled service jobs have moved outside of Iowa's metro areas due to demand outstripping the supply of workers—generally young women. (2)

- Transportation, communication, and public utilities were the only categories within the service-producing sector in Iowa to lose employment in 1990. (1)

- The number of service sector jobs outside of Iowa's metro areas increased 27% from 1980-89; unfortunately, earnings per job increased only 3%. (2)

Iowa has a reputation as an ideal distribution point. (1)

- It is projected that from 1990-1996, 2,300 workers will be added to the freight transportation and warehousing industry in Iowa. (1)

- Declines in most types of bus transportation, excluding bus charter service, is projected from 1990-96. (1)

Retail sales is going more and more to part-time work. "A revolution is occurring in rural retailing in which Main Street stores are being replace by edge-of-town discount chains with a policy of part-time hiring." (2)

- Retail trade is closely tied to economic climate; from 1981 through 1991, about 30,000 jobs were added to this sector in Iowa. Restaurants and drinking places lead the growth. The second ranking retail industry is food stores. (1)

  ° A key employer in the growth of food stores is the Iowa-based Hy-Vee food chain. (1)

  ° The segments of retail trade that lost employment were apparel and building materials. (1)

THE TOP TEN EMPLOYERS IN IOWA'S RETAIL TRADE INDUSTRY (1)

1. Hy-Vee Food Stores, Inc.
2. Wal-Mart Stores, Inc.
3. K-Mart Corporation
4. Sears, Roebuck, and Company
5. Target
6. Fareway Stores, Inc.
7. Younkers, Inc.
8. Casey's General Store, Inc.
9. J. C. Penney Co.
10. Nash Finch Company

Between 1980-1989, "the new jobs in Iowa were concentrated in services, insurance and health care, industries with a flat employment pyramid: a few managers at the top and a lot of employees at the bottom in jobs that don't pay very well." (2)

- Employment in finance, insurance, and real estate reached an all-time high in 1990. 50% of the increase in insurance jobs was in Des Moines. (1)

- Services comprise 24% of non-farm employment in Iowa; the largest component is health. Other sectors include business services, private education, and private social services. (1)

  ° Hospitals have expanded their employment by developing alternative health-care markets; i.e., outpatient care and home health care. (1)

  ° In business services, the gains and projected growth are in computer-related services, telemarketing firms, personnel supply companies, and a large magazine subscription service. (1)

  ° The average telemarketing wage in 1990 was $4.54/hour. (2)

  ° The average wage for data entry in 1990 was $6.73/hour. (2)

OCCUPATIONAL GROUPS-PROJECTED OPENINGS (1-p. 34)

GROUP	TOTAL EMPLOYMENT 1990	TOTAL OPENINGS* 1990-1996	INCREASE 1990-1996
Managerial and Administrative	100,384	30,066	30.5%
Professional and Technical	256,065	59,532	23.2%
Sales Workers	155,507	51,918	33.4%
Clerical and Administrative	224,480	57,628	25.7%
Services	231,547	85,424	36.9%
Agriculture	85,036	7,987	9.4%
Production, Construction, Maintenance	381,214	87,232	22.9%
Total-Statewide	1,434,233	379,787	26.5%

* Openings result from both growth and replacement. Replacement needs are openings which result when persons leave the labor force, usually due to death, retirement, or child bearing.

Source: Labor Market Information Unit, Iowa Department of Employment Services.

- From 1981-89, employment in private social services increased 68%. This trend is likely to continue as the need for family social services, child day-care services, job training, and residential care increased and as public dollars become more limited. (1)

IMPACT & QUESTIONS

1. Openings in service sector jobs (i.e., telemarketing, food service, retail trade) have increased rapidly and will continue to increase in the state. Many of these jobs are part-time and the rate of pay is low. What are the implications of these trends on the future of Iowa, especially its rural areas, the tax/revenue structure, and our public institutions and agencies? What types of short-term programs can the community college offer to prepare individuals for these jobs?
2. What kinds of initiatives could be undertaken by the state of Iowa to capitalize on its location as a distribution hub? What could be the impact of these initiatives on community colleges?
3. What programs/services could the community college provide to prepare individuals for employment in private social service?
4. International trade is gaining in importance for Iowa's industries. Should community colleges incorporate aspects of international trade in their credit curricula?
5. Food products are of vital importance to Iowa's economy. What types of programs (i.e., biotechnology) or articulation agreements with four-year institutions can be developed around this economic sector?

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AN ENVIRONMENTAL SCAN

UPDATE

Volume 1, Number 10 May 1992

Editor: J. N. Friedel, PhD

HEALTH OCCUPATIONS

THE EICCD SERVICE AREA

Nurses' role in the overall quality of a hospital's care is second only to the caliber of the medical staff, say nearly 1,000 physicians who responded to a 1991 *U.S. News* survey aimed at finding the nation's best hospitals. And nursing expertise edged out physician skill in a 1989 survey of 633 hospital chief executive officers on the features that mark excellent hospital care. (4)

In fall 1991 the Eastern Iowa Community College District conducted a Comprehensive Health Occupations Assessment of the EICCD service area and Illinois Quad Cities. The purpose of the assessment was to obtain information regarding number and type of personnel employed, immediate and projected personnel needs, educational needs, and emerging trends in the health occupations field. The 10 assessment instruments were developed with input from faculty and staff at EICCD and Black Hawk College. A different survey instrument was sent to employers in each of the following categories: chiropractic offices, dentist offices, emergency medical services, home health care organizations, hospitals, laboratories, long-term health care facilities, physician offices/clinics, veterinary offices and weight control services. The surveys were designed in a similar format to allow for integration of results. The following table displays a portion of the immediate and projected job openings results. (1)

EICCD HEALTH SURVEYS, FALL 1991 (1)

Position	No. of Survey Respondents	Average Wage	August 1991 to 1994 Openings		
			Fulltime	Part-time	Total
Medical Laboratory Technician	95	$ 8.10	28	13	41
Dental Assistant	83	6.48	108	31	139
Dental Hygienist	83	11.74	66	53	119
EMT-A	30	6.68	30	108	138
Paramedic	30	8.63	48	57	105
Accredited Record Technician	144	8.96	33	3	36
Medical Record Specialist	284	6.16	37	15	52
Medical Secretary	197	6.57	43	23	66
Medical Transcriptionist	140	7.17	49	23	72
Unit Ward Clerk	61	5.33	15	37	52
Licensed Practical Nurse	239	7.96	235	257	492
Nursing Assistant	61	5.01	833	645	1,478
Registered Nurse	242	10.05	550	475	1,025
Physical Therapist	91	12.50	35	15	50
Radiographer (2 yr)	140	8.40	58	43	101
Radiological Technologist (4 yr)	91	9.65	24	18	42
Limited Practice Respiratory Therapist	61	7.70	18	39	57

The supply of registered nurses—those trained to give the most sophisticated nursing care—falls short by 200,000 though the 1.1 million nurses now practicing in hospitals are more numerous than ever before. (4)

—American Association of Colleges of Nursing

NATIONAL HEALTH OCCUPATIONS (2)				
Occupation	Est. Emplmt. 1988	Percent Growth Emplmt. 1988-2000	Number Growth Emplmt. 1988-2000	Employment Prospects
Physical Therapists	68,000	57	39,000	Much faster than average job growth is expected due to the expansion of services for those in need of rehabilitation and long-term care—a diverse group that includes older people, cardiac and stroke patients, and young people suffering from spinal cord and head injuries. Additional openings will result as physical therapy's role in health maintenance expands.
Registered Nurses	1,577,000	39	613,000	Prospects should be excellent. Much faster than average growth is expected as the increasing number of complex medical technologies demand the skills of a registered nurse and as the population grows and ages.
Licensed Practical Nurses	626,000	37	229,000	Employment is expected to grow much faster than average in response to the long-term care needs of a rapidly growing population of the aged and the growth in health care in general. The job outlook should be excellent unless the number of people completing L.P.N. training increases substantially.
Nursing Aides and Psychiatric Aides	1,298,000	31	405,000	Job prospects are expected to be excellent. Much faster than average growth is projected for nursing aides, as a result of anticipated expansion of nursing homes and other long-term care facilities. Employment of psychiatric aides is expected to grow faster than average in response to the needs of the very old and those suffering from acute psychiatric and substance abuse problems.
Clinical Laboratory Technologists and Technicians	242,000	19	46,000	Although the number of tests administered will greatly increase, advances in laboratory automation should boost productivity, resulting in average employment growth. Many jobs will be in hospitals, but new opportunities will emerge in commercial laboratories, health maintenance organizations, and doctors' offices due to changes in technology and business strategy.
Respiratory Therapists	56,000	42	23,000	Much faster than average growth is expected because of substantial growth of the middle-aged and elderly population, a development that is virtually certain to heighten the incidence of cardiopulmonary disease. Job prospects are very favorable.
EEG Technologists	6,400	50	3,200	Much faster than average growth is expected, reflecting greater use of the EEG (electroencephalograph) and related tests and the willingness of health insurers and others to pay for them. Job prospects will be excellent. Opportunities will be especially favorable in offices of neurologists, medical group practices, and health maintenance organizations.

NATIONAL HEALTH OCCUPATIONS (2)				
Occupation	Est. Emplmt. 1988	Percent Growth Emplmt. 1988-2000	Number Growth Emplmt. 1988-2000	Employment Prospects
Radiologic Technologists	132,000	66	87,000	Employment is expected to grow much faster than average as radiologic technologies play an even greater role in the diagnosis and treatment of disease. The growth and aging of the population, expansion of the kinds of facilities that provide radiologic services, technological advances in the field, and replacement needs have made the demand for additional workers increasingly difficult to meet. Therefore, job opportunities for graduates of accredited programs are highly favorable.
Medical Record Technicians	47,000	60	28,000	The heightened importance of medical records for financial management and quality control will produce much faster than average job growth. Excellent job prospects are anticipated in all settings for graduates of accredited programs in medical record technology.
Emergency Medical Technicians	76,000	13	10,000	Average job growth is projected. While demand should increase because the population at large has come to expect emergency services, the cost of training and equipping emergency medical technicians (EMT's) will tend to constrain growth. Relatively high turnover should result in good job opportunities, however.
Dental Hygienists	91,000	18	16,000	Employment should grow as fast as average. Stimulating demand will be population growth, the tendency of middle-aged and elderly people to retain their teeth, and the greater awareness of the importance of dental care along with the ability to pay for it. Qualified hygienists should have little trouble finding jobs.
Dental Assistants	166,000	19	31,000	Average growth is expected as demand for dental care increases in response to population growth, greater retention of natural teeth by the middle-aged and older population, and greater ability to pay for services.

Table compiled from information taken from: America's 50 Fastest Growing Jobs edited by Kathleen Martin. Reprinted by permission of the publisher.

"Mental illness has become a second-class passenger in our health-care system." (3)

— Steven Mirin
Psychiatrist-in-Chief
McLean Hospital,
Boston

The following are representative comments from the EICCD Comprehensive Health Occupations Assessment regarding emerging trends: (1)

- The increased number of residents admitted with psychological problems requires a better trained staff.

- The need for Medical Laboratory Technicians and Phlebotomists increases as Medical Technicians become mainly supervisory.

"Health care has changed. Patients are sicker and need more care. But we're delaying treatment and the cost of treating them is higher." (5)

— Dr. John C. Johnson
American College of
Emergency Physicians

- Certain professions may need to cross train for two or more disciplines.
- Physicians will be utilizing more Medical Assistants and less RNs and LPNs.
- Residents are more acutely ill when they enter a long-term health care facility.
- The increase in [physician] office procedures continues as hospitals are becoming more critical care therefore increasing outpatient needs.

Home health aides, who assist with household chores and personal care, will be the fastest-growing occupation through 2005. (6)

— U.S. Dept. of Labor

- Due to water fluoride and preventive dentistry, the demand for dental services for elderly patients is increasing.
- More medical personnel are needed in the remote, rural areas.

IMPACT & QUESTIONS

1. The health care field is a rapidly growing occupational area. What are the implications for new or expanded programming in health care by community colleges?
2. What types of curricular changes will be necessary to address the more aged, acutely ill and psychologically troubled residents/patients?
3. What other related programming should be developed to meet the needs of a growing elderly population?
4. Due to the increased growth in outpatient health care, should community colleges cross train individuals for more than one discipline?

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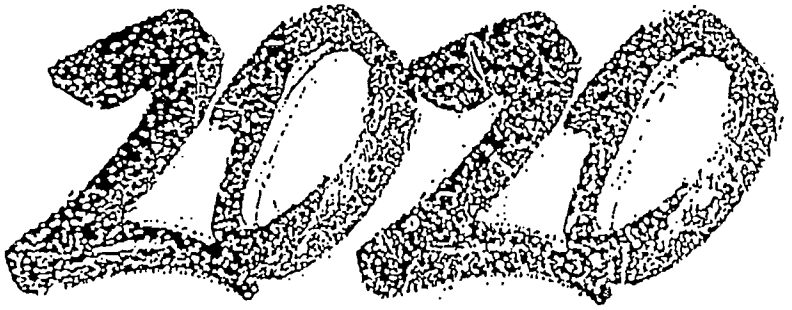
Special acknowledgment to Ellen Kabat, EICCD Associate Director of Program Development and Alternative Delivery Systems, who coordinated the local labor market assessment of the health professions, and compiled the information presented in this issue.

Individuals interested in viewing the Comprehensive Health Occupations Assessment report, should call the EICCD at (319) 322-5015, ext. 266.



PERFECT
VISION
FOR THE NEXT
CENTURY

AN ENVIRONMENTAL SCAN
UPDATE
VOLUME 2, NUMBERS 1 - 9

EASTERN IOWA COMMUNITY COLLEGE DISTRICT
AUGUST 1993

AN ENVIRONMENTAL SCAN
UPDATE
VOLUME 2, NUMBERS 1 - 9

EASTERN IOWA COMMUNITY COLLEGE DISTRICT
DISTRICT OFFICE OF ACADEMIC AFFAIRS AND PLANNING
AUGUST 1993

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INTRODUCTION

In September 1989, the Eastern Iowa Community College District (EICCD) initiated its strategic planning process **2020 Vision: A Perfect Vision for the Future.** This eighteen-month process involved all employees of the Eastern Iowa Community College District, as well as its Board of Directors and community members. This process was undertaken in response to the belief that community college educators must become initiators in shaping their future and the future of their institution; that strategies must be developed to ensure that the community college will be responsive to the needs of the people in the year 2000 and beyond. To do so requires an examination of the external environment and what is known about the future.

The key component in the Eastern Iowa Community College District's development of its **2020 Vision** and its revision of its Mission and Goals was the publication and dissemination of An Environmental Scan. This document summarized major changes occurring in the external environment which may impact the community college, the industries and communities that it serves, and social, economic, and political structures and processes. It summarized these trends, events, and issues in five broad categories:

1. The Changing Population and Demographics
2. The Changing Work Force/Work Place
3. Political, Societal, and Ecological Changes
4. The Changing Technologies and the Information Explosion
5. The World Economy

The scanning information was used by the Eastern Iowa Community College District administration, faculty, staff, Board of Directors, and community members in the formulation of its "vision." This vision is reflected in the revised Mission and the new Institutional Goals of the Eastern Iowa Community College District. Specific objectives to be undertaken to accomplish these goals were formulated, and published in the strategic plan.

Since the publication of An Environmental Scan in 1989, the District Office of Academic Affairs and Planning has conducted numerous workshops for Eastern Iowa Community College District administrators, faculty, professional and support staff, the Board of Directors, and community members regarding how to scan the external environment, and the use of this scanning information in forecasting and planning. The goal is to develop a futures perspective across the entire institution by identifying those trends of most consequence to the Eastern Iowa Community College District for both short- and long-range planning purposes. An update to the strategic plan is published every six months, and includes a progress report for each objective, and any new objectives formulated since the previous planning cycle.

The Eastern Iowa Community College District's District Office of Academic Affairs and Planning began publishing updates to An Environmental Scan in September 1991. Each Update addresses a specific theme, and summarizes events, trends, and projections which may impact the community college. Bibliographic information is included for each entry so that the reader may refer to its source for further clarification and data. Each Update concludes with a section which asks questions regarding the impact of these trends and events on the community college.

An Environmental Scan Update is distributed to all full-time employees of the Eastern Iowa Community College District, its Board of Directors, all community colleges in Iowa, the Iowa Department of Education, the K-12 school districts and other selected organizations and agencies in the Eastern Iowa Community College District's service area, Vocational-Technical Programs' Advisory Committee members, and by special request to other community colleges and agencies.

An Environmental Scan Update, Volume 2, has proven to be a useful planning tool in the Eastern Iowa Community College District. It has kept the external environment and the need to be cognizant of changes occurring around us central to our planning; the information has also been utilized by our career counseling personnel in the advising of students and by faculty in the revision of curriculum and the consideration of new technologies.

AN ENVIRONMENTAL SCAN

UPDATE

Volume 2, Number 1 September 1992

Editor: J. N. Friedel, PhD

TRENDS

During the past two years, the Eastern Iowa Community College District has undertaken activities to develop its environmental scanning capabilities. Environmental scanning and forecasting is crucial to our long-term planning efforts for it will enable us to monitor selected trends, to track emerging issues, and to identify major events that may impact the District and its future. Environmental scanning will assist us in the accomplishment of our Mission: *The EICCD strives to provide easily available educational programs and services which anticipate and respond to personal and community needs.*

By linking environmental scanning to our planning efforts, we can design our future. This is done by setting institutional priorities, developing and implementing specific objectives, and assessing the degree to which we accomplish our objectives. Environmental scanning is also linked to Institutional Effectiveness, since scanning can demonstrate the relevancy of our programs and services to the needs of the marketplace.

Numerous administrators, faculty, and staff across our three colleges have participated in workshops to develop their environmental scanning skills. The scanners have learned to identify trends, emerging issues, and events that may impact the future of the EICCD. The information gathered is further disseminated throughout the District, forming the basis upon which our Environmental Scan Updates are developed.

In order to link our environmental scanning information to our planning efforts, our scanning team needed to identify and monitor those trends that would impact the EICCD's short-term and long-term future. Environmental scanners from across the District participated in two trends development workshops in July 1991 and August 1992. Participants in the first workshop conducted a sweep of all scan materials compiled to that date and developed a list of trends to be monitored during the 1991-92 academic year. In August 1992, environmental scanners from across the District participated in the follow-up Trends Development Workshop, reviewing the initial list of trends and conducting a sweep of additional scan materials. The group identified 108 trends that they believe will impact the short-term future of the EICCD. These trends were grouped into five broad categories: 1) population/demographics and education; 2) environment and health; 3) work force/work place, the changing technologies and information explosion, the world economy; 4) political changes; and 5) societal and lifestyle changes. The group then selected the top ten trends in each of these five categories, resulting in a list of 50 trends. From the 50 trends, the participants individually selected and ranked their top ten. Those trends receiving high priority ratings were categorized into 14 clusters; such as, Education Challenges, Redefining the American Family, and Political Changes.

This edition of An Environmental Scan Update presents brief descriptions of the trends that environmental scanners across the EICCD believe will have the greatest impact on our short-term future.

For a complete list of the 50 trends and their priority listing, please call the District Office of Acacemic Affairs and Planning, at the Urban Center, ext. 261.

POLITICAL CHANGES

The increasing costs of health care, welfare, and the criminal justice system and its correctional facilities will compete with education for public funds. Public and private enterprises will have a greater inability and resistance to pay for needed and desired services, especially public education. This reflects, in large measure, the resistance to higher taxes voiced by many Americans.

Financial problems at all levels of government will increase. Federal authority and financial responsibilities will continue to shift to state and local governments; the view that smaller governmental and organizational units are more effective will become widespread. The political activism of self-interest groups and "outside groups" will continue to set future political agendas.

INCREASED ACCOUNTABILITY

Federal and state governments, as well as other external agencies, will require increased accountability from higher educational institutions. Accountability will focus on outcomes and performance, rather than process.

EDUCATIONAL CHALLENGES

Community college enrollments will continue to increase as they become more attractive to students of varied ability (developmental through advanced). The cost of higher education will continue to increase, while the numbers and demographics of those desiring post-secondary education will heighten the need for financial aid.

Schools will provide more social services for the growing at-risk population.

JOB SKILLS OF THE FUTURE

U.S. businesses and industries will require workers with more job-ready skills. Employers and consumers will have higher expectations of worker's skills, abilities and attitudes, accompanied by the shift to more self-directed work teams, lifelong learning, and critical and creative thinking and problem solving. Certain, selected fields will lack skilled workers. The emphasis on education and training will be across all age groups.

GLOBALIZATION AND OUR ECONOMIC WELL-BEING

The formation of the European Community (EC), commitment to the North American Free Trade Agreement (NAFTA), and the growth of the economies of the Pacific Rim nations, are propelling the U.S. into the realities of a highly competitive global economy.

As the aging and obsolete infrastructure of our nation continues to crumble, the economic well-being of the country becomes more imperiled. Efforts to sustain the manufacturing sector of the U.S. economy will increasingly concentrate on maintaining global competitiveness through technology transfer, Total Quality Management, and work force development.

Organizations will continue the practice of "right sizing" as a response to increased competition and the relationships that characterize the world economy.

WORK FORCE TRANSFORMATION

The composition of the U.S. work force will become older and more diverse with a growing percentage of minorities and women. Immigrants to the United States will comprise a large portion of the new entrants into the work force.

