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LABOR MARKET ANALYSIS & DEVELOPMENT OF A PROTOTYPE PROGRAM FOR MINORITY ENTREPRENEURS

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**LABOR MARKET ANALYSIS AND DEVELOPMENT OF A
PROTOTYPE TRAINING PROGRAM FOR MINORITY
ENTREPRENEURS**

Submitted by: The Business & Professional Development
Institute of
Bronx Community College

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The Business and Professional Development Institute
Bronx Community College

**LABOR MARKET ANALYSIS AND DEVELOPMENT OF
A PROTOTYPE TRAINING PROGRAM
FOR MINORITY ENTREPRENEURS**

Final Report

November 1989

Project Director: Claude D. Grant

Sponsored By:

RESEARCH AND TECHNOLOGY ENTERPRISES DIVISION
OFFICE OF MINORITY ECONOMIC IMPACT
THE U. S. DEPARTMENT OF ENERGY
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SUMMARY

INTRODUCTION

SUMMARY

The project looked at the problem of assistance for undereducated entrepreneurs from a basic point of view. For the entrepreneur with capital and a college or masters degree, there are well established programs to assist him or her. The Small Business Administration, Minority Business Development Agency, and the minority assistance programs of New York City provide a wide range of support for the knowledgeable new business person. However, there are thousands of bright, experienced and hard working Blacks, Hispanics and Asians who want to get into business and who can succeed. We have looked at this group and have developed a program to help them gain access to the business possibilities in energy related fields in the New York area.

The objectives of the program were to analyze the labor market for potential entrepreneurs and then develop a prototype training program that would help them gain access to new businesses in the energy industry.

The program we propose could be duplicated in other metropolitan areas. Although it is still a concept, we believe that our approach rests upon very solid ideas. The major program objectives are:

1. Focus on select business opportunities in energy related fields.
2. Establish a working relationship with the existing entrepreneurial support systems, such as Small Business Administration, Minority Business Development Agency, etc. In addition, directly involve energy business such as Con Edison, Brooklyn Union Gas, etc. in developing the program.
3. Focus on the start-up entrepreneur who lacks capital but who has intelligence, experience and loves hard work.
4. Provide a structured, comprehensive education and training program that can guide and develop the new entrepreneur toward his or her new business goal.

There is a vast pool of latent small business talent available in the minority community. Most program have focused on the "developed" or "ready" entrepreneur. This program focuses on the the training and education of "potential" entrepreneurs. This is one of the most important steps. For too long it has been neglected, and the entry rate on especially

Blacks and Hispanics into the small business field has lagged behind other groups.

Conclusions and Recommendations

We recommend the implementation of an Educational Training Program for Prototype Minority Entrepreneurs that would build upon a number of existing efforts to provide new hope to aspiring minority business persons. The basic elements of such a program should be:

Phase I

A testing program to identify promising entrepreneurs

Phase II

A two track set of courses to develop basic business skills in the minority entrepreneur group. These include

- A. Basic business skills needed to succeed
- B. Ongoing skill based training
- C. Individual consultations

Phase III

A follow-up track for those who can pass the first track courses. This phase will build upon a number of existing programs to help network the developing entrepreneur into a viable support system.

- a. National Minority Scholarship Program for Management Dev.
- b. Business Mentorship Program NYC
- c. Entrepreneurship Support Center
- d. Minority Honors Program in Energy Related Curricula BCC
- e. MBDA
- f. SBA
- g. DOE et al

We have developed a program proposal to carry out this program concept.

INTRODUCTION

On November 9, 1978, the U.S. Congress established the office of Minority Economic Impact (MI), in the Department of Energy, pursuant to Section 641, Title VI, Part 3 of the National Energy Conservation Policy Act, Public Law 95-619.

The intent of the Office, as stated by Congress, was that it should recommend ways to insure that minorities are afforded an opportunity to participate fully in the energy programs of the Department.

In pursuit of the legislative mandate and objectives specified by MI, one undertaking was the development of a prototype technical assistance program plan tailored to encourage, promote, and assist minority business enterprises in establishing and expanding energy related business opportunities among a specific segment of the population with limited education but with a good business sense and potential for success. The concept of the prototype plan was generated by an unsolicited proposal submitted to the Department of Energy by the Business and Professional Development Institute of the Bronx Community College (City University of New York) to MI, entitled "Labor Market Analysis and Development of A Prototype Program for Entrepreneurs."

Since Bronx Community College is one of the many educational institutions around the country with special programs and resources capable of generating such a plan, the Business and Professional Development seemed to possess the desired qualifications, experience, location and public and private associations necessary to effectively accomplish the study.

Bronx Community College is predominantly a minority institution with an enrollment of approximately 7000 students, more than half of which are women. The college is located within a large minority community bordering on the South Bronx Borough of New York City, and has many campus/business linkages through its BUSINESS & PROFESSIONAL DEVELOPMENT INSTITUTE (BPDI).

The community's large minority population has a high ratio of mature minimum-wages-unskilled workers and unemployed who possibly would benefit from a second chance at business/occupational training and the opportunities for business and enterprise development would seem to be most propitious at this time as vast portions of the area are being reocnstructed and rehabilitated.

THE NEED

The approach is that the prototype entrepreneur's program plan generated through this project should be universal in its approach and application. However, the development of the current prototype program focused on the specific needs and demographic data of the metropolitan New York City area encompassing Long Island, five counties in northern New Jersey and two in southern Connecticut.

This area, the largest metropolitan sector in the nation, presently possesses a population of approximately 18 million people, of which 30% or 5.4 million are minorities. The employment rate in the Bronx is 35.4%, the lowest figure in New York City.

The questions raised by these statistics are (a) what are the new and/or existing business/occupational opportunities, (b) which of these opportunities center around energy activities, and (c) which are available to minorities in the area and how can they be implemented?

Current records and data at various state and local jurisdictions indicate that the basic education, skills, and training are grossly lacking for a large segment of the minority population. This prevents them from participating readily in business opportunities in the industry.

Of course, education and training alone would not correct the business/occupational deficiencies without adequate business opportunities to utilize the acquired skills. Thus, a carefully developed labor market analysis is required to reveal credible and prospective chances for success in the targeted metropolitan area.

Additionally, there is a need to identify de facto constraints which heretofore have precluded minorities from entering the energy industry.

Finally, no program will or can succeed without the full and willing cooperation of both the private and government sectors working in harmony towards achieving mutual objectives. The New York State Regional Education Center for Economic Development has been consulted and has expressed an interest in bringing their resources into the implementation of a prototype program developed through this project.

FINDINGS

FINDINGS

A. GENERAL BUSINESS OPPORTUNITIES

In the New York area business opportunities are expected to parallel the occupational opportunities in energy related industries.

The fastest growing area for business opportunity is the broad category referred to as the service industry. As can be seen by the list of occupational opportunities provided above, the most cited area of growth revolves around the service industry. According to the experts, ripples will spread to second tier companies that service these service industries.