THE CHANGING WORK PLACE

The greatest number of new jobs will be in the service/sales areas of health care, personnel supply, computer and data processing services, retail and management, and legal services. The majority of new jobs will be in companies with less than 100 employees that are owner-managed.

Emphasis will be on performance and outcomes in the work place that result in quality products and services. The value of continuous education and training for those who seek lifetime employment in the global economy will increase.

In order to attract, develop, and retain a quality work force, employers will become more involved in family-related issues (e.g., child care, parental leave, substance abuse, mental health, etc.).

DEMOGRAPHIC CHANGES

The minority population in the U.S. is growing, most notably the Hispanics. Like the rest of the nation, Iowa's population continues to age. As a result, the demand for services and programs for the elderly will grow. As funding for public programs tightens and the equitable distribution of resources becomes more of a public issue, intergenerational conflicts are likely to increase.

All of these changes will take place in an environment in which "Baby Boom" values will become a potent force; the elderly will continue to pursue a political agenda focusing on health care and wealth preservation, security, and leisure-time activities; and, the nation's young adults will struggle to obtain a piece of the American Dream.

HEALTH AND HEALTH CARE

The demand for workers in all health-related occupations will increase because of the aging of the U.S. population, growing numbers of at-risk children, and technological advances. Jobs in the health field will become more specialized. Primary health care needs will be increasingly provided by non-physicians.

The risk of air-bloodborne pathogens and communicable diseases will stimulate legislation. Health care workers will have an increased financial and personal health care risk.

The cost of health care will continue to rise. The cost of health-care insurance for the consumer, as well as the liability insurance premiums for health providers will also increase. Payment for health care will thus continue to dominate the political scene.

TECHNOLOGICAL CHANGES

The rapid growth of and changes to technologies will affect manufacturing, education, management, human resources, and expectations of quality for products and services.

Colleges will establish and operate alternative delivery systems (distance learning) that will allow the college to go to the learner, rather than requiring the learner to go to the college.

Computer simulation and virtual reality will impact training.

SOCIETAL ISSUES

American society is becoming increasingly bimodal, with divisions among the "haves" and the "have nots". The middle class will continue to shrink, and increasing numbers of people will become poor. Health care, insurance, family leave, and child care will continue to be major societal issues.

REDEFINING THE AMERICAN FAMILY

As the public debate regarding family values unfolds, what is meant by the "American family" will be redefined in terms of lifetime situations, including the traditional two-parent, single-, multiple-, or step-parent environments, marrying, cohabitating, living alone, divorcing, remarrying, parenting, stepparenting, raising grandchildren, caring for an elderly parent, and surviving a spouse.

ENVIRONMENTAL CAREERS

Careers will continue to emerge to meet the high demand for protecting worker health and safety, as well as for conserving and protecting the world's environment.

VOLUNTEERISM

Public and private support for the re-emergence of community service will grow as a national value.

ACKNOWLEDGMENTS

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AN ENVIRONMENTAL SCAN

UPDATE

Volume 2, Number 2 October 1992

Editor: J. N. Friedel, PhD

K-12 EDUCATION

AMERICA 2000

"Education is our most enduring legacy, vital to everything we are and can become."[2]

—President Bush

AMERICA 2000[3] HOW PARENTS VIEW THE SIX NATIONAL EDUCATION GOALS

Goal	% Believe Goal Attainable
1) All children will start school ready to learn.	29%
2) The high school graduation rate will increase from its current 72% to 90% or more.	43%
3) Students will leave grades 4, 8, 12 having passed tests showing they are competent in challenging subjects like English, Math and Science.	62%
4) U.S. students will be first in the world in science and math.	19%
5) Every American adult will be literate.	14%
6) Every school in America will be free of drugs and violence.	4%

"America 2000 ignores such problems as child poverty at a time when 40% of all children are classified as poor; it ignores the pressing problem of unemployment when the unemployment rate among black male teens in March 1991 was 38.4%."[1]

—Prof. Henry A. Giroux
Waterbury Chair
Penn State Univ.

READY TO LEARN

- 622,000 children participated in Head Start programs in 1992.[5]
- Only about 40% of 3-5 year olds from low- and middle-income families ($30,000 or below) attended preschool in 1991, compared with 75% of children from families with incomes above $75,000.[11]

"One of the things that a level playing field implies is preschool for every child who needs it. Surely a country that can find up to $500 billion to bail out the savings-and-loan industry can find $5 billion to fund the Head Start program."[4]

—Governor Bill Clinton

"We have ignored the fundamental fact that to improve the nation's schools, a solid foundation must be laid. We have failed to recognize that the family may be a more imperiled institution than the school and that many of education's failures relate to problems that precede schooling, even birth itself."[1]

—Ernest Boyer, President
Carnegie Foundation for the Advancement of Teaching

HIGH SCHOOL GRADUATION RATE

We should stop pushing the corporate model on our schools. Competition, after all, produces losers as well as winners.[1]

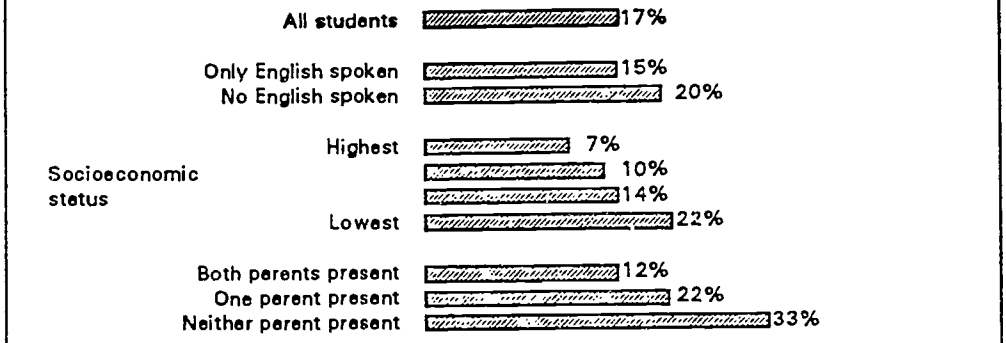
--Lamar Alexander
Sec. of Education

- One million young people will drop out of school annually, at an estimated cost of $240 billion in lost earnings and forgone taxes over their lifetimes.[3]
- While only 74% of all students graduated by age 19, 86% had a diploma by age 22, according to a 1991 report by the U.S. Education Department.[12]
- The graduation rate for blacks rose from 66% to 78% during 1975 and 1990. Hispanic completion rates, however have remained essentially unchanged at approximately 60%.[11]

"The number of students at risk of dropping out of school will increase as academic standards rise and social problems (such as drug abuse and teenage pregnancy) intensify."[3]

FACTORS RELATED TO DROPPING OUT[11]

Percent of the 1980 sophomore class who dropped out, by selected characteristics.



The absence of parents from the home, low socioeconomic status, and limited proficiency in speaking English appear to increase the likelihood of students dropping out of high school.

Source: National Center for Education Statistics, 1989.

'WHO IS ILLITERATE IN THE USA?[13]

27 million adults:
17% of all men
20% of all women

ILLITERACY

"We have 27 million illiterate adults. We're behind Russia. Kids graduate from high school and can't read. The Army has a comic book of about 30 pages to teach soldiers how to lift the hood, how to fix your motor, because they can't read."[9]

—Author Sidney Sheldon

SCIENCE AND MATH

In a 1991 survey of employers, educators, and parents sponsored by the Committee for Economic Development, only 12% of employers felt high school graduates write well, only 22% said they had a good mastery of math.[14]

- In a five-nation study, U.S. 13-year-olds ranked fourth in science and last in mathematics.[10]
- Only four in ten high school mathematics teachers in 1988 held degrees in mathematics. Six in ten science teachers held science degrees.[11]
- Science and mathematics achievement have improved somewhat over the past decade. Between 1977 and 1990, science achievement rose for 9-year-olds and 13-year-olds, while remaining the same for 17-year-olds, as measured by scores on the National Assessment of Educational Progress (NAEP). Mathematics achievement improved for all three age groups between 1978 and 1990.[11]
- A 1990 survey of fourth and eighth graders shows that mathematics instruction frequently runs counter to the recommendations of mathematics education experts by failing to emphasize reasoning and analytical skills or the communication of mathematical ideas.[11]

"The world has changed and our schools haven't. Our schools are in a sort of time warp. We have learned during the 1980s that trying to fix schools piece-by-piece doesn't work very well. sometimes it is easier to start over."[7]

—Lamar Alexander
Sec. of Education

FREE OF DRUGS AND VIOLENCE

- Since 1980 overall student drug use (percent of 12th graders who reported use during the previous 30 days) has declined noticeably. Alcohol use among high school seniors declined from 72% to 57% between 1980 and 1990. Marijuana use declined from 34% to 14%.[11]
- At least 2.5 million U.S. teens carry guns, knives, razors or clubs, according to the Center for Disease Control.[17]
- Up to 135, 000 guns are carried into schools each day. Sixty-five students and six workers were killed by gunfire in schools over the past five years.[17]

FUNDING

The correlation between test scores and the percentage of children living in poverty is a whopping .99.[1]

- This nation is still the richest and most productive in the world. Our per-capita gross domestic product is more than $21,000; Germany's is $18,000; Japan's, $11,000 yet we rank ninth among the world's industrialized nations in our per-student expenditure for K-12 education.[15]

The corporate share of local property-tax revenue—a prime funding source for puclic education—dropped from 45% in 1957 to about 16% in 1987.[16]

—Robert Reich
Political Economist
Harvard

- The federal government provides just 7% of the $360 billion the U.S. spends annually on education—and with massive deficits looming far into the future, a sizable boost is unlikely.[6]
- The U.S. spends $11,000 a year on every American over 65, but only $4,200 on every American under 18.[1]

"Our concerns and our ambitions need to be directed toward assuring that the people of this nation have the greatest possible opportunities to learn throughout their lives. In times of rapid change it is the capacity to learn that matters; it is the ability to innovate that matters; it is the ability to solve problems and achieve new levels of individual and group achievement that matters."[7]

—Jeffrey Hallett, Futurist

IMPACT & QUESTIONS

1. Secretary Lamar Alexander addressed the need to "start over" with our education system. Should we scrap the old paradigm of education which focuses our efforts on "school reform" and instead focus on the "process of learning?"

2. How can the community college better attract, retain and help individuals succeed in obtaining their GED?

3. Should the community college offer more remedial courses in the mathematics and science area to bring students "up to speed?"

4. How can the community college foster a drug- and violence-free environment?

5. What programs can the community college offer to assist parents in making sure their children are ready to learn?

6. How can the community college attract more illiterate adults into their literacy programs?

7. How can the community college foster the importance of education at the local, state, regional, and national level?

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AN ENVIRONMENTAL SCAN

UPDATE

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Editor: J. N. Friedel, PhD

THE GLOBAL POPULATION

POPULATION GROWTH

World population is increasing by three people every second—about a quarter of a million daily.[20]

- According to the 1990 U.N. Population Report, the world population is now about 5.3 billion.[25]
- During the 1980s, populations in 40 developing nations grew so fast that their per capita income fell. Though food output is rising in the developing world, food per person isn't.[10]
- From 1980-1990, the total number of malnourished people increased from 160 million to 512 million and is projected to exceed 532 million by the end of the century.[20]
- Total world population will increase to 6.2 billion in 2000 and to 8.2 billion in 2025. Thereafter the population will stabilize at about 11 billion.[27]
- China and India will have about the same long-term stationary population in the twenty-second century of about 1.7 billion each.[27]

"In the industrialized countries, the *birth dearth* has cut growth almost to nothing, while in the developing world the population bomb is still exploding."[3]

India—with 18 million births per year—is the top single contributor to world population growth.[16]

TEN MOST POPULOUS COUNTRIES[17]

	1990			2025	
1.	China	1,139.1*	1.	China	1,512.6*
2.	India	853.1	2.	India	1,442.4
3.	Soviet Union	288.6	3.	Soviet Union	352.1
4.	United States	249.2	4.	United States	299.9
5.	Indonesia	184.3	5.	Indonesia	285.9
6.	Brazil	150.4	6.	Nigeria	280.9
7.	Japan	123.5	7.	Pakistan	267.1
8.	Pakistan	122.6	8.	Brazil	245.8
9.	Bangladesh	115.6	9.	Bangladesh	235.0
10	Nigeria	108.5	10.	Mexico	150.1

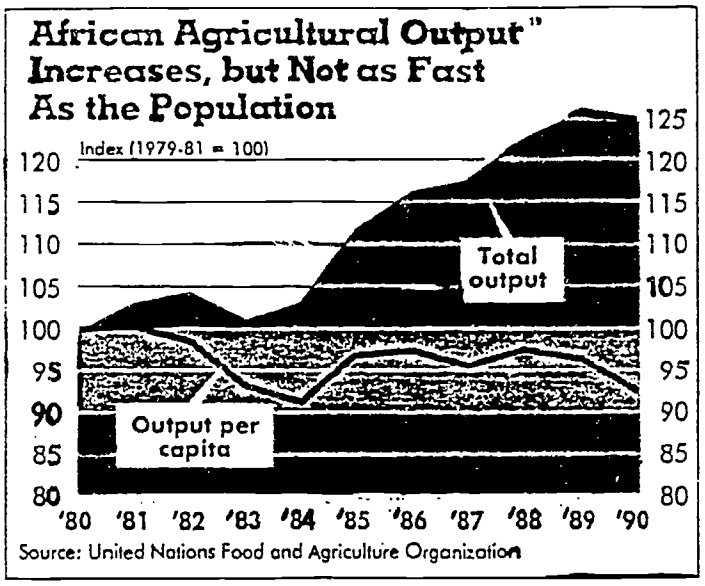
Source: United Nations Population Fund *(Millions)

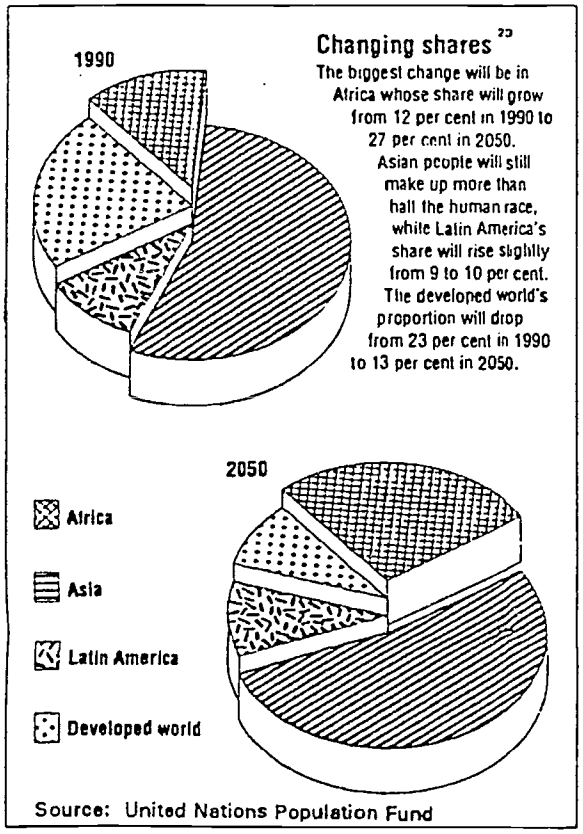
This is the first of a three-part series examining the population and the changing demographics. This issue focuses on the global population; the second will focus on our national population and the changing demographics; the third issue will deal with Iowa's population, and will highlight the EICCD service area.

The world cannot adequately care for those who are here today. One person in five lives in absolute poverty. 900 million people can neither read nor write. One in three children is dangerously malnourished.[18]

The world produces enough food to feed everyone; however, the problem is poverty and the ability to earn a livelihood.[20]

- 94% of the world's population in 1992-2025 will occur in the developing world. Africa now has 12% of the world's population, but by 2025 its share may increase to 19%. Europe's share will decrease from 9% to 4%.[26]
- The largest population growth will be in some of the world's most densely populated areas. South Asia will grow by 300 million between now and 2000. Africa, which is in the grips of an AIDS epidemic, will be growing faster than today's world average even if the worst-case death rate from AIDS develops. These projections assume that the current amount spent on contraceptives and family planning services will double by the year 2000 to $9 billion a year.[17]



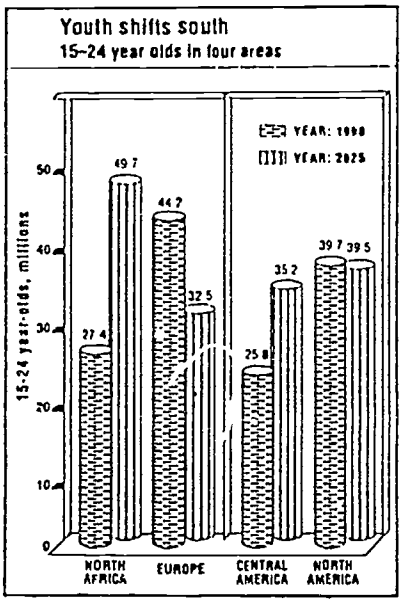


- By the year 2000, 52% of the world's people will reside in urban centers. That number may leap to 90% by the end of the twenty-first century.[4]
- Mexico City, which already has nearly 20 million people, is adding more at the rate of 2,000 each day. By the year 2000, Mexico City will have 28 million people and will be the largest city in the world.[4]

"Every year during the 1990s, the population will increase by 90 million to 100 million people, roughly equivalent to the current population of Eastern Europe or Central America.[25] It is the equivalent of an additional United States every two and a half years.[6] Over the decade, a billion more people will inhabit the planet, equivalent to an extra China.[25]

The greying North [23]

As the South grows more youthful, the North grows older. In 1990, developed countries had only 23 per cent of the world's population but 44 per cent of the people aged over 60 years old. In 2025 half the population of western Europe will be over 45 years old.



Source: United Nations Population Fund

- In the industrialized countries, workers can look forward to national retirement programs or Social Security. In developing countries, those too old for labor rely on their children to support them; the result is they have as many children as they can.[3]

- In developed countries, children born in the 1980s will live to an average age of 77 for females, 70 for males. In developing countries, average life expectancies will remain at 61 for females and 59 for males.[3 p. 13]

- A comparison of the highs and lows of median age yields Sweden at 38.9 years and Japan at 37.5 with the highest, and Yemen and Kenya with the lowest at 15.1 years. The median age in the U.S. is 32.9.[13]

WAR ON CHILDREN

- In the 1980s, more than one and a half million children were killed in war, and more than 4 million were physically disabled. Five million children are in refugee camps; an additional 12 million lost their homes.[9 p. 26]

- The twentieth century invented "the war on children". During World War I, only 5% of the casualties were civilians. In World War II, 55% of the casualties were civilians. There are currently more than 40 wars being fought, and the civilian share of casualties is about 80%, most of them women and children.[9 p. 26]

ENVIRONMENTAL REFUGEES

- In 1989, the Worldwatch Institute estimated that at least 10 million persons had abandoned land no longer suitable for human habitation. At least 8 million have been driven from their homes throughout Africa, Asia, and Latin America. These included conservative estimates of persons who have emigrated from rural areas to cities because of reduced land productivity. Another 2 million have been displaced by natural disasters. Several additional thousands have been displaced by toxic poison of land; such as, Chernobyl in the Ukraine.[7 p. 8]

- The U.N. High Commissioner for Refugees does not keep statistics on environmental refugees, and most governments do not recognize deterioration of the environment as classification for refugees.[7 p. 8]

"Environmental refugees may already be the largest single class of displaced persons. The number of those who, by the middle of the next century, will be forced to leave their homes because of desertification, toxic pollution, or "unnatural disasters," combined with those who must leave because of the rising sea levels resulting from global warming, may be several times larger than the number displaced by all other means."[7 p. 8]

—Werner Fornos, President
Population Institute

"The 1990s will see faster increases in human numbers than any decade in history."[25]

—Dr. Nafis Sadik, Executive Director
United Nations Population Fund

- Though the world's population continues to grow, it is at a somewhat slower pace. Thailand, China, and Columbia have made remarkable progress in reducing their fertility rates. In eight years, Thailand lowered its fertility rate from 6.5 children per family to 3.5 children. In 1991, Thailand's fertility rate is 2.2—barely above replacement levels.[5]

The more education women have, the less likely they are to have large families.[18]

- "Women's access to better education, health care and family planning, and work at a fair wage raise personal incomes, speed economic development and reduce family size. A reduction in family size can make a direct contribution to better education, health and nutrition: children from smaller families are healthier and better nourished, stay longer in school, and do better than children from large families."[23]

- Despite a poor economy and high levels of illiteracy, the government of Morocco launched a campaign ten years ago to deliver contraceptives and family planning advice to millions of Moroccan women. In this conservative Muslim nation, contraceptive use has risen to 40%; the average number of children per woman has dropped from 7 in 1980 to 4.5 in 1992.[14]

- In developing countries, only one-half of the women have access to modern contraception; it is 30% if China is excluded.[12]

- 70% of all couples in China practice some form of contraception.[16]

- The U.S. presently dedicates 2.2% of its foreign aid to population programs. Because of pressure from right-to-life groups, the Reagan administration cut off U.S. support for the U.N. Population Fund in 1984. The Bush administration has maintained that ban.[12]

- In Africa, the population growth threatens to outpace jobs, food, schools, and other resources. In the past 30 years, Africa's population has doubled, and it is expected to triple during the next 30 years. Only about 4% of all African couples use contraception, though it is higher in Botswana, Mauritius, Tunesia, and Zimbabwe.[16]

- In many European countries, the population is stagnating, even declining. For a European country to maintain its population, each woman must have an average of 2.1 children.[22]

  - Only Spain is reaching replacement levels.
  - In Germany and Denmark, the birthrate is 1.4, the lowest fertility rate in the world.

"Past inaction on population is creating a graveyard for all the progress and hopes of today's generation."[11]

—Nancy Wallace, Director
Sierra Club's Population Program

- More than a quarter of a million small children die each week of easily preventable illness and malnutrition: measles, whooping cough, tetanus, diarrheal dehydration, pneumonia.[8-p. 4]

- An estimated one million people in Kenya will die from famine because of drought; two million in Somalia from famine because of the combination of drought, civil war, and poor distribution. Most of these will be children.[21]

- With the exceptions of Indonesia, Myanmar, and the Philippines, Asia as a whole has avoided the international debt trap; however, the problem of absolute poverty in the world still has South Asia as its center of focus.[8-p. 13]

"Our national character can be measured by how we care for our children."[28-p. 5]

—Pres. George Bush

In India, Pakistan, and Bangladesh, we find:

- 40% of all young children who die in the world each year.
- 45% of the children who are malnourished.
- 35% of the children who are not in school.
- 50% of those who live in absolute poverty.

South Asia's challenge is to find sufficient ways of converting its steady economic progress into equivalent improvements in the health, nutrition, and education of its children.[8-p. 13]

- Thailand and Korea have consciously worked to tie economic growth with the well-being of their children.[8-p. 13]

  - Thailand's Fifth National Development Plan has resulted in a reduction of grade two and three malnutrition to less than 2% in almost every village.

  - In the Republic of Korea, malnutrition has been virtually eliminated. The under-five death rate has dropped from 120 to 33 per 1,000.

In the U.S., the most prosperous nation in the world, child deprivation has increased even though wealth has risen and poverty among other age groups has fallen.[8-p. 22]

- Increasing the average level of schooling by one year in the developing countries has been found to increase wages by 7% to 25%. Increasing the average level of schooling by three years is associated with an increase in the country's rate of economic growth of 27%.[1]

- In the 1960s, the proportion of U.S. children living in poverty fell from 27% to 14%. In the 1970s, it increased to 17%. During the 1980s, the proportion of U.S. children living in poverty climbed to 22%—this occured in a decade with a 25% increase in U.S. GNP.[9]

- The 1980s was disastrous for education. Two-thirds of over 100 developing countries surveyed by UNESCO saw a decline in expenditures per pupil and had seen a fall in the proportion of the children enrolled in primary school.[9-p. 33]

In the developing world, over 90% of the children start school. Many do not even reach the fourth grade, and most are lost in the first year or two.[8-p. 23]

- Fifty or more children can be provided with primary education for the cost of one university student; nonetheless, many countries allocate disproportionate resources to higher education. "A relatively small shift in this balance could, in many cases, achieve universal primary education and produce much greater national benefits in both economic growth and social progress."[9-p. 38]

SURVIVAL RATES IN PRIMARY SCHOOL [9-p. 33] 1986-89

Percentage of those starting primary school who reach grades:	Two	Three	Four
Sub-Saharan Africa	79%	72%	66%
Arab States	99%	95%	93%
Latin America and the Caribbean	70%	61%	55%
Eastern Asia	87%	83%	78%
Southern Asia	69%	65%	59%

"A top priority should be equalizing women's access to education. It contributes to their personal development, to smaller families, and to better health for mothers and children."[23]

POPULATION GROWTH AND THE ENVIRONMENT

"The quality of human life is inseparable from the quality of the environment. We cannot solve the environmental crisis without solving the population crisis."[12]

—Dr. Nafis Sadik, Executive Director
United Nations Population Fund

The worldwide effect of steady population growth and development is evident in increased deforestation, species loss, and global warming.[12]

- The United Nations Population Fund (UNFPA) Report points out that the result of overpopulation is famine and extensive damage to the environment.[5]
  - Developing countries are suffering from a serious decline in their ability to feed themselves. In 1970, they imported 20 million tons of grain; in 1983-85 it was up to 69 million tons; by the year 2000, they will need 112 million tons.[5]
  - Today, 580 million people live in absolute poverty on marginal or fragile land.[5]
  - Rural poverty is driving many into the cities. By 2000, urban populations in the third world will be nearly double those in the industrialized nations.[5]
- 1.7 billion people in developing countries do not have access to adequate amounts of drinking water. 3 billion people, more than half of the world's humanity, lack proper sanitation.[7-p. 5]
- By 2025, 21 African countries are likely to face water scarcity, affecting 1.1 billion people.[23]
- To meet the needs of population growth between now and 2050 will require an increase of 56% of the developing countries' 1988 arable land. This will rob wildlife of wetlands, forest and savannas, thus reducing species diversity.[23]
- The clearing of forests in Nepal caused erosion and siltation that created small islands where rivers emptied into the sea. Peasants in Bangladesh, where over 110 million people live in an area about the size of Iowa, are crowded into these islands, which put them in a direct path of cyclones.[12]
- As of 1989, developing nations have borrowed $1.2 trillion, 44% of their collective GNP. To pay off these borrowings, they have exported $50 billion in resources annually since 1983. This selloff is devastating both to their environment and to their ability to sustain populations. Farming, fishing, forestry, and mining account for more than two-thirds of employment and 50% of export earnings of these nations. Of 23 countries that exported tropical timber in 1985, 23 are predicted to run out in the 1990s. At the same time, the developing countries will need to create 1 billion new jobs. To industrialize without clean technology, as China, Brazil and India are doing, will increase global pollution and resource destruction.[10]

"70% of families in the developing world depend on wood for fuel; many of these communities are overcutting forest land."[12]

—Nancy Wallace
Director Sierra Club's International Population Program

"The increasing population means the per capita availability of key resources will shrink at an unprecedented rate during the 1990s: grainland by 15%, irrigated land by 11%, forestland by 19%, and grazing land by 18%. World grain output per capita already has dropped 4% since the mid-1980s."[12]

—Lester Brown, President
Worldwatch Institute

THE WORLD'S NEED FOR PRIMARY HEALTH CARE

"Adequate food, our clean water, and safe sanitation are still the three most powerful medicines in the world. And, a job and income are still the best possible guarantee that these needs will be met."[8-p. 37]

- In almost every developing country, diarrheal disease and respiratory infections are the first and second most common causes of illness and death of children under five. They claim 16,000 lives each day.[8-p. 21]

- Water and sanitation pose one of the greatest challenges for the 1990s: 60% of rural families and 25% of urban homes lack safe water supplies.[8-p. 37]

- On a global scale, primary health care is recognized as the way to achieve the greatest health for the greatest number at the lowest cost and in the shortest time. It is this health worker with six months of training, plus supervision and regular retraining, who can respond to three-quarters of a community's health-care needs, including: immunization, oral rehydration, antibiotics, growth monitoring, nutrition knowledge, advice and help with antenatal care, safe births, breast feeding, birth spacing, weaning, vitamin A supplements, and prevention of common illnesses.[8-p. 41]

- The cost of training a primary health-care worker is about $500. The cost of training a fully qualified doctor is at least $60,000.[8-p. 41]

- A trained primary health worker is more likely to remain in the rural areas and provide continuity of health care; they refer more difficult problems to the next level of primary health care—qualified doctors and medical personnel in clinics and hospitals.[8-p. 41]

- There is a global shortage of doctors, but you do not need a fully-qualified doctor, with seven years of expensive training, to prevent and treat the great majority of illnesses in the communities of the developing world.[8-p. 41]

GLOBAL AIDS EPIDEMIC

- A Harvard University report "AIDS in World 1992" goes beyond projections of the World Health Organization (WHO) in predicting an explosive, disastrous spread of AIDS, especially in Asia.[24]

  - The report estimates 2.6 already have AIDS, while 13 million are infected with the HIV virus. The WHO estimates 1.5 million AIDS cases and 9 to 11 million HIV infections.[24]

  - The Harvard report estimates that by 2000, 24 million adults and several million children will have developed AIDS—up to ten times as many as today; up to 120 million will be infected. The WHO predicts 10 million AIDS cases and 30 to 40 million HIV infections by the year 2000.[24]

- There will be a worldwide shift in the location of AIDS cases; in eight years, 42% of all AIDS infections will be in Asia.[24]

"Probably the absolute numbers [of AIDS] are less important than the message of this concensus that the picture may be more pessimistic than others have suggested."[24]

—Dr. Ann Mary Kimball
Director
Washington State
AIDS Program

RICH vs. POOR: THE WIDENING GAP

The gap between rich and poor countries is widening at a faster rate than ever before. Unless foreign aid is matched by economic opportunities, the disparity will grow wider and more dangerous.[15]

- With the U.S. leading, 24 industrial nations contributed $24 billion to help third world countries cope with poverty; this was equal to the combined GNP of the world's 44 poorest nations.[15]
- Thirty years ago, the 20% of the world's population that lived in nations with the highest per capita incomes were 30 times better off than the bottom 20%. Today, comparing individual rather than national averages, the income of the one billion richest people in the world is 150 times that of the poorest one billion.[15]
- Part of the blame for the disparity between the rich and the poor can be placed on the developing countries where economic growth has been stunted due to military spending, inefficient economies, corruption and capital flight.[15]
- 40% of international foreign aid is in military rather than economic assistance. Most of the remaining 60% goes to the richer tier of developing countries; only 25% of foreign aid goes to the ten countries containing 75% of the world's poorest.[15]
- Developing countries are also penalized by barriers to the entry of foreign workers, a cost estimated to pass $1 trillion by the year 2000. Those who are permitted to immigrate to economically advanced nations are the most skilled and best trained, contributing to a brain drain. Sudan alone has lost 17% of its doctors, 20% of its university teachers, and 30% of its engineers.[15]
- The gap is also widening because of low export prices and high debt payments, thus giving the rich industrialized nations more and more each year.[15]
- Poverty is the main reason millions of people cross international borders each year in search of jobs, resulting in socially disruptive consequences in many developed countries.[15]
- Where are the resources of third world countries going? The governments of the developing world as a whole devote half of their total annual expenditures to the maintenance of the military and the servicing of debt. In Africa, Asia, and Latin America, military expenditures and payment of debt total almost $1 billion every day, or more than $400/year for each family in the developing world.

  Debt and interest payments in 1988 (the latest year for which figures are available) total $178 billion, three times as much as all the aid received from industrialized countries. Military spending in developing nations totalled $145 billion.[8-p. 1]

"Developing countries can graduate out of foreign assistance in the twenty-first century and take their chances in the international market . . . but they can only do so if global markets are open—if capital, labor, and goods are allowed to flow freely around the world . . . . If the international community does not have the foresight to create economic opportunities where they are needed most, then the world may witness unprecedented international migration in the twenty-first century."[15]

—Dr. Mahbub ul Haq, Former Finance Minister, Pakistan
Principal Author of the United Nations Development Program Third Annual Report

"The last 14 years have witnessed an alarming increase worldwide in refugees. The numbers have increased from 2.8 million in 1976 to 8.2 million in 1980 to 17.3 million in 1990."[2]

According to international law, a refugee is someone outside of their own country who has a well-founded fear of persecution because of their political or religious beliefs or ethnic origin, and who cannot turn to their own country for protection.[2]

- Afghan refugees number more than five million, thus comprising the largest refugee group in the world. Three million live in refugee camps in Pakistan, and two million in camps in Iran.[2]

INCREASE IN REFUGEES[2]

	1976	1990
Africa	1,200,000	5,600,000
Asia	180,000	8,000,000
The Americas	770,000	2,700,000
Europe	570,000	894,000

- Almost half of Africa's refugees originated from Ethiopia, Mozambique, and Angola. Afghanistan accounts for 75% of Asia's total.[2]
- Refugees have generally fled from one poor country into another poor county. Africa's Malawi is one of the poorest countries in the world, and has taken in 750,000 refugees from Mozambique.[2]
- Migrant workers who have been displaced because of the war in the Gulf are not technically refugees, but have been deported from the Arab oil states. Within months of Iraq's invation of Kuwait, two million migrants had fled or had been sent home; these included 500,000 Egyptians, 750,000 Yemenis, and 600,000 Asians.[2]
- In Jordan, 25% of the population are refugees. Returnees from the Gulf states to Jordan increased the population by 10% in 1990 alone. Jordan took in an additional 800,000 returnees from other countries who made their way across the border.[2]

The long-term consequences of poverty and suffering on its present massive scale are well-known—and they will increasingly affect us as we move toward the next millennium:[8-p. 4]

- "Malnutrition means poor physical and mental growth, poor performance at school and at work, and the perpetuation of poverty from one generation to the next;
- "High child death rates mean high birth rates and rapid population growth;
- "Lack of education precludes people from contributing fully to, or benefitting fully from, development of their communities and their nation;
- "Hopelessness and the denial of opportunity erode self-respect and sows the needs of insoluble social problems for future generations;
- "Entrenched injustices and the parading of unobtainable wealth before the eyes of poverty provoke an instability and violence which often takes on a life of its own; and,
- "Finally, it is becoming increasingly obvious that the extreme of deprivation preclude environmental sensitivity, forcing millions to over-exploit their surroundings in the name of survival."

IMPACT & QUESTIONS

1. There is a direct relationship between population growth, poverty, lack of education, and environmental devastation. What might we do in our roles as North Americans, community college educators, and as concerned individuals to foster a greater understanding of these issues and their interrelatedness, and assist in the design of solutions?

2. What role might community colleges play in assisting the world's population in meeting its primary health care needs?

3. The development of bioengineered crops is being pursued with the hope of significantly increasing food production. How might the research universities and industries in Iowa work cooperatively in the development and commercialization of these processes and products? What role might community colleges play? What would be the impact of plants resistant to insects, viruses, and pesticides on Iowa's economy and environment?

4. What is the impact of these global changes on the programs, curricula, and services of the EICCD? What types of staff development activities would be useful?

5. How might community colleges assist in the development of third world countries?

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AN ENVIRONMENTAL SCAN

UPDATE

Volume 2, Number 4 December 1992

Editor: J. N. Friedel, PhD

NATIONAL POPULATION

THE 1990 CENSUS

- The 1990 Census counted 248.7 million people nationwide, 2.1% less than estimated. Most of the uncounted were believed to be minorities and the poor. In its 200 years, the U.S. Census has never been adjusted, and Commerce Secretary Robert Mosbacher refused to adjust the 1990 count, a move critics say cost cities and states $59 billion.[21]

- According to the National Coalition for the Homeless, an estimated 2-3 million were living on the streets in 1990. About one-third are mentally ill; another third may be addicted to drugs or alcohol. A growing number of these homeless, however, are simply members of families too poor to pay the rent after a job loss, a medical emergency or some other crisis.[2]

The three states with the greatest increase in absolute numbers during the 1980s are California (6.092 million), Florida (3.192 million), and Texas (2.758 million).[10 and 20-p. 20]

STATE BY STATE CENSUS (in thousands)

	1980	1990	Change	1990 Rank
Ala.	3,894	4,041	3.78%	22
Alaska	402	550	36.82%	49
Ariz.	2,718	3,665	34.84%	24
Ark.	2,286	2,351	2.84%	33
Calif.	23,668	29,760	25.74%	1
Colo.	2,890	3,294	13.98%	26
Conn.	3,108	3,287	5.76%	27
Del.	594	666	12.12%	46
Fla.	9,746	12,938	32.75%	4
Ga.	5,463	6,478	18.58%	11
Hawaii	965	1,108	14.82%	41
Idaho	944	1,007	6.67%	42
Il.	11,427	11,431	0.04%	6
Ind.	5,490	5,544	0.98%	14
Iowa	2,914	2,777	-4.70%	30
Kansas	2,364	2,478	4.82%	32
Ky.	3,661	3,685	0.66%	23
La.	4,206	4,220	0.33%	21
Maine	1,125	1,228	9.16%	38
Md.	4,217	4,781	13.37%	19
Mass.	5,737	6,016	4.86%	13
Mich.	9,262	9,295	0.36%	8
Minn.	4,076	4,375	7.34%	20
Miss.	2,521	2,573	2.06%	31
Mo.	4,917	5,117	4.07%	15
Mont.	787	799	1.52%	44
Neb.	1,570	1,578	0.51%	36
Nev.	800	1,202	50.25%	39
N.H.	921	1,109	20.41%	40
N.J.	7,365	7,730	4.96%	9
N.M.	1,303	1,515	16.27%	37
N.Y.	17,558	17,990	2.46%	2
N.C.	5,882	6,629	12.70%	10
N.D.	653	639	2.14%	47
Ohio	10,798	10,847	0.45%	7
Okla.	3,025	3,146	4.00%	28
Ore.	2,633	2,842	7.94%	29
Pa.	11,864	11,882	0.15%	5
R.I.	947	1,003	5.91%	43
S.C.	3,122	3,487	11.69%	25
S.D.	691	696	0.72%	45
Tenn.	4,591	4,877	6.23%	17
Texas	14,229	16,987	19.38%	3
Utah	1,461	1,723	17.93%	35
Vt.	511	563	10.18%	48
Va.	5,347	6,187	15.71%	12
Wash.	4,132	4,867	17.79%	18
W.Va.	1,950	1,793	-8.05%	34
Wis.	4,706	4,892	3.95%	16
Wyo.	470	454	-3.40%	50

Source: U.S. Census Bureau[10 and 20-p. 20]

This is the second in a three-part series dealing with population trends and projections. The third part will highlight the population of the Midwestern United States and Iowa.

In 1990, the population density in the U.S. averaged 70 people per square mile.[8]

POPULATION DENSITY PER SQUARE MILE

	1980	1990	Rank		1980	1990	Rank
Ala.	77	80	25	Mont.	5	5	48
Alaska	1	1	50	Neb.	21	21	42
Ariz.	24	32	37	Nev.	7	11	45
Ark.	44	45	35	N.H.	102	123	18
Calif.	151	190	12	N.J.	986	1,035	1
Colo.	28	32	38	N.M.	11	12	43
Conn.	638	675	4	N.Y.	371	380	6
Del.	308	345	7	N.C.	120	136	17
D.C.	10,132	9,635	—	N.D.	9	9	46
Fla.	180	239	10	Ohio	263	265	9
Ga.	94	112	21	Okla.	44	46	34
Hawaii	150	172	13	Ore.	27	30	40
Idaho	12	12	44	Pa.	264	265	8
Ill.	205	205	11	R.I.	898	951	2
Ind.	153	154	16	S.C.	103	115	20
Iowa	52	50	33	S.D.	9	9	47
Kansas	29	30	39	Tenn.	112	119	19
Ky.	92	93	23	Texas	54	65	29
La.	95	95	22	Utah	18	21	41
Maine	36	40	36	Vt.	55	61	30
Md.	429	486	5	Va.	135	165	15
Mass.	733	769	3	Wash.	62	73	28
Mich.	163	613	14	W.Va.	81	74	26
Minn.	51	55	31	Wis.	87	90	24
Miss.	53	54	32	Wyo.	5	5	49
Mo.	71	74	27	USA	64	70	—

Source: 1990 U.S. Census[8]

"Overall, the '80s were not as horrible to the Northeast as the '70s. In the long term, it's going to be healthy. It has a diversified economy, a talented labor force. People want to live there."[22]

—William Frey
Demographer
Univ. of Michigan

- In the 1980s, the U.S. population grew by almost 10%. The Midwest grew at the slowest rate, at 1.4%, followed by the Northeast at 3.4%. The slow growth in these regions is attributed to the collapse of heavy industry and the location of high technology companies elsewhere. Also, the low birth rates kept natural growth down. The Northeast region has the country's oldest median age at 34.2 years compared to the national age of 32.9 years.[22] For the first time since 1950, all five boroughs of New York City showed growth.[9]

- With nearly 51 million people, the Northeast is the most densely populated region in the United States. The area averages 313.1 people per square mile. Four boroughs of New York City, led by Manhattan with 52,419.4 residents for each of its 30 square miles, are among the five most crowded counties in the nation.[22]

- New York City's population grew 3.6% in the 1980s, due mostly to an influx of 90,000 immigrants a year. Many longtime white residents fled to the suburbs; minorities, at 56.8%, are now the city's majority.[12] Layoffs in the banking and financial districts could mean more people leaving the city in the near future.[22]

- Many small cities and rural areas in the northeast grew at a much faster rate than the region as a whole, mainly due to long-distance commuters working in New York City and Boston, turning the dense northeast corridor into one megalopolis.[22]

"There's been a general hollowing out of the interior of the country all the way from Minnesota to the Gulf Coast."[17]

—Calvin Beale, Demographer
The Department of Agriculture

Two-thirds of job growth in the 1990s came in suburbia.[6]

76% of Americans live in metropolitan areas (central cities and their surrounding suburbs).[7]

Growth was fastest in suburban counties, and in the South and West, as people moved for jobs and elbow room.[8]