According to the New York City Department of Economic Development, although the city's economy continues to grow, it is growing much more slowly. Many New York area companies are re-organizing, reducing staff and not hiring at the rate of previous years. It is generally felt that these reductions in "in-house" services will provide considerable opportunities as companies begin to "contract out" their services.

The areas cited as presenting the highest growth potential for energy-related business opportunities are:

- (1) Energy related construction/ contracting: general, electrical, masonry, windows, roofs, boilers, asbestos removal, etc
- (2) Heating system maintenance: plumbers, heating engineers
- (3) Computer and automation support services in the energy field
- (4) Support for technical engineers and architects in energy field
- (5) Temporary placement agencies: clerical and professional

The review of training programs and skill based training programs indicates that there have been a number of offerings in the New York Metropolitan area, most of which have been presented in previous reports. There is no systematic approach to the training programs for new entrepreneurs, nor is there a clearinghouse of information on what training is available to a potential minority vendor seeking work in these energy related fields.

The staff inquired about internships with the various energy companies for the purpose of skill development of the minorities entering energy related occupations or those who are successful participants in a training program. Most firms explained that a cooperative or work study program would be a good idea at Bronx Community college but such agreements would have to be negotiated on a company by company basis, with the human resources professional in charge of these types of programs.

B. SKILL BASED TRAINING

We identified a number of skill based training programs now underway. Typical of these types of programs were the following:

Asbestos

White Lung Association's Asbestos Abatement Training Program

This course is offered at various intervals throughout the year. It is a 5 day course for Asbestos Handlers and Supervisors which provides:

- * hands on instruction performed by abatement professionals
- * all forms necessary to apply for relevant permits
- * instruction by Occupational Health Physicians and Certified Industrial Hygienist
- * some job referrals

Sheet Metal

The Sheet Metal Workers International Association's Energy Management Technician Training Course

This course is offered by Local 26 of the sheet Metal Workers International Association and includes:

- * 180 hours of classroom instruction
- * participation in a building audit
- * comprehensive written exam

Upon successful completion participants are then certified to conduct accurate and meaningful energy audits.

Occupation Training Requirements

To better understand the nature of the occupations listed above and to assist in the design of an appropriate training and internship program, it was important to examine each occupation cited and determine what skills and qualifications are actually needed to be successful in these occupations. Presented below is an overview of the skills/ qualifications necessary to enter the occupations listed.

1. Boiler installations and repair

2. Boiler Operators These workers operate or tend low pressure stationary steam boilers and auxiliary steam equipment, such as pumps, compressors and air conditioners to supply steam heat for commercial establishments, to maintain steam at specified pressure aboard marine vessels or to generate compressed air for operation of pneumatic tools, hoists and air lances.

Most boiler operators must participate in rigorous training. One New York area company provides this training and assists participants in obtaining their 2nd Class Fireman's License.

3. Linemen and Cable Installers These workers install, reconnect or disconnect cable and power lines for residential and/or commercial customers. Most industries require only a high school diploma from applicants for this position.

4. Utilities Company Service Representatives Employees in this job category are responsible for interviewing applicants for water, gas electric or telephone service. They talk with customers by phone or in person and receive orders for installation, turn on, discontinuance or change in service. Although no secondary school training is required for this position, computer literacy is necessary. Most companies, however, offer in house, on the job training in the various aspects of the job.

Most industry executives agree that persons who enter any type of customer relations positions must be able to deal effectively with people.

Customer Service Representatives and Computer Operators generally work on the company premises while Meter Readers and Field Service Engineers must work at customer sites.

5. Weatherization: These workers provide a wide range of improvements for commercial, retail, residential and government buildings. They install windows, pack insulation, fix roofs, wrap hot water pipes and perform many other jobs to improve the energy efficiency of existing buildings. This program especially important for low income home owners.

6. Engineer Related Work: a) electrical, b) plumbing, c) engineer aid, Engineers apply the theories and principles of science and math to the economical solutions of practical technical problems. They design machines, products, systems and processes for efficient and economical performance. Engineers develop electric power, water supply and waste disposal systems.

They design industrial machinery and equipment and heating air-conditioning and ventilation equipment. In these industries, they also design, plan and supervise the construction of buildings and systems for control and automation. In addition, many work in testing, production, operations or maintenance. Some work in engineering management/administration or in sales, where an engineering background enables them to discuss technical aspects of a product.

A bachelor's degree in engineering is generally acceptable. College graduates with a degree in science or math and experienced engineer technicians may also qualify for some engineer jobs. Two year college programs in engineering technology prepare graduates for practical design and production work.

Engineers should be able to work as part of a team and should have creativity, an analytical mind and a capacity for detail. It is also generally felt that they should be able to express themselves well, both orally and in writing. Electrical and electronic engineers design, develop and test and supervise the manufacture of electrical and electronic equipment. They design new products, write performance requirements, develop maintenance schedules, test equipment, solve operating problems and estimate time and cost of engineering projects.

Industrial Engineers determine the most effective ways for a company to use the basic factors of production: people, machines, information and

energy. They bridge the gap between management and production. These engineers design data processing systems and develop management control systems. They may also conduct surveys to find plant locations.

Civil Engineers design and supervise the construction of roads, airports, tunnels, bridges, water supply and sewage systems. There are also specialities within this category which include structural, environmental, construction, transportation and geothermal engineering.

Mechanical Engineers are concerned with the production, transmission and use of mechanical power and heat. They design and develop power producing machines such as internal combustion engine and steam and gas turbines. They also design refrigeration and air conditioning equipment, robots, materials handling systems and industrial production equipment.

C. BUSINESS TRAINING PROGRAMS

Although there have been several "business training" programs offered periodically, one of the most comprehensive ongoing program is currently offered by the national Minority Scholarship program for management Development, c/o the *National Minority Business Council, Inc.* This program is sponsored by corporations and the *New York Institute for Management Studies* and presents courses in 1-3 day formats. Courses are led by industry executives and the topics include:

General management

Personal development

Marketing management

Human resource management

Financial management

A copy of this comprehensive program is included in the Appendix ____ of the report.

Finally, the *New York Business Mentorship Program* is just getting underway. The Business and Professional Development Institute is

administering this project and a description is also included in Appendix
of this report.

SUGGESTED APPORACH FOR THE DEPARTMENT OF ENERGY'S PROTOTYPE
TRAINING PROGRAM

The following is an outline of the key elements of our recommended training program for new entrepreneurs.

This program would build on many of the ongoing programs underway in New York City. Instructors can be found from:

The Entrepreneurial Support Center

The BCC Opportunity Resources Institute

The Business Mentorship Program

Successful small business owners

Industry executives

Purchasing Council representatives

Bronx Community College faculty

The Business and Professional Development Institute has talked with a number of these individuals and can confirm that many are willing to participate in the program.

EDUCATION TRAINING PROGRAM

BASIC BUSINESS SKILLS: AN OVERVIEW

Objective: At end of this component, a participant should be able to:

Identify skills and resources necessary to start a business

Assess what skills, attitudes and abilities each brings to a business venture

Determine what gaps exist and how to develop the resources to fill those gaps

Identify and assess appropriate business ventures

Develop a working document as a business plan

Content: The major areas covered in this component will include:

What does it take to start a business?

The "entrepreneurial spirit" - Do you have it?

What business should you enter?

Finding the resources to get started.

Develop a preliminary business plan

HOW TO START A BUSINESS

COURSE OUTLINE

Objective: At the end of this component, participants should be able to:

Select the type of company they want to establish (i.e. corporation, partnership, etc)

Locate and appropriate facilities for their operation

Determine their abilities to staff their businesses

Determine what outside services they will use

Establish parameters for day to day management of their operations

Content: The major areas covered in this component will include:

Getting incorporated: the best route for your business

How to locate the best facilities

Utilization of space

How to hire staff or independent contractors and the implications for your company

Your partners in business: selecting accountants and lawyers

How to win and influence banks

Acquiring and maintaining equipment: rentals, leases and purchasing

Computerization: how much is enough to get the business started?

Managing day to day operations: keeping it all together on a daily basis

FINANCING BUSINESS

COURSE OUTLINE

Objective: At the end of the two parts to this component, participants should be able to:

Establish and maintain internal financial management controls

Identify and approach various sources of financing

Understand various bidding and pricing strategies

Content: The major areas covered in this component include:

fundamentals of cost and fixed asset accounting

Maintaining financial controls

Principles of bookkeeping

Budgeting and cash management

The auditing process

Records retention requirements

Insurance and bonding

Credit and collection techniques and strategies

Capitalization: locating and securing financial resources (reviewing working with bankers)

Financial forecasting and reporting

ADMINISTRATION OF BUSINESS

COURSE OUTLINE

Objective: At the end of this component, participants will be able to:

Determine the most appropriate marketing strategy for their product

or service

Complete the various certification, licensing and vendor applications

Establish working relationships with industry and government
purchasing agents

Develop appropriate customer service procedures

Content: The major areas covered in this component will include:

Marketing strategies that work

Vendor certification, licensing and application procedures

Bidding, pricing and negotiation

Working with purchasing agents

Servicing and supporting your customers

BUSINESS PLANNING AND EVALUATION

COURSE OUTLINE

Objective: At the end of this component, participants will:

Understand the importance of assessment and forecasting

Be able to develop an annual plan coordinated with a revised business plan

Be able to asses the direction of their business beyond the audit

Content: The topics to be covered will include:

Developing short range goals

Establishing a cycle for assessment

Engaging in strategic planning

How to refocus your business or services without going out of business

CONCLUSIONS AND RECOMMENDATIONS

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Conclusions

Our survey of the Bronx and New York identified and characterized many prototype entrepreneurs. The conclusions are:

1. There are thousands of experienced minority workers (Blacks, Hispanics and Asians) who are ready to start up a small business.
** Foot note __: Mayor's reports on Blacks and Hispanics, BCC Demographic Analysis of the Bronx
2. The primary problem of this population segment is that they need education and training to gain access to needed skills and business information.
** Foot note __: BCC Institute surveys, ABA surveys, etc.
3. Many may fail, but the odds for the serious entry level entrepreneur can be improved by a factor of 10.
** Foot note __: BCC program as example
4. Energy related businesses provide excellent opportunities.
** Foot note __: Interviews with Con Ed, BUG, et al
5. Public and private business support programs can help, if their information and support systems are explained. In addition, the new entrepreneur needs assistance in learning how to use these programs.
** Foot note __: NYC Department of Economic Development as well as SBA and MBDA surveys

Recommendations

We recommend the implementation of an Educational Training Program for Prototype Minority Entrepreneurs that would build upon a number of existing efforts to provide new hope to aspiring minority business persons. The basic elements of such a program should be:

Phase II

A two track set of courses to develop basic business skills in the minority entrepreneur group. These include

- A. Basic business skills needed to succeed
- B. Ongoing skill based training
- C. Individual consultations

Phase III

A follow-up track for those who can pass the first track courses. This phase will build upon a number of existing programs to help network the developing entrepreneur into a viable support system.

- a. National Minority Scholarship Program for Management Dev.
- b. Business Mentorship Program NYC
- c. Entrepreneurship Support Center
- d. Minority Honors Program in Energy Related Curricula BCC
- e. MBDA
- f. SBA
- g. DOE et al

We have developed a program proposal to carry out this program concept.

Our analysis of energy related business opportunities in the New York area established that real small opportunists exist for these people

Table of small business opportunities in energy related businesses.

A. Construction and contracting

- window installation
- insulation installation
- asbestos removal
- energy auditors
- furnace installers
- electrical support work
- plumbing support work
- building maintenance

B. Technical work

- Boiler work: plumber
- Master metering: electrician
- Engineering services: PE requirement
- EDP: computer training

C. Government and Utility work

- Energy weatherization on government buildings
- Repair of street cuts for utility companies
- Energy system repair: boilers, AC, etc

APPENDICES

Bronx Community College

BRONX ECONOMICS AND EMPLOYMENT

During the past 10 years, the Bronx has been involved in a massive rebuilding effort. Although many of the neighborhoods (e.g. Arthur Avenue, Fordham Road, the 149th Street Hub) remain vibrant, intense urban problems have presented a significant challenge even as the borough intensifies its economic development activities. Local leaders and community organizations have spearheaded drives to repair deteriorating housing stock, build more than 4000 housing units, and construct the first 250 private houses in 30 years on Charlotte Street, made famous by former President Jimmy Carter's visit in 1977.

Led by such organizations as the Bronx Chamber of Commerce, the Bronx Overall Economic Development Corporation (BOEDC), the South Bronx Overall Economic Development Corporation (SOBRO), and many others, employers and the business community are uniting to further develop business and industry in the Bronx. Millions of dollars in grants and loans continue to flow into the Bronx from Federal, State and Local sources, while tax incentives for businesses abound.

Ten major corporations and the Ford Foundation have provided \$70 million in private funds and \$50 million in public monies for initiatives to save jobs and rebuild the borough. This translated into more than 10,000 jobs with five new companies moving into the Bronx for every one that leaves. Many established firms (e.g. Farberware, Inc., Welbilt, Inc., Everlast, and Celebrity, Inc.) have been in the borough for some time; others are moving into desirable locations in the Bronx industrial parks. These include: Bathgate Industrial Park, Port Morris Industrial Park, Zarega Industrial Park, and Hunts Point Industrial Park and Market.

The Hunts Point Market, a sprawling 500 acre wholesale bazaar where 23 billion pounds of fresh meat and produce change hands every year, is also a vital part of New York City as a whole. It is the world's largest truck stop for the 5000 truckers who arrive daily and another resource for economic development. Bathgate Industrial Park is still being developed and upgraded, and businesses are on waiting lists to move in. Port Morris Industrial Park has been designated as an "Economic Development Zone" by New York State, making it eligible for many tax incentives and millions of dollars in development funds. Zarega Industrial Park is witnessing major corporations vie for the opportunity to move in.