LARGEST METRO AREAS

	1990 Census	Percent Change	Rank '90	Rank '80
New York-North New Jersey-Long Island (N.Y.-Conn.)	18,087,251	3.1%	1	1
Los Angeles-Anaheim-Riverside	14,531,529	26.4%	2	2
Chicago-Gary-Lake County (Ill.-Ind.-Wis.)	8,065,633	1.6%	3	3
San Francisco-Oakland-San Jose	6,253,311	16.5%	4	5
Philadelphia-Wilmington-Trenton (Pa.-N.J.-Del.-Md.)	5,899,345	3.9%	5	4
Detroit-Ann Arbor	4,665,236	−1.8%	6	6
Boston-Lawrence-Salem (Mass.-N.H.)	4,171,463	5.0%	7	7
Washington (D.C.-Md.-Va.)	3,923,574	20.7%	8	8
Dallas-Fort Worth	3,885,415	32.6%	9	10
Houston-Galveston-Brazoria (Texas)	3,711,043	19.7%	10	9
Miami-Fort Lauderdale	3,192,582	20.8%	11	12
Atlanta	2,833,511	32.5%	12	16
Cleveland-Akron-Lorain (Ohio)	2,759,823	−2.6%	13	11
Seattle-Tacoma	2,559,164	22.3%	14	18
San Diego	2,498,016	34.2%	15	19
Minneapolis-St. Paul (Minn.-Wis.)	2,464,124	15.3%	16	17
St. Louis (Mo.-Ill.)	2,444,099	2.8%	17	14
Baltimore	2,382,172	8.3%	18	15
Pittsburgh-Beaver Valley	2,242,798	−7.4%	19	13
Phoenix	2,122,101	40.6%	20	24
Tampa-St. Petersburg-Clearwater	2,067,959	28.2%	21	22
Denver-Boulder	1,848,319	14.2%	22	21
Cincinnati-Hamilton (Ohio-Ky.-Ind.)	1,744,124	5.1%	23	20
Milwaukee-Racine	1,607,183	2.4%	24	23
Kansas City (Mo.-Kan.)	1,566,280	9.3%	25	25
Sacramento	1,481,102	34.7%	26	32
Portland-Vancouver (Ore.-Wash.)	1,477,895	13.9%	27	26
Norfolk-Virginia Beach-Newport News (Va.)	1,396,107	20.3%	28	31
Columbus (Ohio)	1,377,419	10.7%	29	28
San Antonio	1,302,099	21.5%	30	34
Indianapolis	1,249,822	7.1%	31	30
New Orleans	1,238,816	−1.4%	32	27
Buffalo-Niagara Falls	1,189,288	−4.3%	33	29
Charlotte-Gastonia-Rock Hill (N.C.-S.C.)	1,162,093	19.6%	34	36
Providence-Pawtucket-Fall River (R.I.-Mass.)	1,141,510	5.4%	35	33
Hartford-New Britain-Middletown (Conn.)	1,085,837	7.1%	36	35
Orlando (Fla.)	1,072,748	53.3	37	51
Salt Lake City-Ogden	1,072,227	17.8%	38	41
Rochester (N.Y.)	1,002,410	3.2%	39	37

Source: 1990 U.S. Census[7]

- More than half of the population (50.2%) live in the 39 largest metro areas, each with over a million people,[7] up from 45.9% in 1980.[17]

- Almost half of the U.S. counties lost people in the 1980s. Of the 1,420 counties that declined, 1,240 (87%) were rural counties, most in the Midwest or South. The Midwest had the most declining counties with 669.[9]

FASTEST GROWING COUNTIES

County/Nearest Big City	Rank '90	Rank '80	1990 Population	Change
Hernando/Tampa, FL	454	868	101,115	127.4%
Osceola/Orlando, FL	428	806	107,728	118.6%
Gwinett/Atlanta	146	255	352,910	111.6%
Denton/Dallas	182	301	273,525	91.1%
Charlotte/Ft. Meyers, FL	415	686	110,975	89.8%
Collin/Dallas	188	297	264,036	82.6%
Williamson/Austin, TX	340	542	139,551	82.4%
Collier/Naples, FL	305	480	152,099	76.9%
Riverside/Los Angeles	26	52	1,170,413	76.5%
St. Lucie/W. Palm B., FL	313	473	150,171	72.3%

Source: 1990 U.S. Census[23]

COUNTIES THAT LOST THE MOST

County/Nearest Big City	Rank '90	Rank '80	1990 Population	Change
St. Louis/St. Louis	126	101	396,685	−12.4%
Cambria/Johnstown, PA	292	235	163,029	−11.0%
Macon/Decatur, IL	394	328	117,206	−10.8%
Rock Island, Moline, IL	318	256	148,723	−10.8%
St. Louis/Duluth, MN	245	201	198,213	−10.8%
Kanawha/Charleston, WV	241	195	207,619	−10.3%
Black Hawk/Waterloo, IA	370	311	123,798	−10.3%
Wayne/Detroit	8	4	2,111,687	−9.7%
Beaver/Pittsburgh	261	213	186,093	−9.0%
Fayette/Pittsburgh	326	261	1345,351	−8.8%
Peoria/Peoria, IL	263	219	183,827	−8.8%

In the 1980s, immigrants were a major force in re-invigorating cities that would have lost population otherwise.[26]

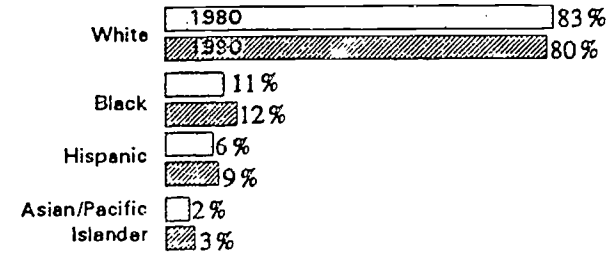
- The 1980s saw the largest ten-year wave of immigration in 200 years.[28]
- There were almost 9 million immigrants to the U.S. in the 1980s. The foreign-born population of the U.S. totaled 19.8 million, 8% of the U.S. total, up from 6.2% in 1980. At the turn of the century, foreign-born residents totaled 15% of the U.S. population.[28]

Half of Miami's 359,000 residents indicate they have trouble communicating in English.[27]

- Those that arrived in the 1980s were overwhelmingly Hispanic and Asian—the Asian population doubled and the Hispanic population grew by 60%. Mexicans, the largest group of Hispanics, grew by 50% to 13.5 million.[28]

ETHNIC MAKEUP OF THE U.S. POPULATION

Growth in percent of total population:



Source: U.S. Census Bureau; National Association of Latino Elected and Appointed Officials[4]

10% of Californians are foreign born.[26]

- A Tulane University study projects immigration to the United States will reach 9 million to 12 million during the present decade. The greatest impact will be in California which is already struggling to feed, house, and educate its growing population. The Los Angeles area alone will receive at least 2 million immigrants. State officials are concerned that the rising social costs caused by immigration will push businesses out of the state. By 2000 California will no longer have a majority White populatic _, New York and Texas will lose their White majority by 2020.[6]
- After reviewing immigration and fertility trends, the U.S. Census Bureau overhauled its projections. By 2050, the U.S. population will increase 50%, reaching 383 million. The ethnic makeup of the U.S. will also shift.[11]

REVISED POPULATION PROJECTIONS DECEMBER 1992

	1992 (in millions)		2050 (in millions)	
Non-Hispanic White	191.0	75.0%	202.0	53.0%
Black	32.0	12.0%	62.0	16.0%
Hispanic (any race)	24.0	9.0%	81.0	21.0%
Asian	9.0	3.0%	41.0	11.0%
Native Americans	2.2	0.8%	4.6	1.2%

Source: U.S. Census Bureau[11]

If immigration rates remain high, the entire U.S. will no longer have a White majority by 2050 or 2060.[6]

IMMIGRATION FROM FOREIGN COUNTRIES TOP TEN COUNTRIES

	Immigrants settling in each state in the 1980's	Immigrants settling in each state in the 1980s	Projected immigration to each state in the 1990s Low	High
California	2,331,300	34.54%	3,108,000	4,144,000
New York	959,400	14.21	1,279,000	1,706,000
Texas	594,600	8.81	793,000	1,057,000
Florida	439,600	6.51	586,000	782,000
Illinois	401,100	5.94	535,000	713,000
New Jersey	266,000	3.94	355,000	473,000
Massachusetts	128,400	1.90	171,000	228,000
Pennsylvania	119,100	1.76	159,000	212,000
Michigan	108,900	1.61	145,000	194,000
Washington	107,200	1.59	143,000	191,000

Source: U.S. Census Bureau[6]

RURAL AMERICA

- About 2.6% of the labor force worked in farm occupations in March 1988 compared with about 38% in 1900.[3]

- Although one-fourth of the nation's population—some 65 million people—lived in rural areas in 1988, only 2% resided on farms. One half of the farm population now lives in the Midwest. The farm population median age was 38 years in 1988 compared with 33.1 years for the total rural population and 32.1 years for urban residents.[3]

- About 92% of the rural population is White, 6.4% is Black and 2.5% is Hispanic compared to the urban population which is 82% White, 14% Black and 10% Hispanic.[3]

"14.9 million children living in rural America are poorer than children in metropolitan areas, are less likely to receive adequate health care, and getshort-changed when it comes to education."[16]

— Children's Defense Fund

- About 46% of the rural population lives within the boundaries of metropolitan areas.[3]

- More rural children live in small towns and mobile home parks along country roads and on Indian reservations than on farms. Typically, their parents hold service and manufacturing jobs that pay less and require fewer skills than jobs elsewhere.[16]

- It is not the farm families who make up the rural poor, but the farmhands, coal miners, saw mill cutters, and foundry workers who do not own property.[18]

The poverty rate in rural counties has climbed to 16%, almost as dismal as the inner cities' 18%.[18]

- Median income in 1987 was $24,130 for farm households and $26,030 for non-farm households.[3]

SUBURBS AND EDGE CITIES

"The nation that invented the throwaway city is now creating the throwaway suburb."[14]

— Charles Lockwood
Real Estate Consultant

- In a U.S. News study of 1990 Census data of 240 metro areas, it was found that Americans became increasingly class-segregated in the 1980s. The segregation occurred everywhere and among both Blacks and Whites.[14]
  - The blue-collar suburbs declined and the white-collar suburbs blossomed.[14]
  - According to a U.S. News survey of Census data, 35% of American suburbs saw real declines in median income from 1979 to 1989; 33% saw incomes rise more than 10%.[14]
  - Those municipalities that were already affluent in 1979 saw their fortunes rise in the next decade; those of modest means experienced further decline.[14]

- The reasons for the deterioration of working-class suburbs: older housing; the post-industrial economy passing them by; and, today's corporations locating their offices near their best-educated workers. "Edge cities" almost never grow up near blue-collar suburbs.[14]

- Every single American city that is growing is sprouting multiple urban cores called "edge cities." Businesses and retail centers are moving out to suburbia. Edge cities have more offices and stores than the old downtown areas. People live, work and play in edge cities, never needing to travel to the old central business district.[13]

- "Edge city" prosperity fuels class isolation. It boosts land prices and property costs; as the working class suburbs lose their commercial tax bases, they can't offer the kinds of services that are needed to attract new businesses and higher income residents; thus, there is further deterioration.[14]

Current trends indicate that population and jobs will continue to move out of central cities to suburban locations, as telecommunication equipment allows people to work and live where they want. Entire sections of northeastern and midwestern cities will be vacant, while southern and western cities will face chronic housing shortages.[25]

USA Today has defined the 1980s as the decade of the:[26]

- Suburb
- Economic divide
- Diversity
- Immigration
- Unaffordable house
- Redefined family

The 1990 Census documented profound changes in the U.S. population:

- 1 in 4 people in the U.S. is Black, Hispanic, Asian, or Native American.[26]
- 14% speak a language other than English at home.[26]
- Almost half of the U.S. population lives in suburbs.[26]
- Almost one-fourth of the population lives alone.[26]
- A larger percentage of the U.S. population is living on or below the poverty level:[26]

	1979	1989
All those in poverty	12.4%	13.1%
Families in poverty	9.6%	10.0%
Children in poverty	16.0%	17.9%
Elderly in poverty	14.8%	12.8%
Families headed by a single woman in poverty	30.3%	31.1%

Although median household income rose, so did the poverty rate, increasing the gulf between the rich and the poor. The 1980s saw a shift in the makeup of the poor from the elderly to the young.[26]

- About half of America's poor children are White. 12.5% of White children live in poverty compared with 39.8% for Black children.[15]
- 1 in 5 children lives in poverty; Mississippi has the largest percentage of children under age five living in poverty at 35.8%.[26]
- 1 in 4 children is born to a single mother.[26]

STATES WITH THE HIGHEST AND LOWEST CHILD POVERTY RATES

States with highest and lowest child-poverty rates in 1989, based on 1990 Census.

Highest		Lowest	
Miss.	33.5%	N.H.	7.0%
La.	32.8%	Conn.	10.4%
N.M.	27.5%	Alaska	10.9%
W. Va.	25.9%	Md.	10.9%
Ark.	25.0%	N.J.	11.0%
Ky.	24.5%	Hawaii	11.1%
Ala.	24.0%	Vt.	11.5%
Texas	24.0%	Del.	11.7%
Ariz.	21.7%	Utah	12.2%
Okla.	21.4%	Minn.	12.4%

Source: U.S. Census Bureau[5]

- Just over half of U.S. households are headed by married couples.[26]
- For the first time, Blacks were less than half of all minorities; by 2010, Hispanics will replace Blacks as the largest minority in the U.S.[26]
- For the first time since the 1930s, the 1980s saw a decline in home ownership. The monthly housing cost of home owners with mortgages rose four times as fast as median household incomes.[26]
- The Middle Class is shrinking. In 1989, 42% of U.S. households were living on less than $25,000 a year, compared to 31% in 1979. The middle class comprises only two-thirds of Americans, compared to three-fourths in 1979. While middle incomes declined, high incomes increased. Americans with high incomes grew from 11% in 1979 to 15% in 1989.[5]

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STATE POPULATION PROJECTIONS

In State Population Projections, 1988 to 2010,[24] the U.S. Census Bureau projected:

1. California, Texas, and Florida are expected to account for over half of the total U.S. population growth from now until 2010, and California will remain the nation's most populous state.[24]

2. During the 1990s, Arizona is projected to be the fastest growing state with a 23% increase.[24]

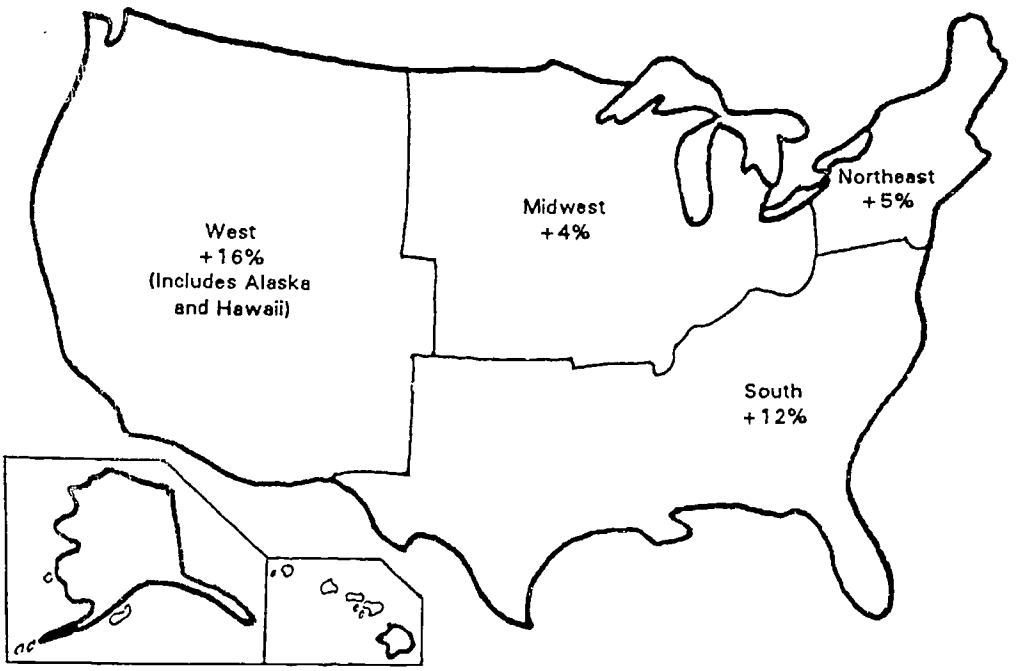
3. During the decade after the year 2000, no state is expected to have a growth rate above 20 percent.[24]

4. Wyoming will remain the nation's least populated state through 2010. During this time, it will lose 3% of its population.[24]

5. The state with the largest decline will be Pennsylvania, losing an average of 35,000 people a year, a projected 6% drop.[24]

6. Through 2010, Iowa will have the most rapid rate of population decline, 14%. The Census Bureau predicts Iowa will lose an average of 21,000 people a year between 1990 and 2000, an 8% loss. From 2000 to 2010, the Census Bureau projects Iowa's rate of decline to remain the highest in the nation, at 7%.[24]

ESTIMATED POPULATION GROWTH 1990 TO 2000



Source: USA Today[1]

IMPACT CONSIDERATIONS

1. The problem of decaying housing in urban neighborhoods could be addressed by partnerships of community colleges and government entitites. Housing rehabilitation might be accomplished through apprenticeship programs where the classroom is the old house that needs restoration. Hands-on building skills, as well as lessons in math, English, economics, design, history, sociology, psychology, and science may be built around a program of saving deteriorating houses.

2. The growing cultural diversity of our nation suggests that community colleges increase their levels of activity in promoting cultural understanding. Colleges can also promote the idea that knowledge of an additional language makes a person more marketable in the work force.

3. Burgeoning cities result in growing environmental problems: garbage, pollution, and shortages of resources. Community colleges can provide leadership in educating the public in environmental issues and solutions and in training environmental workers. Colleges can also work in partnership with government entitites as clearninghouses for waste exchanges and for stimulating business ventures that use recycled materials.

4. Shifting populations may create a financial burden for already strained school districts, especially those that lose headcount. The growth of distance education made possible by technological advances may help augment educational programs that otherwise could not be offered because of inadequate resources.

5. Areas experiencing an exodus of heavy manufacturing must stimulate new business opportunities for the displaced workers. The result of people leaving an area to "follow the work" is diminished capacity of cities to afford offering services. The community college could expand its partnerships with cities and other agencies in retraining and in creating innovative business opportunities for displaced workers.

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AN ENVIRONMENTAL SCAN

UPDATE

Volume 2, Number 5 January 1993

Editor: J. N. Friedel, PhD

THE MIDWEST AND IOWA POPULATIONS

THE MIDWEST'S POPULATION

During the 1980s, Iowa was the largest population loser in the Midwest, the third largest in the country.[7]

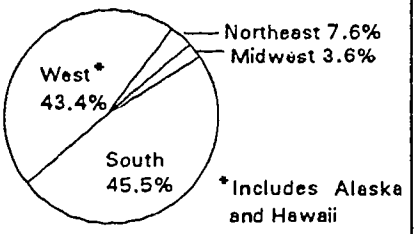
- The Midwest—with nearly 60 million residents—is the USA's second largest region, after the South. It was, however, the slowest growing region in the 1980s, with declines in its two economic mainstays of farming and manufacturing.[7] While the nation grew almost 10%, the Midwest averaged 1.4%.[22]
- During the 1980s, the U.S. grew by 22.2 million people with only 3.6% of this growth in the Midwest.[22]
- Minnesota has emerged as the fastest growing state in the region. The state grew 7.3% in the last 10 years, fueled by job growth in high-tech and service industries and a large immigration of Asians and Hispanics. The Twin Cities metro area grew to 2.4 million, making it the 16th largest metro area in the country.[6]

"The worst is over for the Midwest. There's a lot of good news for places whose economies have diversified and survived the shake-out."[22]

—William Frey
Demographer
Univ. of Michigan

MIDWEST LAGS IN GROWTH

The percentage of total growth in the 1980s contributed by each region:



Source: U.S. Census Bureau[22]

Between 1990 and 2000, the total population of the Midwest is projected to grow by only 240,000 people, an increase of 0.4%. This is only one-sixth the growth rate of the Midwest in the 1980s, and one-tenth of the rate of the 1970s.[2]

IOWA'S POPULATION

IOWA'S POPULATION RACIAL BREAKDOWN

White	96.6%
Black	1.7%
Native American	0.3%
Asian	0.9%
Other Races	0.5%
Hispanics*	1.2%

* Hispanics may also be part of any of the above minority groups.

Source: 1990 Census[7]

- In the 1990 Census, Iowa's population totaled 2,776,755, down 4.7% from 1980. Iowa is the 30th most populous state.[7]
- The Census Bureau estimates that 208,000 residents (7% of the 1980 population) left Iowa during the 1980s. However, for each year since 1987, Iowa has registered an increase in population.[8] At this present rate of growth, it will take until the late 1990s for Iowa to recover from its population loss of the 1980s.[15]

- Iowa's July 1992 population was estimated at 2.812 million; Iowa's annual growth rate was only half the 1.2% growth rate of the U.S., and lower than neighboring Minnesota, South Dakota, and Wisconsin.[15]

- Iowans are less mobile than citizens of other states. About 70% of Iowans in 1990 were born in the state, and 58% of those over age five were living in the same home they were five years earlier.[10]

- In every decade since 1920, more people have moved *out* of Iowa than have moved in.[19]

IOWA'S BIRTHRATE

- During the 1980s, Iowa had only 1.53 births for every death, one of the country's lowest rates.[8]

In 1980, Iowa's birthrate was above the national rate. Now Iowa is one of only five states with a birthrate two points below the national average.[10]

- From 1985 through 1989, 29 of Iowa's 99 counties had more deaths than births. Whereas, during the preceding five years, only 4 counties reported more deaths than births.[19]

- In 1989, 2.3% more babies were born in Iowa than in 1988—this is only the second time in nine years that Iowa has had an increase in births. In spite of these figures, two factors indicate that Iowa is not on the verge of a long-term baby boom: a median age of 34 that is increasing, and a drop in the number of Iowans between the ages of 15 to 24—from 550,000 to 420,000—the age that people would start forming families.[9]

- Despite the rise in births, Iowa's birthrate remains low at 13.7 per 1,000 persons. The national birth rate is 16.1 per 1,000 persons, according to the National Center for Health Statistics.[9]

Both in Iowa and in the nation as a whole, the vast majority of out-of-wedlock births are among Whites. In Iowa, the increase is most evident with mothers over 20 years of age.[1]

- Iowa's increase in births is occurring primarily in larger cities, resulting in a grim outlook for Iowa's rural communities.[9]

- In 1988, 75% of births to Iowa's Blacks were to single women, up from 60% in 1980. Out-of-wedlock births for all races increased from 4,895 to 6,730, an increase of 37% even though total births fell by 20%.[1]

- 7% of all babies born in Iowa in 1990 were to unmarried teenagers.[12]

"We have the lethal combination of more young people leaving and fewer people being born. When you combine the two, it makes it very difficult to think positively for the future of a state like this."[19]

—Willis Goudy, Rural Sociologist, College of Agriculture, Iowa State University

IOWA'S AGE DISTRIBUTION

- The fastest growing age group in Iowa is the very old, those 85 and older. This group grew 26% during the 1980s and has more than doubled since 1960.[11]

IOWA'S AGE DISTRIBUTION

Age	Number	% of Total Population	Male	% of Age Group	Female	% of Age Group
<5	193,203	7.0	98,754	51.1	94,449	48.9
5-14	413,555	14.9	212,088	51.3	201,467	48.7
15-19	199,416	7.2	101,398	50.9	98,018	49.2
20-24	196,419	7.1	99,442	50.6	96,977	49.4
25-29	206,616	7.4	102,258	49.5	104,358	50.5
30-34	222,003	8.0	110,293	49.7	111,710	50.3
35-44	395,321	14.2	197,989	50.1	197,332	49.9
45-54	274,428	9.9	134,717	49.1	139,711	50.9
55-64	249,688	9.0	118,994	47.7	130,694	52.4
65-74	226,961	8.2	100,644	44.4	126,317	55.7
75-84	143,690	5.2	53,709	37.3	90,181	62.7
85+	55,255	2.0	14,516	26.3	40,739	73.7
	2,776,755		1,344,802	48.4	1,431,953	51.6

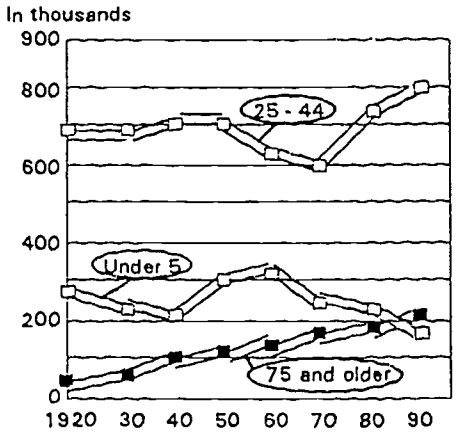
Source: 1990 U.S. Census[4]

Iowa ranks first in the nation in the percent of persons over 85.[24]

- In 1988, Iowa became only the second state in the nation (Florida was first) where the number of people over age 75 was greater than the number under age five.[19]
- The most rapidly declining group of Iowans is the very young. The number of Iowans aged 18-24 declined 27% in the 1980s; the number of Iowans under age 18 fell 13%.[11]
- By the age of 65, nearly half the women in Iowa are widows.[24]
- 31% of Iowa's elderly live alone.[11]
- In many Iowa communities, the nursing home is the biggest employer.[19]
- Iowa's median age is 34 compared to the national age of 32.9.[11]

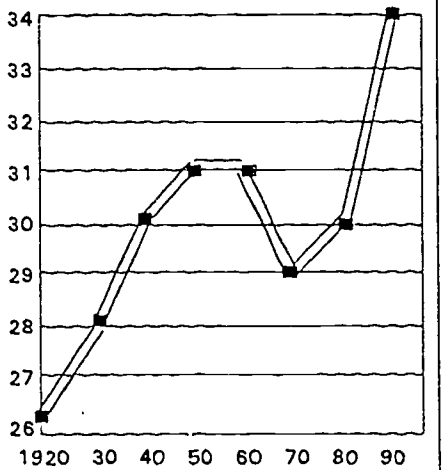
The graying of Iowa is occurring more rapidly due to the slower birthrate and the migration out of the state during the 1980s of those who otherwise would be starting and raising families.[11]

IOWA's AGE PROFILE



Source: 1990 U.S. Census[11]

IOWA's MEDIAN AGE



Source: 1990 U.S. Census[11]

"What we're seeing is a shift from what we used to think of as homeless—people from the mental institutions, people with substance-abuse problems. Clearly they're out there, but the new group is children and families."[17]

—Charles Palmer, Director
Iowa Department of Human Services

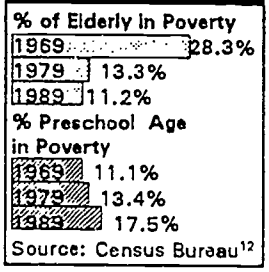
- For a single person, the poverty level is defined as $6,620 or less. A family of two is set at $8,880. A three-person family is considered in poverty if it earns $11,140 or less. For a four-person family, the level is $13,400.[25]

  According to information from state tax returns and the 1990 Census, the number of Iowa residents living below the federal poverty guidelines increased to 11.2% of the state's population. Iowa's average is lower than the 11.9% regional average (Iowa, Missouri, Kansas, and Nebraska) and the 12.8% national average.[25]

Although poverty among Iowa's elderly has declined dramatically, the number of preschoolers living in poverty has increased.[12]

- Poverty rates in Iowa's rural areas has increased; in the southern two tiers of Iowa's counties, as much as one-fourth of the total personal income comes from government aid.[12] The highest rate is in Decatur County, where 21% of the residents were below the federal poverty level in 1990.[20]

POVERTY IN IOWA HAS SHIFTED FROM THE ELDERLY TO CHILDREN



Source: Census Bureau[12]

The national elderly poverty rate has dropped to 12.8% while the preschool rate has risen to 20.1%.[12]

- The lowest poverty rates are in central Iowa counties surrounding Des Moines.[20]
- In 1989, 37% of Black Iowans were in poverty, 36% of Native Americans, 27% of Asians, 22% of Hispanics, and 11% of the Whites.[12]
- Between 1979 and 1989, Iowa median household income dropped 6.8% after inflation.[12]
- Almost two-thirds of Iowa's single mothers with preschool-age children were living in poverty in 1989.[12]
- According to the 1990 Census, 33% of all preschoolers in Waterloo are living in poverty; in Davenport, 29% of preschoolers are living in poverty.[12]
- In 1989, 15,713 people were homeless in Iowa. Of that number, 8,405 are children. The number of homeless children reported represents a 42% increase from 1988.[5]
  - 68,350 Iowans—including 25,650 children—were reported to be "near homeless," which means at risk of becoming homeless (without rent or fuel assistance or other forms of financial help).[17]
- According to an Iowa Department of Education study, Scott County has more homeless people than any Iowa county, and more than half of them are children. The study found 4,565 homeless people in Scott County, including 2,828 children.[5]

"Preschool poverty as viewed by the experts is a stepchild of deteriorating families, the rising numbers of unwed pregnancies, and the millions in unpaid child support. And few believe a government with $400 billion annual deficits and a $3 trillion debt will do for preschoolers what it has done for the elderly."[12]

IOWA'S HOUSEHOLDS

- One in every four households in Iowa is someone living alone. Another 4% are unrelated people sharing a household.[11]
- The proportion of Iowa households that were headed by married couples has been dropping for several decades as divorce, delayed marriage, and the number of widows and widowers has increased.[11]

IOWA'S URBAN AND METROPOLITAN AREAS

An "urban area" is defined as towns of 2,500 or more outside of densely populated areas.[14]

- Iowa is one of the least urbanized states in the United States, even though its urban population grew to 60.6% in 1990, up from 58.2% in 1980. Only 2% of Iowa's land (1,101 of Iowa's 55,875 square miles) is considered urban. 75% of the U.S. population resides in urban areas.[14]
- The Baby Boom generation, which tends to be concentrated in metropolitan areas, is the most economically powerful generation in the United States. During the 1980s, two-thirds of the metros that lost Baby Boomers were in the Midwest. The Davenport, Iowa—Rock Island and Moline, Illinois, metropolitan area ranked second in the nation in its decline in Baby Boom population during 1980-90, losing 20.2% of this age group.[3]

IOWA'S FARM POPULATION

NUMBER OF IOWA FARMERS

The number of Iowa farmers has dropped drastically:[10]

Decade	Drop in Number	% of Total
1970-80	15,236	11%
1980-90	31,983	25%

- Iowa has fewer than 94,000 farmers in Iowa, which represents less than 7% of Iowa's labor force.[10]
- State agricultural officials estimate that there were about 104,000 farms in Iowa in 1990, down from 119,000 in 1980.[10]
- During the five-year period of 1982-87, the number of farmers under 25 years of age declined by 42%; the only age group that increased was that of farmers 65 years and older.[10]
- 78% of employed farm women work in off-farm jobs. 40% of men who live on farms work in off-farm jobs.[16]

Farm residents have shifted toward off-farm jobs, driven largely by the number of farm women working in towns.[16]

- The Census Bureau classifies 39% of Iowa's population as living in rural areas, towns of fewer than 2,500 people.[14]
- Even though the 1990s have seen an overall increase in Iowa's population, its rural population continues to decline; 42 of Iowa's counties—almost all rural—lost population in 1991.[15]

"While more people live in rural America than ever before, the number of them who live on farms declined by one-fourth during the 1980s and now accounts for less than 2% of the U.S. population."[16] 9% of Iowans live on a farm; according to the Census Bureau's definition, a "farm" is one acre of land and $1,000 in farm sales the previous year.[10] Iowa's population residing on farms dropped 34% in the 1980s, to 256,562.[16]

"The Allied numbers, while just a tiny sample of the state's demographic patterns, are a very good sign for Iowa . . . they are especially encouraging because they indicate more higher-income families are moving into the state. Higher-income families typically hire moving vans."[21]

—Harvey Siegelman

- According to Allied Van Lines, Iowa is now a comfortably "balanced" state where the inflow and outflow of households on the move is almost the same.[18]

  In 1990, 48.5 percent of moving vans carried inbound families to Iowa, and 51.5% hauled families out of the state.[18] In 1991, 49.2% of Allied moving vans carried inbound families to Iowa and 50.8% hauled families out of state.[21] Outbound business reached a peak in 1982 when 69.8% of moving vans moved people out and only 30.2 percent were moving into Iowa.[18]

- Five independent agencies vary in their predictions of Iowa's future population:

  - The Census Bureau predicts that for the period from 1990 to 2010, Iowa will have the most rapid rate of population decline. Iowa will lose an average of nearly 21,000 people a year between 1990 and 2000, an 8% loss, totaling approximately 209,000 residents. During the period 2000-2010, Iowa's rate of decline is projected to remain the highest in the nation at 7%.[23]

  - In contrast to the Census Bureau's projection, Iowa State University predicts Iowa's population will grow by 20,000 between 1990 and 2000.

  - The National Planning Association projects of Iowa's population in the year 2000 at slightly more than 2.88 million.[23]

  - The Bureau of Economic Analysis anticipates even greater growth for Iowa, reaching 2.97 million by 2000.[23]

  - Woods and Poole Economics Incorporated offers the highest prediction: that Iowa's population will increase by 200,000 between now and 2015, with half that coming in metropolitan Des Moines alone. This projected 7% population growth is only half of that expected for the entire Plains region, and less than one-third the 25% growth projected for the United States. Furthermore, Woods and Poole Economics Incorporated predicts:[13]

    - Iowa's 2010 population will be 2,935,900, slightly above where it stood in 1980, and will increase to 2,980,000 by 2015.[13]

    - Fifty-four counties, almost all rural, will continue to lose population.[13]

    - Farm employment will drop 17% between 1990 and 2015.[13]

    - There will be a 51% increase in retirees.[13]

IMPACT CONSIDERATIONS

1. What are the positive characteristics of Iowa's population? How can Iowa use its population to advance economic development?

2. How might Iowa's aging population and its growing numbers living in poverty effect the state's social programs and services; what impact will these trends have on the community college?

3. What opportunities might exist for the development of the Midwest as a region? What role could the community colleges play in such efforts?

4. The growing number of households headed by financially disadvantaged single mothers increases the need for "at-risk" programming—not only for these women but also for their children. How can the high schools and community colleges link to keep teenaged mothers in the education loop? How might our area increase child care assistance for single mothers involved in college or low paying jobs? How can the EICCD better reach minority mothers, who make up the largest percentage of single mothers in poverty?

5. The number of farms is declining and more farm men and women are seeking other work. What retraining can the community college offer? How can distance education methods aid in retraining so that rural residents are conveniently served?

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AN ENVIRONMENTAL SCAN

UPDATE

Volume 2, Number 6 February 1993

Editor: J. N. Friedel, PhD

POPULATION AND DEMOGRAPHICS OF THE EICCD's SERVICE AREA

POPULATION

- The 1990 Census indicated that the population of the EICCD service area fell by 6.5% (18,670). Jackson County lost the largest percentage of its population at 11.3%, while Muscatine lost only 1.3%.

EICCD SERVICE AREA POPULATION

County	1980	1990	% Change 1980-90
Clinton	57,122	51,040	−10.6%
Jackson	22,503	19,950	−11.3%
Louisa	12,055	11,592	−3.8%
Muscatine	40,436	39,907	−1.3%
Scott	160,022	150,979	−5.7%
Total	292,138	273,468	−6.5%

Source: 1990 U.S. Census[1]

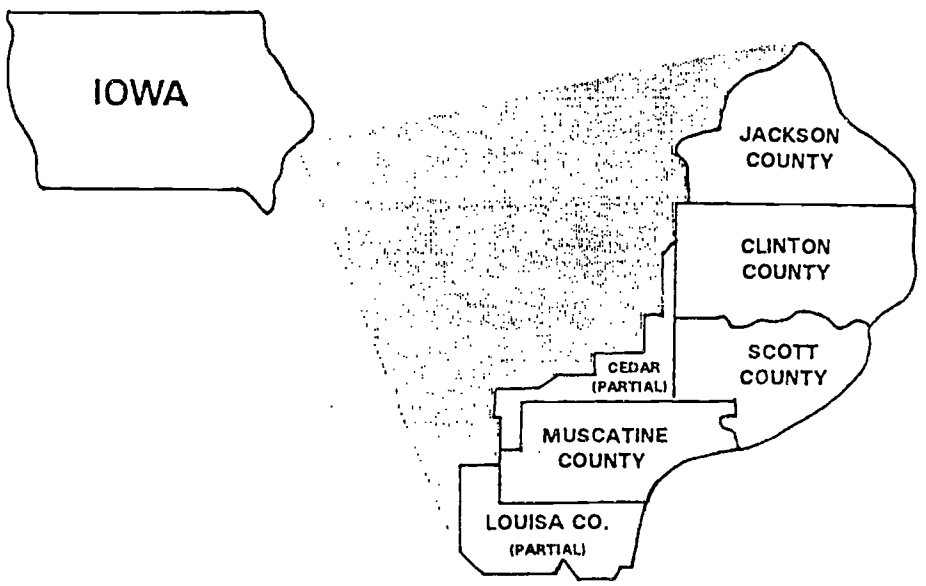
- Approximately 75% of the EICCD's population resides in urban areas. The range spans from 0% in Louisa County to about 88% in Scott County.

1990 EICCD URBAN AND RURAL RESIDENTS BY COUNTY

County	Urban		Rural		Total
Clinton	37,576	73.6%	13,464	26.4%	51,040
Jackson	6,111	30.6%	13,839	69.4%	19,950
Louisa	--	--	11,592	100%	22,592
Muscatine	28,434	71.3%	11,473	28.7%	39,907
Scott	132,312	87.6%	18,667	12.4%	150,979
Total	204,433		69,035		273,468

Source: 1990 U.S. Census[1]

THE EICCD SERVICE AREA



- The 0- to 14-year age group comprise almost 24% of the EICCD's population.

Women comprise 51.5% of the total EICCD population; men outnumber women in the 24-and-under age categories only.

1990 AGE/GENDER DISTRIBUTION OF THE EICCD SERVICE AREA

Age	Number	% of Total Population	Male Number	Male Percent	Female Number	Female Percent
0-14	64,199	23.5%	32,684	12.0%	31,515	11.5%
15-24	36,822	13.5%	18,509	6.8%	18,313	6.7%
25-34	44,020	16.1%	21,478	7.9%	22,542	8.3%
35-44	41,087	15.0%	20,510	7.5%	20,577	7.5%
45-54	28,388	10.4%	13,965	5.1%	14,423	5.3%
55-64	23,329	8.5%	11,232	4.1%	12,097	4.4%
65-74	20,088	7.4%	8,948	3.3%	11,140	4.1%
75-84	11,469	4.2%	4,279	1.6%	7,190	2.6%
85+	4,066	1.5%	1,094	0.4%	2,972	1.1%
Total	273,468		132,699	48.5%	140,769	51.5%

Source: 1990 U.S. Census[1]

Approximately 29% of the EICCD's population is enrolled in the K-12 schools. 35% of Louisa County's population is in the K-12 schools.

EDUCATIONAL ENROLLMENT OF EICCD RESIDENTS 1990 K-12 SCHOOL POPULATION

County/ Population	School Enrollment	Number	% of County Population	County/ Population	School Enrollment	Number	% of County Population
Clinton 51,040	Elementary	9,325	18.3%	Muscatine 39,907	Elementary	7,689	19.3%
	Secondary	4,229	8.3%		Secondary	3,253	8.2%
	Public	13,554	26.6%		Public	10,942	27.4%
	Non-Public	570	1.1%		Non-Public	223	0.6%
	Total	14,124	27.7%		Total	11,165	28.0%
Jackson 19,350	Elementary	3,621	18.2%	Scott 150,979	Elementary	27,841	18.4%
	Secondary	1,721	8.6%		Secondary	12,558	8.3%
	Public	5,342	26.8%		Public	40,399	26.8%
	Non-Public	559	2.8%		Non-Public	2,880	1.9%
	Total	5,901	29.6%		Total	43,279	28.7%
Louisa 11,592	Elementary	2,803	24.2%	EICCD 273,468	Elementary	51,279	18.8%
	Secondary	1,268	10.9%		Secondary	23,029	8.4%
	Public	4,071	35.1%		Public	74,308	27.2%
	Non-Public	0	--		Non-Public	4,232	1.5%
	Total	4,071	35.1%		Total	78,540	28.7%

Source: 1990 U.S. Census[1]

Approximately 79% of the EICCD's population 25 years of age and older have a high school diploma or further education. In the five-county area, a greater percentage of Scott County's population has a college degree (29.4%).

EDUCATIONAL ATTAINMENT OF PERSONS 25 AND OLDER WHO RESIDE IN THE EICCD SERVICE AREA

	Clinton	Jackson	Louisa	Muscatine	Scott	Total
Population 25 and Over	33,363 19.3%	12,841 7.4%	7,427 4.3%	25,240 14.6%	94,114 54.4%	172,985
Less Than 9th Grade	3,343 10.0%	2,211 17.2%	665 9.0%	2,773 11.0%	6,002 6.4%	14,994
9th-12th Grade, No Diploma	4,204 12.6%	1,356 10.6%	1,095 14.7%	3,548 14.1%	11,458 12.2%	21,661
High School Graduate	13,411 40.2%	5,639 43.9%	3,336 44.9%	9,591 38.0%	30,497 32.4%	62,474
Some* College, No Degree	5,336 16.0%	1,588 12.4%	1,164 15.7%	4,176 16.5%	18,441 19.6%	30,705
Associate Degree	2,762 8.3%	758 5.9%	482 6.5%	1,873 7.4%	7,133 7.6%	13,008
Bachelor's Degree	3,148 9.4%	904 7.0%	506 6.8%	2,390 9.5%	14,588 15.5%	21,536
Graduate/Professional Degree	1,159 3.5%	385 3.0%	179 2.4%	889 3.5%	5,995 6.3%	8,607

* May include community college students who have earned certificates or diplomas.

Source: 1990 U.S. Census[1]

1990 EICCD POPULATION BY RACE AND HISPANIC ORIGIN											
	All Persons	Race									
		White		Black		Hispanic		Asian		Other	
State of Iowa	2,776,755	2,683,090	96.6%	48,090	1.7%	32,647	1.2%	25,476	0.9%	20,099	0.7%
Counties:											
Clinton	51,040	49,882	97.7%	732	1.4%	294	0.6%	202	0.4%	224	0.4%
Jackson	19,950	19,867	99.6%	16	0.1%	96	0.5%	24	0.1%	43	0.2%
Louisa	11,592	11,206	96.7%	86	0.8%	425	3.7%	18	0.2%	282	2.4%
Muscatine	39,907	37,745	94.6%	208	0.5%	2,900	7.3%	300	0.8%	1,654	4.2%
Scott	150,979	139,408	92.3%	7,970	5.3%	4,253	2.8%	1,357	0.9%	2,244	1.5%
EICCD	273,468	258,108	94.4%	9,012	3.3%	7,968	2.9%	1,901	0.7%	4,447	1.6%

Source: 1990 U.S. Census[1]

- While the populations of both Iowa and the EICCD service area are predominantly white (96.6% and 94.4% respectively), the EICCD surpases the state percentages for Blacks and Hispanics.