The most recent census indicates that 35.4% of the Bronx population is employed - the lowest figure in New York City! Projections show a continued decline except where training

intervenes. With the emergence of local industry, some of the considerable employment problems in the borough have been remedied. Almost invariably, Bronx businesses employ a preponderance of Bronx residents and are more than satisfied with their performance. More than 20,000 unemployed adults with recent work experience have more options with Bronx companies. Each year, however, there are approximately 18,000 high school dropouts with a 50% unemployment rate and another 12,000 teens from low-income homes who are likely to drop out. The primary solution for these societal ills, to date, has been job training.

A variety of community programs exist to help people train for industry. These include the Job Corps Center in Morris Heights, Job TAP Centers (#6 is operated by Bronx Community College), Private Industry Council (PIC) initiatives, Continuing Education programs, and job training by such entities as the South Bronx Development Organization, Bronx Community College JTPA programs, and the Episcopal Mission Society Auto Repair Program (administered by the Business & Professional Development Institute of Bronx Community College).

BCC ENVIRONMENTAL SCAN

I DEMOGRAPHICS

A. POPULATION BY AGE AND SEX

(1)	NYS 1987	NYS 1992	% +/-	NYC 1987	NYC 1992	% +/-	Bronx 1987	Bronx 1992	% +/-
Tot. Pop.	17,836,336	18,041,124	+1.2	7,280,734	7,394,356	+1.2	1,187,641	1,207,017	+1
0-5	1,373,398	1,353,084	-1	567,897	554,577	-2	105,700	102,596	-3
18-24	2,104,687	1,912,359	-9	757,196	695,069	-8	142,517	127,944	-1
25-34	2,835,977	2,850,498	+1	1,201,321	1,123,942	-6	187,647	194,330	+3
35-44	2,479,251	2,634,004	+6	1,062,987	1,168,308	+9	152,018	164,154	+7
45-54	1,854,979	2,056,588	+10	757,196	865,140	+12	115,201	126,737	+9
55-64	1,819,306	1,713,906	-6	742,635	702,464	-5	109,263	105,010	—
18-64	11,094,200	11,167,455	+1	4,521,336	4,544,923	+1	706,646	718,175	+2
65+	2,497,067	2,778,333	+11	1,084,829	1,190,491	+9	167,457	184,674	+1
Male	8,481,311	8,584,552	+1	3,387,368 (47%)	3,455,393 (47%)	+2	543,036 (46%)	554,872 (46%)	-1
Female	9,352,559	9,453,763	+1	3,893,283 (53%)	3,938,880 (53%)	+1	644,594 (54%)	652,134 (54%)	+1

(1) DONNELLEY DEMOGRAPHICS, estimates based on the 1980 Census, used for these projections, projected an increase in the Bronx overall population growth, while the the URBAN RESEARCH CENTER indicated a decline.

B. NUMBERS OF HIGH SCHOOL GRADUATES AND READING LEVELS

(2)	NYS '87	NYS '92	%	NYC '87	NYC '92	%	Brx '87	Brx '92	%
H.S. grads/yr.(3)	197,260	162,925	-17	55,597	50,101	-10	6,880	5,710	-17
% reading at grade level+ in 9th grade(4)	N.A.	N.A.		59.1%	62.6%	+6	47.7%	49%	+3

(2) Originally we looked for what could be termed a "literacy" rate. The closest we could get was a gross estimate by the Literary Assistance Center, of one million to one and one-half million adults and older youth in NYC "who cannot find employment and cannot even enter most job training programs because they cannot read and write or speak English well enough to qualify."

(3) 1987 figures for NYS and NYC were obtained from NYS, PROJECTIONS OF PUBLIC AND NONPUBLIC SCHOOL ENROLLMENT AND HIGH SCHOOL GRADUATES TO 1996-97. Projections for the city and state were available, but to determine the projections of h.s. graduates per year in the Bronx, I compared the DONNELLEY DEMOGRAPHICS projections for the 14-24 age group in the Bronx with the other two regions. The NYS and Bronx populations for this age group are projected to change at about the same rate, -10%, and NYC at -7%, so the safest projection seemed to be the same percentage change as that for NYS.

(4) Ninth-grade reading levels are from NYC Board of Education statistics. An assumption was made that these figures would give us some idea of the chances that a B.C.C. student will be reading at grade level IF he/she reaches the 9th grade in the local public school system (and most BCC students do go through these systems). Figures were not available for 1987 on whether they were generally one or two years below grade level, but comparisons of past years indicate that of those not reading at grade level, about 78-79% are at least two years below grade level. The projections were arrived at, first, by comparing rates for 1974 and 1982, and 1982 and 1987. The percentage increase was 29% for NYC and 21% for the Bronx from 1974 to 1982. CAUTION MUST BE TAKEN THAT TESTS THEMSELVES CHANGE. From 1982 to 1987 the percentage changes were 13% and 8% respectively. To make projections, I determined a declining rate of improvement for these two areas - 55% for NYC and 62% for the Bronx, and then projected an improvement rate of 6% for NYC and 3% for the Bronx - thus arriving at the very tentative 1992 figures.

C. IMMIGRATION, RACIAL/ETHNIC GROUPS, AND ESL

	NYS '80	NYS '92	NYC '87	NYC '92	%	Brx '87	Brx '92	%	
foreign born(5)(6)	14%		2,261,846 (31%)	2,684,401 (36%)	+19 +16	288,438 (24%)	340,546 (28%)	+16	
new imm. per year(7)			84,511			10,442			
non-English speaking			44,750			3,405			
ESL(8)			2,659,000 (37%)	2,838,000 (38%)	+7	480,201 (40%)	521,967 (43%)	+9	
	1987	1992	%						
Hispanic(9)	2,060,021	2,170,438	+5	1,745,579 (24%)	1,839,142 (25%)	+5	492,072 (41%)	518,447 (43%)	+5
Black(10)	2,791,000	2,915,160	+4	1,881,497 (26%)	1,929,663 (26%)	+3	387,315 (33%)	397,230 (33%)	+3
Nonhisp.									
Asian(11)	307,891			378,807		488,053	+29		
	'80					24,251	31,238	+29	

(5) NYC, SOCIOECONOMIC PROFILE and the Bosworth data, both based on the 1980 Census, were used for 1980 percentages of foreign born. These percentages were updated by taking the numbers of new immigrants since 1980, provided by the NYC Planning Commission, and comparing those numbers with the overall growth in NYC and the Bronx. Since the absolute numbers of new immigrants were greater than the absolute growth, the increased percentages of foreign born were determined accordingly (this is not taking into account deaths). It should be noted that, although the Census does include some undocumented aliens(200,000), there could actually be more than 500,000. Some estimates put the total NYC immigrant population at 27% to 33% (Foner and Freedman in THE NEW YORK TIMES MAGAZINE). The census also does not differentiate between actual new arrivals and those already here, being admitted to immigrant status. Nonimmigrants, including students with a temporary visa, are also not reflected in the immigration figures. Additionally, the smaller the geographic size being considered, the less accurate the Census figures become. Foner discusses the immigrant groups present in the Bronx as being largely "old and new immigrant populations with large proportions of Italians, Irish, and West Indians." (p. 64-65) According to the 1980 Census, Bronx had 14.7% of the NYC West Indians, 17.1% of the Italians, and 30.5% of the Irish(Foner, p. 68), and, according to the NYC Planning Commission, Bronx has grown by about 39,716 West Indians, and 440, each, Italians and Irish, since 1980. Information from the NYC Planning Commission, on immigrants since 1982, shows the Bronx, relative to the other boroughs, receiving larger numbers of Caribbeans, especially from Antigua-Barbuda and St. Kitts-Nevis, Kampucheaans(Asia), and Ghanians.