During the 1980s, the Quad-Cities lost 20.2% or 27,134 of its Baby Boomers (people born from 1946 - 1965). Those 28- to 47-years of age are economically vital members of the community.

RELOCATION OF THE BABY BOOMERS PERSONS 28 TO 47 YEARS OF AGE			
Top Losers		Top Gainers	
Provo-Orem, Ut.	-27.7%	Vallejo-Fairfield-Napa, Calif.	+29.1%
Quad-Cities, Ia.-Ill.	-20.2%	Santa Rosa-Petaluma, Calif.	+30.2%
Peoria, Ill.	-20.1%	Atlanta, Ga.	+33.0%
Huntington-Ashland, W. Va.-Ky.	-17.4%	Fort Worth-Arlington, Tex.	+34.5%
Gary-Hammond, Ind.	-16.9%	Orlando, Fla.	+51.6%

Source: 1990 U.S. Census[3]

- Three independent agencies have projected the population for the EICCD service area; the percentage change between 1990 and 2000 range from a low of a 4.8% increase to a high of 17.2%. Only Clinton County is projected to lose popu'ation between 1990 and 2010.

POPULATION PROJECTIONS FOR THE EICCD SERVICE AREA											
		State Demographer		Iowa Dept. of Transportation				Woods and Poole Economics			
County	Census 1990	2000	% Change 1990-2000	2000	% Change 1990-2000	2010	% Change 1990-2010	2000	% Change 1990-2000	2010	% Change 1990-2010
Clinton	51,040	57,400	12.5%	50,760	- 0.6%	48,270	- 5.4%	50,650	- 0.8%	50,200	- 1.7%
Jackson	19,950	22,900	14.8%	24,090	20.8%	25,150	26.0%	20,250	1.5%	20,590	3.2%
Louisa	11,592	13,300	14.7%	13,070	12.8%	13,740	18.5%	12,240	5.6%	12,900	11.3%
Muscatine	39,907	51,000	27.8%	49,120	23.1%	54,6[illegible]	36.9%	42,440	6.4%	44,940	12.6%
Scott	150,979	176,000	16.6%	162,060	7.3%	164,5[illegible]0	9.0%	160,950	6.6%	170,930	13.2%
Total	273,468	320,600	17.2%	299,100	9.4%	306,320	12.0%	286,530	4.8%	299,560	9.5%

Source: 1990 U.S. Census[2]

IMPACT CONSIDERATIONS

1. During the 1980s, the population of the EICCD service area fell by 6.5%. Jackson County's fell 11.3% while Muscatine County lost only 1.3%. What might have caused this difference?

2. Two independent agencies have predicted that only Clinton County in the EICCD service area will lose population from 1990 to 2010.
   - What might be the reasons for this projected decline?
   - What measures might be undertaken to curtail this loss?

3. The Quad-Cities ranks second in its percentage of Baby Boomers lost during the 1980s; only the metropolitan area of Provo-Orem, Utah, had a greater decline.
   - What can the Quad-Cities, as well as the state of Iowa, do to attract Baby Boomers to this area?
   - What is unique about our area that can be used to market it to the Baby Boomers?

4. Almost 22% of the population of the EICCD service area is over the age of 55, and this percentage will increase as we proceed into the twenty-first century.
   - What are the implications of this trend to the community college?
   - What are the unique interests and needs of the over 55 age group?
   - How might the community college capitalize on this growing age group as a resource for the college?

5. Of the EICCD population over 25 years of age, approximately 21% have not obtained a high school diploma.
   - What are the implications of this lack of education on the economic well-being of the area?
   - What are its implications for these individuals in light of the changing needs of the work place?

6. Within the five-county service area of the EICCD, there is a significant variation regarding the level of education obtained by its population over 25 years of age. For example, the percentages of those who have not completed high school are Clinton 22.6%, Jackson 27.8%, Louisa 23.7%, Muscatine 25.1%, Scott 18.6%. The percentages of those who have completed a college degree (associate through graduate/professional) are Clinton 21.2%, Jackson 15.9%, Louisa 15.7%, Muscatine 20.4%, Scott 29.4%.
   - What might be the reasons for these differences across the counties of the EICCD?
   - How might the needs of the communities served by each of our three colleges differ?
   - What types of specialized programming might the community college explore to respond to these characteristics?

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AN ENVIRONMENTAL SCAN

UPDATE

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Editor: J. N. Friedel, PhD

IOWA'S ECONOMIC AND EMPLOYMENT FUTURE

IOWA'S ECONOMY

"If Iowa succeeds in developing employment and retains population, it will have to be on the basis of human ingenuity and quality of labor force."[19]

—Calvin Beale
Demographer
U.S. Dept. of Agriculture

- Iowa's gross state product—the total value of goods and services produced in the state—grew by only 7% from 1979-89. This was less than one-fourth the national average, placing Iowa forty-fifth nationally in economic growth, ahead of only Wyoming, Montana, South Dakota, North Dakota, Louisiana, and Oklahoma. In comparison, Minnesota's gross state product grew 36%, Wisconsin 24%, Illinois 20%, and Nebraska 19%.[20]

- Iowa's per capita personal income in 1991 was $17,505 compared to $19,082 for the United States: this equated to 91.7% of the U.S. average.[19]

- In 1991, the debt of governments in Iowa grew by 3%. There was $1,309 of debt per Iowan in 1991, up from $1,270 in 1990. Many Iowans object to high levels of debt because it is often paid off through property taxes; on the other hand, Iowa has one of the lowest levels of public debt and is neglecting the maintenance and expansion of its infrastructure needed to make the state's economy competitive.[27]

- "Economic growth throughout the remainder of the 1990s is expected to be lower than it was during the decade of the 80s. In turn, the rate of revenue growth can be expected to be low—about 4% per year rather than the 6% experienced during the 80s."[28]

- While Iowa's government will have little new money to spend during the late 1990s, rising health care costs, education and other demands will pressure govenments to spend more.[28]

- Cities are facing cuts in public service operations or are raising taxes. Police and fire protection, traditionally nearly untouchable functions, are feeling the financial pinch and may be cut.[10]

"All levels of government [in Iowa]*—states, cities, counties, and schools—will have to learn to live with tight budgets. Stories about the budget crisis—from closing of historic sites—to frustrated officials complaining about a lack of money—will be commonplace."*[28]

—Gretchen Tegeler
Iowa Director of Management

WHERE THE JOBS ARE IN IOWA

- A new computer model developed the following predictions of Iowa's economy through the year 2000. The state will see an increase of 480,100 jobs. These include:[1]

  - 12,000 new jobs in the rubber and plastic sector
  - 14,000 new jobs in printing
  - 6,000 in the fabricated metal sector
  - 4,500 in transportation equipment
  - 6,600 in instruments
  - 240,000 new jobs in the services sector (including 112,000 in the trades sector; 79,000 in finance, insurance and real estate; and 6,000 in transportation, communications, and public utilities).

- There will be a decrease of 54,000 jobs in some sectors, including a loss of 12,000 jobs in food and kindred products; 2,000 jobs in chemicals; 8,000 jobs in the non-electrical machinery sector; and 30,000 jobs in construction.[1]

- Across the nation, industries that will experience the biggest growth are:

  Transportation
  Communications
  Utilities
  Retail and wholesale trade
  Finance
  Insurance
  Health care
  Business services
  Educational services

THE 1990s: IOWA'S PROJECTED TOP 10 GROWTH INDUSTRIES

1. Miscelleneous Business Services
2. Nursing & Personal Care Facilities
3. Hospitals
4. Grocery Stores
5. Life Insurance
6. Colleges and Universities
7. Personnel Supply Services
8. Restaurants
9. Residential Care
10. Offices & Clinics of Medical Doctors

Source: Iowe Dept. Employment Services[26]

The fastest growing occupational groups within these industries are executive and administrative, professional, and technical occupations.[26]

- Iowa's aging population fuels the demand for individuals trained in nursing and personal care. Current employment needs of Iowa's hospitals include physical therapists, radiology technicians, physician assistants, transcriptionists, phlebotomists, nursing aides, and Registered Nurses.[26]

- Within the insurance industry, the largest growth occupations will be in the area of computers (computer programmers and systems analysts) and mathematics. Other large growth occupations are accountants, auditors, underwriters, and actuaries. The paraprofessional occupations of paralegals and para-actuaries continue to emerge as pension departments expand.[26]

IOWA'S 10 FASTEST GROWING JOBS BETWEEN NOW AND THE YEAR 2000

1. Nursing aides and orderlies
2. Registered Nurses
3. Retail sales clerks
4. Managers and officers
5. Cashiers
6. General office clerks
7. Stock clerks
8. Bookkeeping clerks
9. Licensed Practical Nurses
10. Janitors

Source: Iowa Department of Employment Services[19]

- Occupations within the "self-employed" category will expand, including financial specialists (accountants and auditors), engineers, sales agents, personal service occupations (e.g., day-care operators and hair stylists), and construction trade workers.[26]

IOWA'S FUTURE JOBS

Here are jobs that are expected to be in demand in Iowa in the future. Annual salary is shown for each job, rounded to the nearest thousand, along with the number of projected openings through the year 2000.

MORE THAN 1,000 OPENINGS:	Salary	Openings
Semitrailer truck driver	$26,000	2,340
Registered Nurse	30,000	2,275
Sales representative	26,000	1,860
Sales supervisor or manager	32,000	1,460
Accountant, auditor or other financial specialist	27,000	1,265
General utility maintenance mechanic	25,000	1,015

500-999 OPENINGS:		
Carpenter	$25,000	835
Production laborer or food processor	21,000	820
Social worker	21,000	745
Automobile mechanic	22,000	640
Lawyer	43,000	585
Inventory stock assistant	20,000	510
Computer systems analyst	37,000	515

250-499 OPENINGS:	Salary	Openings
Advertising, marketing, public relations manager	$32,000	465
Production supervisor	35,000	410
General machinist	28,000	385
Construction electrician	25,700	370
Loan officer	33,000	355
Construction painter	27,000	350
Offset-press operator	23,000	320
Industrial truck operator	23,000	340
Plumber or pipefitter	26,000	335
Drafter	22,000	285
Maintenance supervisor	31,000	280
Editor	25,000	280
Graphic designer	23,000	275

Source: Iowa Department of Employment Services[8]

- Restaurants and lounges will create more jobs in Iowa through 1996 than any other industry. Between 1990 and 1996, people working in Iowa's restaurants and lounges as managers, cooks, dish washers, hosts, bartenders, waiters, and waitresses will increase by 8.3%, from 78,300 to 85,000.[24]

  - The growth in the number of restaurants in Iowa, as elsewhere, is fueled by two-income families who have less time to prepare meals and the money to eat out, and the state's older population with more discretionary income.[24]

  - Restaurants provide 7% of Iowa's $20 billion in total taxable sales.[24]

  - The average wage for a waiter or waitress in Iowa is $3.08 an hour not including tips, and ranges from $2.12 to $8 an hour. Almost 25,000 Iowans are employed as waiters and waitresses. The primary source for employees in fast food restaurants are teenagers, and the number of teenagers in Iowa is shrinking.[24]

- The turnover rate in the restaurant industry is about 25% a year. Although the restaurant and lounge industry will contribute more jobs than any other, other businesses are growing more rapidly in terms of total sales. These include sporting goods and book stores; hobby, toy, and craft stores; employment agencies; and business and personal services.[24]

- Robert Van Every, Labor Market Analyst for the Iowa Department of Employment services indicates that through 1996, in addition to the restaurants and lounges, the other industries that will lead Iowa in terms of job growth are hospitals and clinics, meatpacking, trucking, and personal supply services.[24]

IOWA'S MANUFACTURING AND SERVICE INDUSTRIES

- The conversion of Iowa's work force away from manufacturing towards services continues. While the service industries include a broad spectrum ranging from fast food workers to university professors, on the average they pay less than those in manufacturing.[23]

- Manufacturing employment in Iowa dropped sharply in the early 1980s with a slight rebound beginning in 1987. By 1991, the rebound was over. Iowa's manufacturing sector still hasn't recovered to 1970s levels.[23]

- According to a consultant's report compiled by the Battelle Public Technology Programs, Iowa's economic and employment strategy should be built around maintaining and enhancing the competitiveness of Iowa's manufacturing base.[23]

IOWA'S NON-FARMING JOBS

	1960	1990
Total Jobs:	681,000	1,224,100
Manufacturing	26%	19%
Retail	19%	18%
Government	17%	18%
Service	14%	24%
Wholesale	6%	6%
F.I.R.E.*	5%	6%
Other	13%	9%

* Financial, Insurance and Real Estate

Source: Iowa Dept. of Employment Services[19]

The "downside" of "downsizing through early retirements" is a loss of some employees businesses wanted to keep.[17]

- Large industrial corporations have been slashing (downsizing) their work forces. Though the service sector is still growing, its rate of growth is declining; back-office white-collar jobs are being reduced while lower-paid service jobs are expected to have the highest number of openings in Iowa in the 1990s.[6]

DEFENSE-RELATED INDUSTRIES

"If the Pentagon were a corporation, it would be the largest in the world; its revenue is almost twice that of General Motors, and its budget more than three times the GNP of Saudi Arabia. . . . 60% of all people that work for the federal government are Defense Department employees; when you add in the civilian defense industry, it totals about 5% of the total U.S. labor force."[9]

- On March 12, 1993, Defense Secretary Les Aspin indicated that the independent base-closing commission created by Congress has approved the closing of 31 major military installations inside the United States, eliminating 80,000 jobs. California will lose seven major bases. Once these are closed, the United States should save $3.1 billion annually.[5]

- The Bureau of Labor Statistics estimates a loss of 2 million jobs by 1998 as a result of base closures and realignment; 400,000 have been lost since 1987, and another 1.8 million will be eliminated before 1998. Losses will include:[16]

594,000	in manufacturing
286,000	in services
139,000	in trade
62,000	in transportation

- Nationally, Iowa is one of ten states that would be least affected by reductions in military spending. On the other hand, California had the "highest level of military spending in 1991, $60.7 billion, nearly 100 times more than Iowa's $687 million in 1990."[25]

STATES WHERE DEFENSE CUTS WILL HURT THE MOST

States	Loses Expected By 1997
California	245,000
Texas	98,000
New York	90,000
Virginia	76,000
Massechusetts	70,000
Ohio	62,000
Florida	56,000
Pennsylvania	55,000
Connecticut	54,000
New Jersey	44,000

Source: Federal Reserve; Defense Budget Project[22]

MILITARY SPENDING IN IOWA

The end of the cold war has led to concerns about the financial impact downsizing of the military will have on Iowa.

	Fiscal Year 1990
MILITARY DEPENDENCY IN IOWA	
Total Department of Defense expenditures	$686 million
Prime military contracts	$493 million
Estimated private jobs dependant on the military	14,900 jobs
LARGE MILITARY CONTRACTORS AND AMOUNTS	
Rockwell International (Cedar Rapids)	$230 million
Duchossois Enterprises Inc., (Owner of Chamberlain Manufacturing, Waterloo)	$91 million
Mason Hangar-Silas Mason Inc. (Middletown)	$35 million
Pirelli Armstrong Tire Corp. (Des Moines)	$23 million
MAJOR MILITARY-RELATED JOB LOCATIONS AND EXPENDITURES	
Cedar Rapids	$254 million
Waterloo	$97 million
Des Moines	$56 million
Middletown	$36 million
Davenport	$23 million
Dubuque	$22 million

Source: U.S. Department of Defense[26]

- More than half of the 8,400 employees at the U.S. Army's Rock Island Arsenal are Iowans. The mainstay of the Rock Island Arsenal's work is the manufacturing of howitzers and other arms and is not scheduled for removal from the Island; it continues to bring in orders.[25]

- 1,650 communication jobs will be relocated from Fort Monmouth in New Jersey to the Rock Island Arsenal.[5]

- 485 jobs in the Depot Assistance Command at Letterkenny, Pennsylvania, will also be moved to the Rock Island Arsenal.[5]

- The Rock Island Arsenal is looking for ways to grow. These include a manufacturing technology consortium established in 1990 to enable businesses to contract with the Arsenal for manufacturing services; the Arsenal is also involved in a proposal to be utilized as a manufacturing teaching facility.[25]

- The Iowa Army National Guard may lose one-third of its strength by 1995, being cut from 8,041 to 5,300. Sharp cuts in military spending will likely force the closing of some Iowa armories.[18]

- Iowa's largest military contractor is Cedar Rapids' Rockwell International Corporation.[25]

- Ways must be explored to utilize defense technologies for other purposes. The Global Positioning System developed by Rockwell uses satellites and receivers to pinpoint objects' locations. This System is expected to be used in boats and cars and for other civilian and military uses.[25]

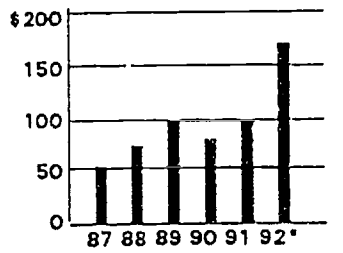
- One of the Quad Cities' biggest defense contractors is Litton Industries' Davenport-based Instruments and Life Support Division; it is working to develop and market products designed around its military technology. Its Litpac II closed-circuit breathing system for emergency crews has expanded uses at hazardous worksites and has great market potential.[7]

"Mexico is the fastest-growing U.S. market today."[15]

- In 1992, Canada, Japan, and Mexico were the top markets for Iowa's exports. This represents a 70% increase in exports to Mexico from the previous year, totaling $170 million.[14]
- In 1991, Iowa ranked 29th in export sales with a total of slightly over $2.5 billion. Industrial machinery and computer equipment exports totaled $746 million, 30% of Iowa's exports. The second largest exporting sector is food and kindred products at $547 million or 21%.[11 and 12]
- In 1991, the twelve countries of the European Community comprise the second largest destination for Iowa's products.[13]

FREE TRADE

Exports of manufactured goods, including food products, from Iowa to Mexico, shown in millions.



* Estimated

Source: Iowa Department of Economic Development[21]

62% of Mexico's imports are from the U.S. "Iowa is strong in products needed in Mexico—auto parts, machine tools, medical equipment, materials handling, food processing, and agricultural equipment."[15]

MEXICO: TOP 15 U.S. EXPORT PROSPECTS

1. Automotive parts and service equipment
2. Oil and gas field machinery and services
3. Telecommunications equipment
4. Industrial chemicals
5. Computers and peripherals
6. Chemical production machinery
7. Apparel
8. Machine tools and metalworking equipment
9. Electrical power systems
10. Computer software and services
11. Medical equipment
12. Air-conditioning and refrigeration equipment
13. Textile machinery and equipment
14. Materials handling machinery
15. Franchising

Source: U.S. Dept. of Commerce[15]

- "In 1991, 77% of Iowa's total exports to Mexico were from five sectors: food products, industrial machinery and computers, primary metal industries, electric and electronic equipment, and chemical products."[14]
- In 1991, 3,200 jobs in Iowa were generated by the state's exports to Mexico.[14]
- The approval of the North American Free Trade Agreement (NAFTA) with Mexico, the United States, and Canada will create the largest free trade zone in the world: a market of 362 million people with a combined GNP of $6 trillion.[15]

IF NAFTA IS APPROVED

Products Predicted To Do Well	Products Predicted Not To Do As Well
Telecommunications products	Citrus fruit and winter vegetables
Advanced machines and equipment	Inexpensive glassware
Temperate climate agricultural products	Inexpensive textile and apparel
Certain processed foods	Specialty steel
Alcoholic beverages	Low-value technology machinery and equipment
Services	

Source: *Export Today*, January 1992[15]

"Most of the traditional markets for U.S. farm products are already saturated with food and fiber." Many of these will become declining markets for farm resources in the next decade, especially Western Europe and North America.[4]

- The largest share of growth in farm-product demand in the 1990s will come in the middle income industrializing countries. These include China, Indonesia, Turkey and Mexico where there is both rapid population growth and rapid economic growth rates. If they are protected by farm-import barriers, the farmers will be able to expand with new technology and infrastructure investments.[4]

"Wave goodbye to our Soviet food exports. Within three years, Russian farmers will be protesting farm imports like French farmers do now. Within five years, the Soviet Republics will be self-sufficient in everything but protein meal."[4]

"Industrial use of agricultural products is the next great frontier for American agriculture."[2]

—Mark Drabenstott
Kansas City Federal Reserve Bank

Iowa's economic future cannot rely upon farming. Agricultural production is not a sufficient engine for farm-state economies.[2]

"Unless and until you introduce non-agricultural sources of employment, Iowa will continue to slide further."[19]

—Calvin Beale
Demographer
U.S. Dept. of Agriculture

Food processing wages are in the mid-range among manufacturing industries, and comparable to wages in finance, insurance, and real estate.[2]

- In order for the economies of the farm states to expand, they must process their raw commodities into consumer-ready foods. These products must be convenient to use, safer, more nutritious, and with a longer shelf life. Up to 95% of the value of these consumer-ready products will be added by employees and processing plants, for their salaries will be as much as double the amount paid to the low-skill workers who slaughter cattle and hogs, an activity that adds only about 17% to the value of raw meat in stores.[2]

- Food-processing industry wages in 1989 averaged $9.47 an hour nationally, ranging from an average of $7.82 in meatpacking to an average of $13.36 in beverages.[2]

  - Wages in Iowa's food jobs are at the lower end of the national scale, with meatpacking wages as low as $6.50 an hour.[2]

  - The Iowa Business Council reports that in 1989, the 166,000 (11.4% of Iowa's private employment) meatpacking jobs averaged $18,000 in wages and benefits. A family of four would qualify for certain federal welfare benefits at this family income.[2]

- Iowa must use its agricultural strength as a basis for expansion in the high value food processing jobs. Vegetable oils and plant resins have uses as lubricants, fuel, paints, plastics, and detergents. Corn is being converted into de-icing compounds and super-absorbents, citric acid for soft drinks, motor vehicle fuel, and a catalyst for coal desulfurization. Soybeans are being processed into plastics, newspaper ink, varnish, and paint. New fibers can be turned into newsprint and paperboard products.[2]

- Iowa ranks 13th with 2.6% of the nation's food-processing jobs, mostly in meatpacking. Most of these jobs are in the urban areas, being led by California, New York, and Illinois.[2]

- According to the USDA and the Office of Technology Assessment, the highest paying jobs in the food-processing plants of the future will be in urban areas; farm states should not count on these plants to revitalize their small towns.[2]

- Tom Urban, President of Pioneer High-bred International and Chairman of the Iowa Business Council, advocates that Iowa must encourage more meatpacking plants and jobs even if they are low paying as a way of preserving and expanding its animal agricultural industry. On the other hand, William Heffernan, Rural Sociologist at the University of Missouri, predicts that even the low-paying meatpacking jobs are temporary and will soon be relocated by global agribusiness giants to Mexico, Thailand, and other low-wage countries.[3]

In spite of any new developments in food processing and industrial uses, the 1990s hold limited growth potential for the traditional food-processing and beverage industries. This is because food demand in the United States is only increasing about 1% per year and the fact that the United States is falling behind the European Community and other countries in exporting value-added food products.[2]

IMPACT CONSIDERATIONS

1. The state of Iowa will have little new revenue to spend during the 1990s; with rising health care and educational costs, competition for these limited dollars will be stiff. What are the implications of these fiscal restraints on new program/curriculum development at community colleges? How and where can the community college seek additional sources of funding? Are there opportunities for collaboration between community colleges as well as with the business and industry sectors?

2. Iowa's economy is not experiencing the growth of that of other states, and the prospects for improved growth are questionable. Should our state explore a philosophy of sustainability, emphasizing the benefits of economic health over economic growth? Are the economic development efforts associated with "sustainability" different from those emphasizing economic "growth?" Can the two be pursued simultaneously?

3. The creation of the European Community and the ending passage of the North American Free Trade Agreement offer both challenges and opportunities for businesses and industries.

   - How can the community colleges assist businesses and industries in capitalizing on the benefits associated with both of these?
   - What courses/seminars can the community college offer to enlighten and assist small businesses in marketing and exporting their products internationally?

4. International markets are a potential for Iowa. The community college should continue to seek ways to enlighten students about the larger world out there, infusing cultural understanding across the curriculum and sponsoring opportunities for educational travel. How might these be accomplished?

5. Health careers continue to show promise as a career option. The community college should assess potential programming in health fields not yet offered, especially emphasizing those fields connected with gerontology.

6. How can the community college assist business and industry in the process of converting defense technologies and agricultural products to industrial uses?

7. The growth of our elderly population as well as the graying of the Baby Boom generation will increase the need for expanding pension departments within the insurance industry. How might the community college respond to the continued emergence of the paraprofessional occupations of paralegals and para-actuaries?

8. It is predicted that home construction employment will experience a severe decline, while self-employment in construction is expected to increase. At the same time, the infrastructures of our cities and our neighborhoods are deteriorating. Skilled workers who will face losing their jobs with established construction companies may need training in small business management as well as new techniques such as restoration work and environmental abatement technologies. These training needs create opportunities for the community college. How else might the community college assist these skilled workers?

9. Not only will restaurants and lounges create more jobs in Iowa through 1996 than other industry, but the annual restaurant personnel turnover rate is about 25%. The primary source for employees in fast food restaurants are teenagers, and their numbers are shrinking. What are the implications of these trends to the community college?

10. Iowa must continue to diversify its economy. This can be done by capitalizing on the state's agricultural strength and expanding into the high-value food processing industrial site. How might the community colleges assist in the transfer and deployment of new processes and technologies? With what other agencies or groups can community colleges collaborate to expand Iowa's industrial base?

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AN ENVIRONMENTAL SCAN

UPDATE

Volume 2, Number 8 1993

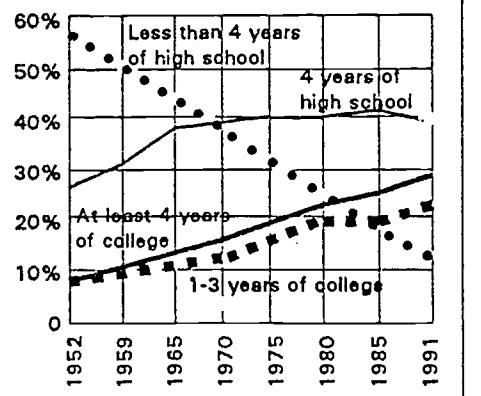
Editor: J. N. Friedel, PhD

U.S. ECONOMY

JOB PROSPECTS FOR COLLEGE GRADUATES

- The 1.1 million 1993 college graduates will face the worst job market since the end of World War II.[7]
- College graduates who have held summer internships have found it easier to find employment; internships are important not only for technical skills, but it is where "students learn the soft skills of working in a corporate environment."[17]
- By the end of this decade, one in three college graduates will hold a job that does not require a college degree.[7]
- Corporations are looking for superstars. Intel, the giant computer-chip company, will receive 20,000 résumés from college graduates and will hire only 350 this year. Apple received 11,000 résumés for 100 entry-level jobs and 300 summer internships last year.[7]

U.S. WORKERS ARE BETTER EDUCATED



* 1952-65 age 18 and older, 1970-91 age 25 through 64.
Source: U.S. Bureau of Labor Statistics[10]

A global orientation and/or experience is a plus in landing a job.[15]

- 30% of General Electric's college recruits speak foreign languages, and G.E. expects an increase to 70% in five years.[15]
- What do the Fortune 500 companies look for in college graduates?[15]
  - Bilingual college graduates with top grades.
  - One or more years of full-time work.
  - Demonstrated leadership.
  - Teamwork and customer service skills.
  - Experience living abroad.
  - Computer literacy.
  - Fluency in Spanish or Mandarin a plus.
- Many college graduates work for temporary agencies with the hope that a temporary clerical job will lead to a career track position. Currently, about one-third of Manpower's work force (our nation's largest temp firm) are recent college graduates, up from 22% last year.[7]

- Some college graduates are offering to work without pay simply to gain experience; some spend up to a year pursuing potential employers.[9]

College freshmen are gravitating toward technical careers.[12]

- College graduates with chemical and electrical engineering degrees earn 50-70% more than graduates in the humanities.[12]

THE JOB MARKET

The problem isn't too few jobs, it's too few *good* jobs.[12]

- Middle class jobs that will allow a single worker to be the family breadwinner are disappearing and are being replaced most often by lower-paying jobs.[12]

- Between 1979 and 1989, the U.S. economy added 13.6 million full-time jobs; five million of these paid less than $250 a week, or $13,000 a year after adjusting for inflation. This is below the official poverty level for a family of four.[12]

- The U.S. Census Bureau cites that in 1979 18.9% of full-time workers had low-wage jobs; in 1989 it reached 23.1% of the work force, and by 1992 25.7%.[12]

Anyone who uses a computer earns 15% more than an equally skilled co-worker who does not.[12]

— Alan Krueger
Economist,
Princeton

- The primary contributor to the worsening job drought is the rapid decline in service sector employment growth. Services account for 78% of U.S. employment and have created all the net new jobs in the past ten years. Services are just beginning to cut back white collar jobs, and this will take off with a vengeance. During the 1980s, billions of dollars were spent in computerizing operations, and the impact of this inc eased productivity will be felt by the 18 million back-office workers in trade, business services, transportation, and finance.[12]

CHILD LABOR AND WORKING YOUTH

"After nearly disappearing from American life, child labor has re-emerged and proliferated in the last decade."[6]

- The number of illegally employed minors has tripled since 1983. Federal data estimates two million children work illegally, principally in agriculture, the garment industry, fast-food restaurants, construction sites, mines, saw mills, and gas stations.[6]

- The growth of illegal child labor is attributed primarily to: 1) increased numbers of families in poverty who need income from their children's work, 2) immigrants to the United States from countries where child labor is the norm, 3) federal and state budget cuts for inspecting work places.[6]

Many young Americans get carried away with work and shortchange what should be the their first priority—getting the best education.[5]

- Increasing numbers of children of immigrants are working in garment industry sweatshops. In the 1980s, most major American apparel manufacturers shifted work to third world countries with dollars-a-day wages. To stay competitive, some small U.S. operators are hiring immigrant children at below minimum wage.[5]

- Sociologists link the rising numbers of child labor to the deterioration of working-class life in America where more middle-class families are encouraging their children to work to supplement family income. Child labor also tends to increase during periods of heavy immigration.[5]

- About 47% of male high school student workers and 36% of females put in more than 20 hours per week at their jobs. Almost two-thirds of high school seniors work more than five hours a week during the academic year.[15]

"Fast food joints are the coal mines of the 1990s."[5]

—William Brooks
Former Assistant
Secretary of Labor,
Current GM Exec.

- The most serious child labor problem in middle-class urban families may be excessive hours in the fast-food industry.[5]

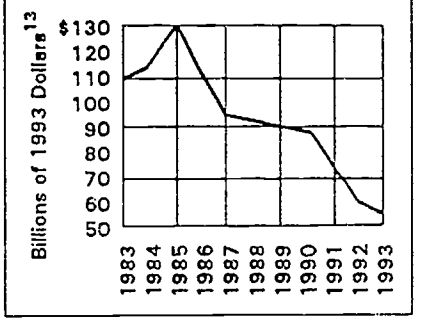
- According to research conducted by the National Center on Education and the Economy, 98% of employers do not review academic transcripts of high schoolers applying for jobs.[12]

". . . in today's global economy, no wealthy nation can expect to remain well-off unless it keeps stressing to all its children that ultimately how well you prepare yourself for tomorrow's workplace matters more than how much you work while doing so."[5]

THE DEFENSE INDUSTRY

- Since 1985, the Pentagon has been cut in its procurement spending from $127 billion to $54 billion. President Clinton promises to cut even deeper.[13]

PENTAGON PROCUREMENT



- Since 1985, 259 defense contractors have sold out to stronger or better-positioned rivals. It is estimated that by the year 2000, 75% to 80% of the top 100 defense companies or divisions could be gone.[13]

- Cuts in defense spending will probably leave the United States with just three or four producers of military aircraft, down from seven today, and just one supplier of submarines, down from two. The future appears brighter for companies like Rockwell, Hughes, Martin Marietta, Loral, and others that supply precision munitions and electronic, avionic, and communications equipment that keep older planes, ships, submarines, and tanks up to date.[13]

- Most civilians think that "defense industry conversion" refers to transforming a tank plant into something like a tractor factory. This is not what the industry executives mean. Conversion will not be to new products, but from "rigid, hard-tool production lines to soft-tool, flexible machines and agile teams that can build more than one thing without facility changes," according to Daniel Pinick, president of Boeing's defense division.[13]

Most defense contractors are set up to make money from long production runs. The future lies in limited production of customized items at reasonable cost.[13]

- Evolution into nondefense businesses can take advantage of a defense contractor's core competencies. Martin Marietta sees its competitive advantage in areas of systems engineering, high technology, and large projects. Its goal is to have evolved by 1997 into a diversified high-tech company that derives 50% of its revenue from such nondefense businesses as postal sorting machines, environmental robotics, and construction materials.[13]

BIGGEST FOREIGN BUYERS OF U.S. WEAPONS SINCE AUGUST 1990

		Billion[13]
1.	Saudi Arabia	$25.9
2.	Kuwait	7.4
3.	Taiwan	6.4
4.	South Korea	3.8
5.	Turkey	3.1

- The export of U.S. arms is big business. Over one-half of the arms sales agreements with developing nations are with U.S. firms. Companies that will do best are those that offer the highest-tech weapons, excellent service, and plenty of spare parts.[13]

- U.S. military leaders concerned with sharp reduction in troops stress that our nation's security necessitates that the military must have enough money to maintain an edge in technology and equipment.[14]

"In 1995, we will have the best army in the world, but it will be the ninth largest. . . . this is not a peaceful world."[14]

—General Louis Wagner
Senior Fellow, Institute of Land Warfare

- During the Cold War, the size of U.S. armed forces was set by the threat from the Warsaw Pact. Though the dangers now are smaller, they could come from almost anywhere. What is now demanded is a high degree of mobility and flexibility: sealift, airlift, deployed amphibious forces, pre-positioned ships, and well-trained reserves who can get into action with as little delay as possible. The armed forces must be equipped with the best weapons possible, which requires that research and development be continued at high levels.[4]

- During the 1980s, the Pentagon's budget grew an average of 5% a year, after inflation, and peaked at $371 billion in 1986. The defense industry, including men and women in uniform, employed at its height 6.7 million people, 5.6% of the labor force. Since then, real military spending has dropped 26%, totaling $276 billion for FY93.[14]

- Since 1989, 840,000 defense-related employees have lost their jobs: 440,000 defense industry workers; 300,000 soldiers, sailors, and fliers; and 100,000 civilian Defense Department employees.[16]

- It is the plan of Les Aspin, U.S. Defense Secretary, to cut the Pentagon's budget to $234 billion—less than 3% of the Gross Domestic Product (GDP)—by 1997. An additional 500,000 uniformed personnel would be eliminated. The Federal Reserve estimates that the total body count from defense cuts between 1987 and 1997 could reach 2.6 million.[16]

- The Defense Conversion Act has set aside $65 million for 1,200 of the new unemployed military personnel to teach in needy school districts and to pay their salary for a couple of years. In addition, former servicemen and women who had not reached the required 20 years in uniform to qualify for pension can count the years teaching toward their vesting.[16]

"Ever since those pivotal months in 1989, when a stunned world watched as the fall of the Berlin Wall triggered the end of the Cold War, all of America has been struggling to adjust. An economy once dependent on an inevitable need for more and more weapons is now searching for a new source of wealth and power, a new reason to be. That's good news for the world, but bad news for the hundreds of thousands of Americans who have built their lives around the kind of steady paycheck they find in weapons plants."[12]

POST-COLD-WAR COSTS AND NEW JOBS

A few arms makers are positioning themselves for a booming business in dismantling nuclear and other weapons amassed during the Cold War. This is a megaton market.[3]

In the United States alone, the price tag for cleaning up the environmental mess left behind by weapons production will surpass $100 billion. The global market is even larger.[3]

- 20,000 nuclear weapons need to be destroyed, and tons of deadly plutonium and weapons-grade enriched uranium with half-lives of up to 500 million years will have to be stored.[3]

- The U.S. Department of Energy plans to sanitize all of its nuclear production facilities by 2019. That means disposing of 40 years' worth of industrial solvent, heavy metals, and radioactive waste.[3]

- The revenue potential of the Cold War weapons dismantling and environmental cleanup will be a booming business:[3]

  - Nuclear weapons. The U.S. Energy Department will spend $3.2 billion over ten years dismantling warheads. Congress has set aside $400 million to assist the Soviet Union in destroying parts of its nuclear arsenal.

  - Chemical weapons. The U.S. Army will spend $6.4 billion to dismantle its chemical-weapons stockpiles. The Commonwealth's bill will most likely be equal to this.

  - Conventional weapons. The global costs for demilitarization of conventional arms will surpass $5 billion, with more than half to destroy the weapons in the former East Germany.

  - Environmental cleanup. The U.S. government will spend more than $100 billion through 2019 to clean up industrial, radioactive, and other Cold War environmental waste.

"The fortunes of companies and nations will rise and fall on how well they heed the call to save the planet."[8]

- In the twenty-first century, consumers will increasingly favor and governments will mandate technologies that preserve and protect the environment.[8]
- The market for environmental products in Britain alone is estimated at $50 billion a year by 1995.[8]
- Cleaner machines will be developed and marketed. Example: BMW's E1, a four-seat car with top speed of 100 kilometers per hour (75 mph) and a range of up to 250 kilometers (155 miles) powered by high-energy, sodium-sulphur batteries.[8]
- The winners will be those who have the edge on engineering and marketing skills and countries whose political leaders push aggressively for the development of businesses in the environmental area. Historically, the U.S. government has done little to spur businesses to come up with technological breakthroughs; however, the U.S. government increased its support of research into energy conservation and renewable resources from $324 million in 1989 to $540 million in 1992.[8]
- Competition is fierce among Japanese companies to respond to environmental needs. Additionally, the Japanese government is undertaking the New Earth 21 project to respond to the threat of global warming. Administered by the Ministry of International Trade and Industry, it supports the development of technologies designed to reduce the production of carbon dioxide and other greenhouse gases, and will share these methods with developing countries. One project is to use genetically engineered bacteria to develop a clean-burning hydrogen, which would not contribute to the destruction of the ozone layer.[8]
- Germany is probably the "greenest of nations." Commercial banks grant low-interest loans for pro-environment projects.[8]

"The global market for environmentally friendly products is worth an estimated $200 billion a year, and has just begun to take off."[8]

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IMPACT CONSIDERATIONS

1. Some specialists argue that the billions of dollars that Washington has spent on weapons, factories, and bases should be funded into worthy new megaprojects to create a sense of national purpose and to stimulate the economy. The American nation needs to define new missions which will organize the economy the way that the Cold War did following World War II. Goals may include the elimination of air pollution and other environmental projects, or creating a communications network that would link every home and office with optical fiber. Infrastructure projects such as rebuilding our nation's highways and bridges or developing an environmentally benign supersonic commercial airliner are other examples.

   - How feasible is the concept of megaprojects?
   - In addition to those listed, what other megaprojects might assist in the rebuilding of America's economy in the post-Cold War era?
   - What role might the community college play in such a reorganization of the American economy?

2. In light of the job prospects for college graduates, how might the EICCD assist in giving its graduates a "competitive advantage" over other job applicants?

3. Increasing numbers of high school students are working during the school year, and they are working longer hours. How might the community college work with its local businesses and industries to improve the performance and learning of high school students? Are there specific strategies that businesses and industries can utilize to emphasize the importance of doing well in school?

4. How might the community college assist in the defense industry conversion? Are there implications for Total Quality Management (TQM)?

5. What are the implications to the EICCD stemming from the dismantling of nuclear and other weapons, and the environmental cleanups of the Department of Energy and other weapons-producing facilities?

6. What linkages might the community college develop with businesses, industries, and research institutions regarding new products and processes in energy conservation and renewable resources?

7. The increasing emphasis upon protecting the environment has led to the formation of new jobs: the hazardous materials technician and the environmental manager. Might other kinds of environmental jobs arise, such as an environmental paralegal or an environmental real estate specialist?

AN ENVIRONMENTAL SCAN

UPDATE

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Editor: J. N. Friedel, PhD

THE RESTRUCTURING OF THE AMERICAN WORK FORCE

"A merciless and profound transformation is occurring in the American workplace. These are the great corporate clearances of the 90s, the ruthless, restructuring efficiencies. The American work force is being downsized and atomized. Millions of Americans are being evicted from the working worlds that have sustained them, the jobs that gave them not only wages and health care and pensions but also a context, a sense of self-worth, a kind of identity."[21]

PART-TIME AND CONTINGENT WORKERS

The most important trend in business todey is a disposeble work force—part-timers, free-lancers, temporaries and independent contractors.[5]

- "About half the jobs people have been getting in the last year are part-time or temporary, or involve other unconventional arrangements. This is up from less than a quarter of the new jobs a decade ago."[11]
- In 1993, the big rise in new jobs will be almost entirely from temporary and part-time jobs.[2]
- In January 1992, almost 21 million workers (1/5 of all U.S. workers) were employed part-time. 25% of these part-time workers were involuntary workers who would have preferred a full-time job. Part-time workers are disproportionately women, teenagers, and persons of retirement age.[22]
- More than 90% of the 365,000 jobs created by U.S. companies in February 1993 were part-time positions taken by people who want to work full time. One in every three U.S. workers is a contingent worker. They are expected to outnumber permanent, full-time workers by the end of the decade.[5]

The restructuring of the American work place will include increased self-employment, more contingent workers, and the continued elimination of mid-management.

- The growing independent or contingent work force includes: part-timers, the self-employed, temporary workers, free-lancers, consultants, leased employees, and independent contractors. They are changing jobs so frequently that the government has no way of accurately measuring the trend.[17]
- Contracted services include: corporate travel, legal services, benefits, product design, data processing management. This is why the business services market is one of the fastest growing sectors of the U.S. economy, adding three million jobs during the last ten years.[23]

"America has entered the age of the contingent or temporary worker, of the consultant and subcontractor, of the just-in-time workforce—fluid, flexible, disposable. This is the future. Its message is this: You are on your own for good (sometimes) and ill (often); the workers of the future will constantly have to sell their skills, invent new relationships with employers who must, themselves, change and adapt constantly in order to survive in a ruthless global market."[21]

"For better or worse, contingent workers—a term encompassing temporary and part-time help, contract laborers, and leased employees—are the medium for corporate America preaching a message of flexibility and cost cutting. Increased global and domestic competition is prompting companies to cultivate a just-in-time, bare-bones, and cheaper work force. Contingent workers cost an estimated 20% to 40% less than core employees."[2]

- Hiring highly skilled contract workers can save employers big money. Hiring a white collar professional at $35,000 a year through a contract would cost an employer $2,625 extra dollars annually in Social Security and Medicare taxes. If that worker were a permanent employee on staff, it would cost an additional $15,625 a year, which includes health care benefits; vacation, holiday, and sick time; pension and savings; Social Security and Medicare taxes; Worker Compensation insurance; life and disability insurance; tuition reimbursement; and unemployment taxes.[16]

"This trend has alarming implications for working men and women in this country, for our standard of living, and for our economy as a whole."[6]

—Sen. Howard Metzenbaum (D) Ohio

- In 1988, the total number of contingent workers in the U.S. was between 29.9 million and 36.6 million, or 25-30% of the civilian labor force.[22] By 2000, they will comprise about one-half of it.[21]

COMPARISON OF FULL- AND PART-TIME WORKERS

Part-time workers receive significantly lower salaries and benefits than full-time workers.