(6) Percentage from (5) of general populations (1) of the three areas.

(7) To get a figure for immigrants per year, I took 1/4 of the NYC Planning Commission total for 1983-1986. The English speaking immigrants were omitted for the second figure. Worth noting is that Dominicans make up 24% of the Bronx immigrants and have a significantly lower average educational level than most immigrants.

(8) The Bosworth data on those 18+ for the NYS and SOCIOECONOMIC PROFILE for NYC and the Bronx were updated using non-English speaking immigrant figures from the NYC Planning Commission.

(9) Hispanic and Black Nonhispanic figures for NYC and the Bronx are from NYC, DEMOGRAPHIC PROFILE, updated using the national percentage increases from US, STATISTICAL ABSTRACT(No. 16). NYS figures are derived from STATISTICAL ABSTRACT.

(10) The figures for NYS from US, STATISTICAL ABSTRACT was for all blacks, including Hispanics, whereas the figures for NYC is on nonhispanic blacks.

(11) The Asian populations for NYC and the Bronx were derived by taking the 1980 figures from NYC, DEMOGRAPHIC PROFILE and updating them from immigrants figures from the NYC Planning Commission.

projections made for NYC for 1989. Scenario B is based on a NYS Plan that is pending approval from Washington which provides a "Child Assistance Program" in place of AFDC. With this plan a mother would receive a child allowance while working and be able to keep much more of her earnings than if she were receiving A.F.D.C.; she would always be entitled to some child allowance no matter how high her earnings get.(Barbanel in THE NEW YORK TIMES, May 2, 1988) Scenario C is based on the Moynihan Senate Bill, pending White House approval, which allows for more work incentives for mothers of children over three years of age, and requires that 22% of all recipients be in training, education, or jobs by 1994; however, local welfare officials feel that much is already being done that is required in the legislation. A pilot program being proposed in NYC is Opportunities for Independence which would "require those with children three and older to find work on their own, participate in skills training or take government-subsidized service jobs."(Making workfare work: a model, THE NEW YORK TIMES, June 18, 1988) The program would target 6,000 welfare clients, and earnings would be supplemented up to 120% of the federally defined poverty line. It would also guarantee day care and medical coverage until the income reached 130% of the poverty line. Both B and C require the mother to pursue support from the father which would be paid through the state, and provide funding for child care and medical coverage for a period of time.(Tolchin in THE NEW YORK TIMES, June 29, 1988)

(19) I also decided the figure for families with incomes under \$10,000 would be helpful here and facilitate more comparison with CUNY and BCC student bodies. Figures came from projections by DONNELLEY DEMOGRAPHICS.

D. EMPLOYMENT, PUBLIC ASSISTANCE, AND INCOME LEVEL UNDER \$10,000

	NYS '86	NYS '92	%	NYC '87	NYC '92	%	Brx '88	Brx '92	%
Employed									
LFPR(12)	57.4%(13)	58.8%(14)	+2	57.7%(15)	58.9%(16)	+2	53.3%(17)	54.5%	+1
Public Assistance(18)	NYS '88 (1,237,427)	NYS '92 416,883		NYC '88 (846,273)	NYC '92 384,520		Brx '88 (235,265)	Brx '92 103,186	
Scenario A +3%/yr.				469,205			116,137		
Scenario B -2%/yr.				358,525			95,176		
Scenario C -3.7%/yr.				384,520			88,740		
Families with income under \$10,000(19)	21.8%	17.5%		28.2%	22.9%		38.4%	30.4%	
Median income	\$24,441	\$30,095		\$20,537	\$25,006		\$15,477	\$19,367	

(12) The Labor Force Participation Rate(LFPR) is based on the number working or formally looking for work in the 15-64 year-old population. Sources for NYS had the LFPR for 1986, and that for NYC had the rate for 1987, so I used them because they were the actual rates; I calculated the Bronx 1988 rate from a 1980 figure and a 2000 projection. Since the starting rates for the three areas are not for the same year, they should not be compared.

(13) US STATISTICAL ABSTRACT(No. 610) was used for this figure.

(14) US STATISTICAL ABSTRACT(No. 608) was used for this figure. The 1986 rate for NYS was 12% lower than the national LFPR. Taking national projections, I assumed the same growth rate as nationally (which happens to be the same for NYC and the Bronx) and projected a NYS LFPR of 12% below that projected nationally.

(15) and (16) NYS Bureau of Labor annual average for the 1987 figures and URBAN RESEARCH CENTER projections were used to calculate this figure. These projections are more optimistic than the BLS report in an article by Lueck in THE NEW YORK TIMES of August 3, 1988 which cited a 22.9% LFPR of 16-19 year olds. The projection that might diminish the impact of that figure on the overall LFPR is the decline of that age group generally.

(17) Calculated from figures in NYC CAPITAL NEEDS AND PRIORITIES(NYC).

(18) The 1988 individual AFDC and HR recipient figures in parentheses for NYS, NYC, and the Bronx were obtained from the NYC office of the Human Resources Administration. Based on the 1980 size per household of welfare families in the Bronx and NYC, I approximated the number of households this would be. For projections, I developed three scenarios in relation to households. Scenario A is based on a continued growth based on the HRA

E. SINGLE PARENTS AND MOTHERS WITH CHILDREN UNDER AGE 6

	NYS '80			NYC '80			Brx '80				
Single Parents(20)											
(mother or father)											
households	8.4%			10.9%			17.9%				
families	9.47%			17.49%			25.97%				
	NYS '87	NYS '92	% +/-		NYC '87	NYC '92	% +/-		Brx '87	Brx '92	% +/-
Single Mothers(21)											
Hispanic	175,288	184,684	+5		148,532	156,493	+5		41,871	44,115	+5
Black	184,253	192,450	+4		124,211	127,390	+3		25,569	26,224	+3
Non-hisp.											
White	290,735	299,308	+3		80,792	83,174	+3		8,749	8,943	+2
Non-hisp.											
Total	650,276	676,442	+4		353,535	367,057	+4		76,189	79,282	+4
	'80										
mother with child under 6(22)											
in labor force	37%				39.2%	41.2%	+5		36.4%	38.6%	+6

(20) DONNELLEY DEMOGRAPHICS was used for the households and DEMOGRAPHIC PROFILE was used for the families. I combined the female householder/no husband with children under age 18 and the male householder/no wife with children under age 18 for each source.