Workers	Average Hourly Earnings 1992	Percent of Health Care Provided by Employer 1991	Percent of Pensions Provided by Employer 1991
Full-time	$8.67	65%	46%
Part-time	$5.40	15%	10%

Source: Bureau of Labor Statistics; General Accounting Office[6]

- Contingent workers mean "no more pensions, health insurance, or paid vacations. No more promises or promotions or costly training programs. No more lawsuits for wrongful termination or other such hassles for the boss."[5]

  Once contingent workers appear in a company, they multiply rapidly. Their numbers are expected to climb as just-in-time manufacturing evolves into just-in-time employment.[5]

- Most of the growth in part-time work is in the economy's shift toward service industries dominated by low-wage, part-time employment.[22]

Middle class workers are quickly being turned into the "working poor."

- Contract and leased employees rarely find protection under federal and state age discrimination laws.[2]

- There has been greater growth in the contingent work force in the last 15 years than there has been in permanent work force. Not only has it hit the Fortune 500 companies, but it is also being used widely by small and midsize firms.[17]

- There will be a continued shift to self-employment: the self-employed now total 22 million—about 18% of the labor force. The self-employed grew an average of 12.7% annually since 1989.[25]

". . . more American office and factory employees are getting transplanted overnight to a temporary or sub-contracting nether world to do the same work at the same desk for less pay with no health insurance or pension benefits. Others are farmed out to an employment agency which puts them on the payroll to save the mother company paperwork and costs."[2]

TEMPORARY WORKERS

"Temporary work arrangements are seeping like mist into every corner of American livelihood—from dat processing and bank tellers to nurses, engineers, and public relations and assembly workers. A full-time job is becoming so coveted that some people spend five years working at one location as temporaries, hoping like Hollywood faithfuls to be discovered."[2]

- In 1992, temporary jobs accounted for about two-thirds of new private-sector jobs.[2]

The temp sector—it's the way of the future.[30]

- In the period 1982-1990, employment in the temporary health industry expanded ten times as fast as the overall employment.[22]
- Since 1982, temporary employment has increased 250% while all emp oyment has grown less than 20%.[21]
- Every day, 1.5 million temps are sent out by temporary employment agencies.[5]
- The largest private employer in America is Manpower Inc., with 560,00 workers.[5]

Companies managing their workers in this way may have difficulty striving for quality in a competitive world; what incentive is there to give one's all when the employer gives little?[11]

- Temporary workers provide "a way to remain globally competitive while avoiding the vagaries of market cycles and the growing burdens imposed by employment rules, antidiscrimination laws, health-care costs, and pension plans. For workers, it can mean an end to the security and sense of significance that came from being a loyal employee."[5]
- By moving to temporary workers, a company can slash up to 40% of its payroll costs in addition to freeing itself from labor and equal-employment requirements. They will also not have to train workers.[5]
- The category of business services includes temporaries and covers every kind of work ranging from wiring and soldering subcontracts to accounting and computer programming.[30] Today, only health care and business services are adding to the total ly of jobs.[25]

RIGHTSIZING

Today's companies are portable: workers are throwaway.[21]

- The corporate restructuring that began in the mid-1980s has accelerated: an estimated 1.6 million jobs have been lost to date—the largest proportion of them managerial and white collar. 680,000 were the result of downsizing. It is predicted that even as the economy recovers, downsizing will continue.[25]
- "Companies are not just laying off—they are flattening their organizations and shrinking payrolls to a core of highly productive primary employees. The trend will be especially pronounced among service companies, which face the same drive for higher productivity that reshaped much of manufacturing in the 1980s."[25]

One of the most obvious effects of downsizing is that the employees who survive are forced to work harder and longer.[3]

- IBM and Sears have cut the heart out of their companies with a reduction in work force. Their problem wasn't an overstaffed work force. "These companies lost out competitively because they didn't change their products."[3]

There is a "trend away from heirarchical, vertically integrated corporations to leaner, more flexible organizations that outsource many functions and add temporary employees for particular projects—the so-called modular corporations. Multiplied thousands of times, this phenomenon adds up to a profound structural change in the U.S. labor market."[15]

"Rightsizing. Restructuring. Downsizing. The terms are cold and unemotional. Yet the euphemisms of the early 1990s all mean the same thing: layoffs. . . . this slash-and-burn labor policy is backfiring. Studies now show that a number of companies that trimmed their work forces not only failed to see a rebound in earnings, but found their ability to compete eroded even further. 'What's happened shouldn't be called downsizing. It's dumbsizing,' says Gerald Celente, Director of the Trends Research Institute in Rhinebeck, New York."[3]

- Many companies now just keep a core of managers and valued workers whom they favor with good benefits and permanent jobs; they take on and shed other workers as business spurts and slumps.[11] No institution is immune; even IBM has traded 10% of its staff to "peripherals."[5]

- Both large and small companies are avoiding adding excess employees by utilizing just-in-time hiring and outside contractors to supply them with needed expertise. Many small companies are moving to "staff leasing"; an outside specialist becomes a contract human resources department. One million workers are currently employed by such contractors.[25]

1993 is marked with a faster pace of layoffs than 1992.[3]

- ". . . there is a growing concern that companies may take restructuring too far. In their quest for wider margins, cost-conscious CEOs could wind up without the kind of capacity and experienced workers that they'll need when the economy finally snaps back. Layoffs and other cost-cutting measures have become 'an addiction.'"[27]

- Major casualties of downsizing of American industries and corporation are the highly skilled and highly paid jobs. Even though a company may be highly profitable, a hunger for greater profits or need to cut costs sends it searching for alternatives to a full-time, fully vested work force. BankAmerica, the second largest bank in the United States, has had record profits in each of the past two years; however, it is still taking steps to increase profits even more. In February 1993, after already cutting thousands of jobs, BankAmerica converted 1,200 more jobs into part-time positions to trim health and other benefits. Only 19% of the bank's employees will work full-time. 60% will work fewer than 20 hours per week and receive no benefits. Ten years ago, the bank had mostly full-time workers.[31]

- Companies will maintain a core staff of full-time employees. "Core workers will make a lot of money, but they will work very hard. They will work 70-hour weeks. They will hang in as long as they can, and they will be out of a job when they reach their fifties. Then they will probably die of a heart attack." So says Charles Handy, economist and author of The Age of Unreason, a book about the global move toward independent work.[17]

- The victims of downsizing are typically well-educated, highly-paid workers whose skills are not easily transferable to the manufacturing and construction industries. The ranks of the executives, administrators, and managers who have been laid off will swell dramatically as the defense cuts are implemented; 25% of the defense industry work force consists of managers, engineers, and technical workers.[12]

"Re-engineering . . . embraces such techniques as work teams—training employees in multiple skills so that they can do more than one job—and 'empowerment,' which means pushing decision-making authority as far down the organization as possible. It also entails reorganizing assembly lines and offices to simplify and speed the flow of work. . . . it is the application of just-in-time inventory controls to all phases of a company's operations."[7]

"Re-engineering" is a new way of improving productivity and is ushering in an era of job loss.[7]

- The impact of re-engineering on job shrinkage has just begun. It is estimated that only about 15% of U.S. manufacturers and a smaller number of service companies have adopted re-engineering techniques in a major way. Most are studying re-engineering techniques, and organizational restructuring and job eliminations will follow.[7]

Productivity-related job loses are heaviest in the service industries.[7]

- ". . . growing numbers of large and mid-size service companies are joining manufacturers in slashing payrolls as they re-engineer their businesses. Re-engineering can reduce headcounts by 30% to 50%." It is estimated that re-engineering will reduce employment in commercial banks and thrift institutions by 30% to 40% over the next seven years. That could mean a loss of 600,000 to 700,000 jobs in banking alone.[7]

- Motorola Inc., Ford Motor Co., Xerox Corp., and Banc One Corp. have achieved outstanding productivity gains through re-engineering, and other companies are striving to copy their successes.[7]

- Re-engineering and subsequent downsizing contributed to the 2.8% 1992 productivity growth—the greatest in 20 years.[7]

- Re-engineering could eliminate 25 million jobs in the U.S. These will be permanent losses.[7]

It's "Down the Up Escelator"—America's professional class is facing the same kind of job erosion from global competition as the working class.[32]

- Increasingly, U.S. companies are hiring highly skilled workers in Asia, the former Soviet bloc and Europe to perform the jobs of American professionals. They are also temporarily importing foreign professionals to work in the United States. The hiring of foreign professionals isn't always a money-saving move. If a company wants to expand abroad, it is considered a good strategy to hire people native to the target population.[32]

- Large companies with operations overseas expect the number of foreign professionals in their employment to grow substantially.[32]

". . . the expectation of long-term, steady employment at every-rising wages, with full company-paid benefits has become obsolete. Yet nearly all the components of contemporary middle-class living in America—such postwar consumer institutions as 30-year mortgages, five-year car loans and revolving consumer credit—are based upon those obsolete, boom-era workplace expectations. Obviously, the process of moving from the boom-style employment standard to the post-boom model is a very traumatic one for middle-class Americans."[13]

—Dan Lacey, Editor, *Workplace Trends* newsletter
Testimony before the Joint Economic Committee

TECHNOLOGY AND PRODUCTIVITY

- Productivity is the output of goods and services per person employed, and the American worker ranks number one; in overall productivity, the American worker is 30% higher than his Japanese counterpart, and his manufacturing productivity is 28% higher.[11]

- The American farmer is 52% more productive than the Japanese farmer. The difference is even greater in rubber and plastics, construction, finance, insurance, and real estate.[12]

- U.S. manufacturers employ virtually the same number of production workers as they did in 1946—about 12 million—to produce roughly five times as many goods.[7]

- American productivity dropped drastically in the mid-1970s, but it did so in all industrial nations and can be attributed primarily to increased oil prices.[13]

- Wal-Mart may become the most significant American business success story of the late twentieth century; it's been successful because of its extensive application of computerization and its implementation of just-in-time inventory methods.[14]

- Productivity gains are likely to take place in offices all across the United States. People are finally figuring out how to use computers, resulting in elimination of paperwork, shrinking back offices, and the flattening of corporate hierarchies. Many middle managers will lose their jobs.[14]

- Data entry and inventory clerks have been replaced with bar codes and laser scanners. Computer information systems have replaced layers of mid-managers whose jobs were to gather, package, and transmit information.[19]

- 16.7 million service sector workers employed in back offices processing orders and tracking inventories are at risk of losing their jobs because of increasing computerization and automation.[31]

THE NEW JOBLESS

The new unemployed are older, better educated, and can look forward to being on the street a long, long time.[15]

- The current economic downturn has been hardest on older workers who have a harder time finding new jobs, and white collar workers who up until recently have been immune to business downturns.[15]

- More and more people are joining the ranks of the "discouraged workers," those who have simply given up after looking months and years for decent work. Many of these workers are older workers, past the age of 55.[15]

Retraining is important, but the training must be for jobs that are there.[15]

- Corporate refugees, those highly educated, skilled, and experienced managers and professionals who are being released from America's corporations, are almost certain not to return to corporate life. The jobs simply aren't there. They are returning to family firms, joining small businesses, and trying to make it on their own. They are working excruciatingly long hours for a fraction of their old corporate pay.[23]

  One-third of corporate refugees are simply pushed out the door and return to sell their services to their old employers as contract workers or consultants.[23]

- 66% of workers, who after being laid off by large companies have found full-time jobs, earn at least 20% less money than they did at their previous job.[9]

The 90s will be known as the Age of Overwork. The survivors of downsizing, mergers, and cost cutting are working harder and longer.[8]

- When companies restructure and workers are laid off, those who remain are under a great deal of stress to do more with less. Job stress is an epidemic, causing accidents, heart disease, and other illnesses that cost businesses an estimated $300 billion a year in health-care costs, absenteeism, and turnover. That is more than five times the 1991 net income of Fortune 500 companies.[24]

"Jobs that place high demands on workers and give little autonomy or gratification are the big stress producers."[26]

—Dr. Redford Williams
Duke University

- "Employees who help shape organizational change are less stressed than those ignored by management."[24]
- Most companies have downsized with no plan as to how to reduce the workload for those that remain. And for the survivors, even at companies with no plans for layoffs, fear is endemic.[8]
- At many companies, employees who don't get pink slips get less support than those who do, and yet they are carrying added responsibilities with fewer resources.[24]
- Some experts believe that job design should be the focus of alleviating stress. Autonomous work teams that give employees more control over their work reduce turnover and absenteeism. Companies also need to train employees to handle their jobs differently instead of expecting them to adjust on their own.[24]

Increasing numbers of American workers are overworked, stressed-out, and heavily taxed by the joint demands of work and family life.[1]

- The average American worker puts in about 140 more hours on the job every year than two decades ago. Combined with increased commuting time and declining days off, Americans spend about 158 hours more each year on work—nearly an extra month.[1]
- Research indicates that many white collar Americans are approaching the Japanese tradition of 12-hour work days and work-filled evenings.[8]
- In Iowa, the average work week in manufacturing in 1992 was 41.3 hours compared with 40.5 in 1991. Many firms are paying overtime rather than hiring additional workers.[29]
- In Japan, death by overwork (usually from a heart attack) is known as karoshi. Death from overwork is due not so much to the number of hours, but the attitude of the worker. U.S. research data indicates "the surest predictor of heart disease is not smoking, cholesterol, or lack of exercise, but job dissatisfaction."[8]
- "In the tough new marketplace, more and more of the employed will face permanent uncertainty about their security. The unemployed will find fewer new jobs similar to the ones they have lost. And relocating will be hard for the growing number of aging baby boomers who are settled into homes, neighborhoods, and school districts."[25]

To be successful in this kind of a job market will require a high level of education.[5]

The workers of the future will have to rely on keeping their skills up-to-date in order to work in a series of short-term jobs throughout their careers. Otherwise, the alternative is a lifetime of low-wage, low-skill work.[17]

- What do you need to survive? "Entrepreneurial spirit, definable skills and an ability to articulate and market them."[5]
- Specialization is out; generalization is in. The most employable people will be "flexible individuals, moving from one function to another, integrating diverse disciplines and perspectives."[26]
- Workers must not only be skilled but also adaptable and able to keep learning. This includes working in self-management teams. General Mills estimates that the team approach increases productivity by as much as 40%.[25]
- "We are going to be moving from job to job in the same way that migrant workers used to move from crop to crop," says David Hill, a former chief information systems officer for General Motors.[5]
- The need for highly-skilled workers necessitates that college education remain affordable.[25]
- Managers "are steadily giving way to looser, more decentralized arrangements that give workers more autonomy and responsibility in the hope of enlisting their pride, judgment, and creativity. Their aim: to get them to think constantly about how the job they know best could be done better; to have them be flexible so they can do more than one part of the process, when needed; and to care about the quality of the job they do."[18]
- Employers are looking for people who are "literate and numerate, competent in problem solving, self-disciplined, and willing to work."[19]
- The Bureau of Labor Statistics predicts that job growth will be fastest in higher-skill, higher-pay occupations. Executives, managers, professionals and technicians will account for 41% of all job growth until 2005.[19]

"A team is not like a pack of sled dogs, with one dog the leader. It's more like the flight of wild geese; the leader always changes, but they fly in a flock."[26]

- Every person "must take full responsibility for his or her career." Those who take charge of their careers commit themselves to a lifetime of learning.[26]
- People skills are imperative; even leadership must change, for leaders also need to know how to follow.[26]

"If the American corporation thinks of itself as global and moves its capital to wherever it can exploit workers the most, there will be a substantial decline in U.S. living standards."[19]

—Rudy Oswald
Chief Economist
AFL-CIO

- What has happened to the real wages of the median 25- to 34-year-old male worker? Their wages had grown 30% both in the 50s and then again in the 60s; in the 70s, it grew by only 1.5%, and in the 80s dropped 11%. This drop was limited to the less educated. The income of high school graduates dropped 15% while workers with college degrees had increases of more than 7%. While the income of young male workers dropped, the median wage of working men 45 to 54 years rose 4% in the 1980s.[18]

- Americans responded to this wage slowdown by working more; 63% of adult Americans are in the labor force. Americans also work longer, putting in an average of 1,890 hours per year for all people who hold jobs, second only to Japan's 2,173 hours. It was only by working more that American workers kept their standard of living the world's highest via two-income families with each individual working one or two jobs.[18]

In the long run, higher productivity will eventually raise living standards; but in the short-term, it will be disastrous for millions of workers laid off. Politicians and economists are hinting at the need for unprecedented public policy to avert an economic crisis.[4]

- The average Japanese home costs 8.6 times the average income, while in the U.S. t average home costs three times the income. In the United States, a house averages 1,7.. square feet, twice the average home in Japan. Only three out of five Japanese homes have a flush toilet, and only one in five has central heating.[18]

- The number of adults living with their parents doubled to 12% of the 25 to 34 age group, from 6% in 1960.[31]

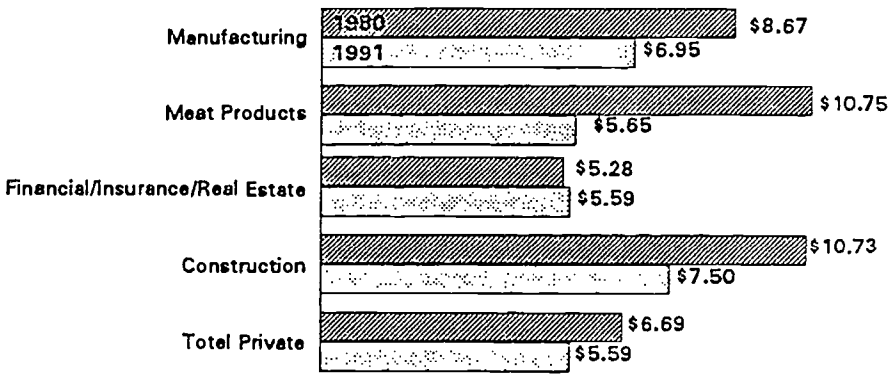
- There is an erosion in the quality of new jobs; in 1988, only 38% of all new jobs offered health benefits, compared with 43% in 1979; only 15% offer pension benefits compared to 23%.[31]

Four trends will cause the continued fall of wages and the increased division between the haves and the have-nots:[31]

1. Global competition
2. Technology
3. Downsizing
4. Growth of the contingent work force

DOWNWARD MOBILITY IN IOWA

Fundamental changes are turning Iowa into a low-wage state. High-paying factory jobs are giving way to low-paying service jobs. Hourly wages in Iowa, adjusted for inflation, have declined in most industries.



Source: Iowa Department of Employment Services[10]

". . . the nation's workforce has fundamentally and irrevocably changed the past two years. Recessions usually crush the ranks of blue-collar workers. Then the economy rebounds and the unemployed return to work. Not this time. Thousands upon thousands of white-collar jobs—many of them high-paid and managerial—have been lost, probably forever."[20]

IMPACT CONSIDERATIONS

1. Often, people define themselves by what they do. Their identity is with their job. If an individual is unemployed or displaced from the job market, they lose that identify. What are the psychological implications of large numbers of adults facing such an identity crisis and the loss of self-esteem?

   - How might the community colleges assist these individuals?
   - How can the concept of lifelong learning be utilized to alleviate the psychological implications?
   - How might the community colleges assist the K-12 schools in preparing youth for the many job changes and career shifts they will experience?

2. The number of "contingent" workers will continue to increase to almost one-half of the U.S. labor force by the year 2000. By utilizing contingent workers instead of hiring full-time employees, companies can save about 40% in payroll costs, including health insurance, pension plans, job training and professional development; it will also free employers from complying with labor and equal employment requirements.

   - With less on-the-job training and employer-sponsored personnel development programs, what opportunities and challenges exist for the community college?
   - Increasingly, the public sector is following in the footsteps of the private sector, seeking ways to "outsource" various functions. Examples include human resource departments, janitorial and custodial services, and building maintenance. What are the implications of increased outsourcing to the EICCD as an employer?
   - What impact would a universal health insurance program have on the trend toward increased contingent workers?

3. What are the implications of the growth of the contingent and temporary work force on job placement services offered by the community college? How might the community college work with community and state agencies in assessing the programmatic needs of contingent and temporary workers? How does this trend impact how community colleges measure the effectiveness of their career preparatory programs?

4. As the service industries continue their rightsizing and re-engineering activities, and experience productivity gains through the implementation of computerized and other automated functions, backoffice staffs and mid-management positions will be eliminated. The insurance and banking industries will cut hundreds of thousands of jobs. What new jobs will be created as the result of these productivity gains? What are the program/ curricular implications to the community college?

5. Increasingly, workers will function in decentralized organizations and as members of teams; they will be generalists, flexible, and concerned with quality. What are the curricular implications of the changing work environment to the community college's programs? How might these trends be reflected in the organizational structure of the community college?

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