(21) The racial/ethnic breakdown of single mothers is important because there is a large difference in the chances of being a single parent for the different populations. The following figures are from STATISTICAL ABSTRACT unless otherwise indicated - "No." refers to the table number. I used the percentage of Puerto Ricans(P.R. used because 81% of the Hispanics in the Bronx are P.R., 1980 Census), blacks, and whites who are actually in family groupings (92%, 84%, and 91%, respectively)(derived from No. 67), the average size of the family for each grouping (3.87, 3.55, and 3.15, respectively)(No. 67), and the population of each grouping in (9) and (10) to approximate the number of families for each grouping. I then took the percentages of those families for each grouping that are likely to be single mothers(37%, 27.9%, and 7.3%, respectively)(No. 43) to determine the number of single mothers. These projections need to be considered very tentative. National projections of "female house-holders" have been made and vary for 1995 from 10,798,000 to 11,583,000 depending on various factors.(No. 57) One important factor is the employment rate of black and Hispanic males; neither of these LFPRs is projected to change, boding poorly for their ability to initiate and maintain a marriage.(No. 608) This factor is also important in the AFDC rate. These projections do omit a few groups, such as Asians, who have a relatively

low single parent ratio. Others have made projections of single parents that have proven significantly off.

(22) The percentage is of all mothers who have children under the age of 6. STATISTICAL ABSTRACT was also used for most of these figures, except where indicated. Although nationally 56% of all mothers with children under the age of 6 work(Nos. 66 & 596), the unique demographics in NYC and the Bronx make for a slightly different picture. First, most of the increase among working mothers is among married women.(No. 624) NYC and the Bronx have lower percentages of this group than the national average. However, secondly, this might be balanced by the greater increase of employment among mothers of children under six, and, although the overall under 6 population will decrease, the projected growth in the Hispanic under age 6 population is 9.12% nationally(No. 15), the black, under 6 population, 2.28%, and the white, under 6, population will stay about the same.(No. 16) This means that, relative to the national picture, we might be talking about greater numbers to begin with. Third, in relation to mother-only families, the mothers who have never been married are (percentages are based on the percentages of children): 26% less likely to have a high school education; 28% less likely to be in the labor force; 37% less likely to be employed full time; 78% less likely to be receiving support from absent fathers; 35% more likely to be receiving AFDC; and 49% more likely to be black.(Kameran & Kahn, pp.28-29) Since NYC and the Bronx have a higher percentage of never-married mothers, the employment rate is likely to be negatively affected. For projections, I looked at national projections of hispanic, black, and white labor force participation, took those percentage changes and applied them to local populations, and added the changes on to the 1980 Census percentages for LFPR of all mothers of children under 6. I calculated the female change rate at .57% a year for 1980 to 1988. For 1988 to 1992, the male rate is projected to remain about the same so the following rate changes are for females only: Hispanic, +.51%/year, black, +.44%/year, and white, +.52%/year.(No. 608) Considering the proportions of the different populations in the Bronx and NYC, the change should be about +.49%/year for all women between 1988 and 1992, regardless of mother status or age of child. Possibly being too optimistic, I went ahead and used these percentage increases. Absolute numbers were hard to calculate because the exact numbers, for NYC and the Bronx, of mothers of those under 6, have not been available since 1980.

CAPPED

	NYS '87	NYS '92	%	NYC '87	NYC '92	%	Brx '87	Brx '92	%
apped	19%	19%	0	23%	23%	0	30%	30%	0

(23) The ICD SURVEY defined disabled as people having a "disability or health problem that prevented them from participating fully in work, school, or other activities...if he or she said that he or she had a physical disability, a seeing, or speech impairment, an emotional or mental disability, or a learning disability...if he or she considered himself or herself disabled, or said that other people would consider him or her disabled." Using this definition the survey found that 38% are in the labor force - 62% of those with a college education, 21% of those with less than a high school education, and 36% of those with a high school education. However, many of these individuals went through school before the Education Act of 1975. According to a Harris poll based on 12,000 households, the prevalence of disability, based on their definition, is 15% among Americans aged 16 and over. Ethnicity and urban residency do not seem to be related, but poverty level and educational level do appear to be. In the case of the Bronx, where the % of those not completing high school is significantly higher than for NYS (49% : 34%) and the median income is also lower (\$19,367 : \$30,095), one could surmise that there is the strong possibility that the disability rate, especially of those not in the labor force, is higher than 15%. However, because an educational program is now required, the % not in the labor force should be decreasing. According to 1992 projections, the median incomes of the three areas will remain in approximately the same proportions to each other. Since the median incomes for all three areas are also lower than the national median income, \$30,853 ([Tolchin, September 1, 1988] and [19] earlier), I calculated the difference and adjusted the handicap rate accordingly.

C. BCC PROGRAMS AND TRENDS IN ENROLLMENT, ENROLLMENT BY SEX, AND COMPARISONS WITH PROJECTIONS OF INDUSTRY GROWTH

BCC PROGRAM	% OF BCC STUDENTS Sp 1984 and Fall 1987		AS % OF OF COLLEGE FEMALE MALE		NYC 1992 % GROWTH RELATIVE TO 1985 FIGURES(S)	
					NPA Construction	RPA -18 -1
Engin Science	3.64	3.19	0.22	2.97	Manufacturing	-15.7 +3.12
A/V Tech	1.23	.71+(radio/TV repair)	0.15	0.56	Transport, Communications,	+.9 +10.2
Elect Tech	4.77	5.56*(electrical work)+	0.41	5.14	& Pub. Util.	
Mech Tech	.13	.03?	0.02	0.02		
Automotive	.34	.60+	0.02	0.58		
Advert Art	0.00	0.05+	0.03	0.02	Trade	-16.4 +.82
Marketing	1.64	1.78+(sales)	0.96	0.81	Finance, Insurance, & Real Estate	+4.64 +4.8
Educ Assoc	5.03	5.94*(schools)+	5.49	0.45	Government	-6.26 +1.48
Music	.75	.61+	0.27	0.35		
Para legal	3.31	4.98+	2.41	2.57	Services	+9.58 +16.06
Med Lab Tech	4.43	3.17*+	2.32	0.85		
Nuclear Med T	.39	.51*+	0.27	0.25		
Nursing	6.83	3.70*+	3.53	0.17		
Pre-nursing	15.56	10.85*+	10.27	0.58		
Chem Tech		.02+	0.00	0.02		
Pre-pharmacy	.97	1.36*+	0.71	0.65		
Horticulture	.01	.29+(life/ phys. sc.)	0.17	0.12		
Sciences	3.52	2.87+	1.41	1.46		
Human Service	0.00	3.57*+	3.05	0.51		
GROWTH DEPENDS ON SECTOR FROM LAST COLUMN IN WHICH SKILL USED						
Liberal Arts	12.30	13.70+	9.01	4.70		
Accounting	5.67	6.92+	3.87	3.05		
Secretarial	8.53	7.80*(steno)+	7.63	0.17		
Data Proc	10.91	7.50+	4.99	2.51		
Bus Admini	7.37	8.41*+	4.98	3.43		
Other		5.89				
Total		100.00	65.77	34.23		

Sources: Erdsnecker & Ritzi, BRONX COMMUNITY COLLEGE, FALL 1987, STATISTICAL ABSTRACTS and N.Y.S. ANNUAL LABOR AREA REPORT, NYC, FISCAL YEAR 1988

* According to the ANNUAL LABOR AREA REPORT, NYC, FISCAL YEAR 1988, BLMI REPORT NO. 23 these industries increased in absolute figures or % in the Bronx 1981-86. A description of the REPORT growth is provided in parentheses where the industries might vary slightly from the BCC Program.

+ According to the ANNUAL LABOR AREA REPORT the average number of openings will increase from 1988 to 1990 in NYC. Parentheses were used for the same reason as above.

(5) The last column was determined from the National Planning Association(NPA) and the Regional Plan Association(RPA) data by the URBAN RESEARCH CENTER and is based on 1984-85 projections. The average annual growth or decline is based on the difference between the 1990 and 2000 projections, divided by ten to obtain a yearly figure, multiplied by two, and adding or subtracting accordingly from the 1990 figure to determine the 1992 figure. The approximate corresponding BCC Program is in the left-hand column.

D. SUMMARY OF SKILLS REQUIRED IN REPRESENTATIVE GROWING OCCUPATIONS BY CATEGORY

1. Professional and Technical Workers: oral and written communication skills; the ability to think logically and analytically, to use the computer, and to deal with detail work; and basic math and science knowledge
2. Managers and Officials: the ability to get along well with and to motivate others; communication skills; good problem solving skills; and good math and reading skills
3. Sales Workers: good negotiators, pleasant personality, good communication skills, neat appearance, and basic reading and math skills
4. Clerical Workers: enjoy working with people, good oral and written communication skills, and good spelling and arithmetic skills
5. Craft and Kindred Workers: good math skills, manual dexterity, good reading ability, good oral and writing skills
6. Service Workers: good interpersonal skills, strong desire to help others, good judgement, the ability to listen to the needs of others, and math and reading skills

E. SKILLS NEEDED BY INDIVIDUAL OCCUPATIONS

PROFESSIONAL AND TECHNICAL WORKERS

ENGINEERS

should be able to work as part of a team and should have creativity, an analytical mind, a capacity for detail, and the ability to express themselves well, both orally and in writing

TEACHERS & COUNSELORS

liberal arts and professional education courses - kindergarten and elementary: creative, dependable, patient and competent in handling classroom situations; interested in emotional and educational development of children - secondary school teachers: good at working with young people, knowledgeable in their subject, and able to motivate students and to impart knowledge to them - adult and vocational education teachers: enjoy working with people and get real satisfaction sharing their knowledge with others, good communication skills and the ability to motivate others

COMPUTER PROGRAMMERS

experience in accounting, inventory control, and other business skills; people who can think logically and analytically; ability to work with abstract concepts; patience, persistence, and the ability to work with extreme accuracy under pressure; and ingenuity and imagination

COMPUTER AND PERIPHERAL EQUIPMENT OPERATORS

adaptable and willing to learn, able to communicate well and work independently

COMPUTER SYSTEMS ANALYSTS

able to think logically and like working with ideas and people; able to concentrate and pay close attention to detail; and be able to communicate effectively with wide variety of people

COMPUTER SERVICE TECHNICIANS

good vision, normal color perception, initiative to work without close supervision, pleasant personality, neat appearance, and patience

LEGAL ASSISTANTS

handle legal problems logically and effectively, communicate, orally and in writing; understand legal terminology, good research and investigative skills; computer knowledge; and courteous with high ethical standards

ACCOUNTANTS AND AUDITORS

aptitude for mathematics; be able to analyze, compare, and interpret facts and figures quickly, and make sound judgements; the ability to communicate clearly, orally and in writing; patient and able to concentrate for long periods of time; accuracy, and the ability to handle responsibility with limited supervision; and high standards of integrity

EMPLOYMENT INTERVIEWERS

"people skills" and other personal characteristics; good communication skills, a desire to help people, office skills, and adaptability; and a friendly, confidence-winning manner

MEDICAL ASSISTANTS

ability to learn biology, anatomy, physiology, typing, transcription, accounting, record keeping, medical terminology, and computer skills; neat, well groomed, courteous, ability to communicate well, conscientious, responsible, respect for confidentiality, manual dexterity, visual acuity, and the ability to deal with people under stress

DENTAL ASSISTANTS

congenial personality, typing, and science

NURSING AIDS AND PSYCHIATRIC AIDS

warmth, dependability, maturity, healthy, tactful, patient, understanding, emotionally stable, desire to help people, be able to work as part of a team, and be willing to perform repetitive, routine tasks

LICENSED PRACTICAL NURSES

deep regard for human welfare, emotionally stable, and able to follow orders and work under close supervision

MEDICAL RECORD TECHNICIANS

ability to learn biological sciences, medical terminology, medical record science, business management, legal aspects, and computer data processing

RADIOLOGIC TECHNOLOGISTS

strong math/science background

DENTAL LABORATORY TECHNICIANS

manual dexterity, good vision, the ability to recognize very fine color shadings, ability to follow instructions, and the inclination for detailed and precise work

OPHTHALMIC LABORATORY TECHNICIANS

courses in science and mathematics, and the ability to do precision work

SURGICAL TECHNICIANS

manual dexterity, conscientious, orderly, and emotionally stable

DESIGNERS

creativity, strong color sense, eye for detail, sense of balance and proportion, and sensitivity to beauty; persistent and able to communicate their ideas visually; open to new ideas and influences; problem-solving skills and the ability to work independently; self-disciplined; and business sense and sales ability

PHOTOGRAPHERS AND CAMERA OPERATORS

imagination, creativity, and a good sense of timing; good eyesight and color vision, artistic ability, and manual dexterity; patient, accurate, and enjoy working with detail; some knowledge of math, physics and chemistry

TRAVEL AGENTS

ability to learn computer science, geography, foreign languages, history, accounting, and business management

MANAGERS AND OFFICIALS

HEALTH SERVICES MANAGERS

need to be open to different opinions and good at sifting through contradictory information; tact, diplomacy, and communication skills; self-starters; must like people, enjoy working with them, and be able to deal effectively with them; and public speaking

HOTEL MANAGERS AND ASSISTANTS

ability to get along with people under stress; initiative, self-discipline, and the ability to organize and direct the work of others; and the ability to solve problems and concentrate on details

MARKETING, ADVERTISING, AND PUBLIC RELATIONS MANAGERS

mature, creative, highly motivated, resistant to stress, and flexible, yet decisive; ability to communicate persuasively both orally and in writing; and tact, good judgement, and the exceptional ability to establish and maintain effective personal relationships

RESTAURANT AND FOOD SERVICE MANAGERS

good health and stamina; self-discipline, initiative, and leadership ability, ability to solve problems and concentrate on details; good communication skills; and neat and clean

SALES WORKERS

PROPERTY AND REAL ESTATE MANAGERS

good negotiators, adept at persuading and handling people; good at analyzing data; and resourceful and creative at handling situations

WHOLESALE TRADE SALES WORKERS

sales ability and familiarity with manufacturers and brands

RETAIL SALES WORKERS

enjoy working with people, tactful, interest in sales work, a pleasant personality, a neat appearance, and the ability to communicate clearly

SERVICE SALES REPRESENTATIVES

pleasant, outgoing personality, good rapport with people, highly motivated, well organized, efficient, good grooming and a neat appearance, self-confidence, reliability, and the ability to communicate

CLERICAL WORKERS

TELEPHONE OPERATORS

like to serve the public; pleasant; courteous; patient; do not mind sitting for long periods of time; clear and pleasant voice; good hearing; good reading, spelling, and arithmetic skills; and good eye-hand coordination and manual dexterity

COUNTER AND RENTAL CLERKS

enjoy working with people, ability to deal tactfully with difficult customers,

neat appearance, pleasant personality, and good oral and written communication skills

CRAFT AND KINDRED WORKERS

LITHOGRAPHIC AND PHOTOENGRAVING WORKERS

good oral and writing skills, ability to compute percentages, familiarity with weights and measures, math skills, knowledge of color composition, aptitude for mastering the computer-assisted equipment, and an understanding of chemistry, optics, and the entire offset and photographic process; and precision, patience, good eyesight and color vision, artistic skills, and manual dexterity

PHOTOGRAPHIC PROCESS WORKERS

courses in chemistry and mathematics, manual dexterity, good vision, including normal color perception, and good hand-eye coordination

TOOL PROGRAMMERS, NUMERICAL CONTROL

ability in math and blueprint reading, metal working, data processing, physics, and drafting

AIRCRAFT MECHANICS AND ENGINE SPECIALISTS

Courses in mathematics, physics, chemistry, electronics, computer science, and mechanical drawing

AUTOMOTIVE MECHANICS

good reading and basic mathematics skills, ability to study technical manuals to keep abreast of new technology and learn new service and repair procedures and specifications

COMMERCIAL AND INDUSTRIAL ELECTRONIC EQUIPMENT REPAIRERS

good color vision, manual dexterity, good eye-hand coordination, aptitude for mathematics, ability to do detailed work, good memory, record-keeping ability, ability to do repetitive tasks, and physical strength

OFFICE MACHINE AND CASH REGISTER SERVICERS

mechanical aptitude, knowledge of electricity or electronics, manual dexterity, general intelligence, good eyesight, good color vision, good hearing, pleasant and cooperative manner, neat appearance, the ability to communicate, and the ability to work without supervision

CARPET INSTALLERS

manual dexterity, courteous, and tactful

ROOFERS

good physical condition and good balance

TILESETTERS

usually prefer high school graduates who have had courses in general mathematics, mechanical drawing, and shop; good physical condition, manual dexterity, and a good sense of color harmony

SERVICE WORKERS

CORRECTION OFFICERS

good health; strength, good judgement, and the ability to think and act quickly

GUARDS

good character references, no police record, good health, neat dependable, mentally alert, and emotionally stable

BARTENDERS

pleasant personality, neat and clean, and stamina and strength

CHEFS AND COOKS

math, ability to work as part of a team, working in close quarters, keen sense of taste and smell, stamina, and personal cleanliness

WAITERS AND WAITRESSES

well spoken, neat and clean, even disposition, enjoy dealing with all kinds of people, good memory, stamina, good at math, and sometimes knowledge of foreign language

CHILDCARE WORKERS

kind and patient, good health, skills in music, art, drama, and storytelling; and good business sense and management ability

COSMETOLOGISTS AND RELATED WORKERS

dexterity and a sense of form and artistry; enjoy dealing with the public, be willing and able to follow patron's instructions, and business skills

FLIGHT ATTENDANTS

poised, tactful, resourceful, excellent health, good vision, ability to speak clearly, and, for international airlines, foreign language

HUMAN SERVICES WORKERS

strong desire to help others, patience, understanding, and caring; communication skills, strong sense of responsibility, and the ability to manage time effectively

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JOBS ON THE RISE

Fastest-growing occupations (1986-2000)

Biggest percentage increases

Paralegals.....	103.7%
Medical assistants.....	90.4%
Physical therapists.....	87.5%
Physical and corrective-therapy assistants and aides.....	81.6%
Data-processing-equipment repairers.....	80.4%
Home-health aides.....	80.1%
Podiatrists.....	77.2%
Computer-systems analysts.....	75.6%
Medical-records technicians.....	75.0%
Employment interviewers, private or public-employment service.....	71.2%
Computer programmers.....	69.9%
Radiologist technologists, technicians.....	64.7%
Dental hygienists.....	62.6%
Dental assistants.....	57.0%
Physician assistants.....	56.7%

Most jobs added

Retail salespeople.....	1.2 mil
Waiters, waitresses.....	752,000
Registered nurses.....	612,000
Janitors, cleaners, housekeepers.....	604,000
General managers, top executives.....	582,000
Cashiers.....	575,000
Truckdrivers.....	525,000
General office clerks.....	462,000
Food-counter and related workers.....	449,000
Nurses' aides, orderlies, attendants.....	433,000
Secretaries.....	424,000
Security guards.....	383,000
Accountants, auditors.....	376,000
Computer programmers.....	335,000
Food-preparation workers.....	324,000

JOBS IN DECLINE

Shrinking occupations (1986-2000)

biggest percentage decreases

PBX installers, repairers.....	-23.1%
Textile-machine operators, tenders.....	-25.2%
Statistical clerks.....	-26.4%
Farmers.....	-28.1%
Stenographers.....	-28.2%
Chemical-plant and system operators.....	-29.6%
Chemical-equipment, controllers operators.....	-29.7%
Telephone-station installers, repairers.....	-31.8%
Shoe-sewing-machine operators, tenders.....	-32.1%
Industrial truck, tractor operators.....	-33.6%
Gas, petroleum-plant and system jobs.....	-34.3%
Railroad brake, signal, switch operators.....	-39.9%
Railroad conductors, yardmasters.....	-40.9%
Electronic-semiconductor processors.....	-51.1%
Electrical, electronic assemblers.....	-53.7%

Most jobs lost

Machine workers.....	-19,000
Retail-delivery drivers.....	-20,000
Stock clerks.....	-23,000
Payroll, timekeeping clerks.....	-25,000
College, university faculty.....	-32,000
Child-care workers, private household.....	-38,000
Stenographers.....	-50,000
Textile draw-out and winding-machine operators, tenders.....	-55,000
Data-entry keyers, except composing.....	-66,000
Sewing-machine operators, clothing.....	-92,000
Typists, word processors.....	-140,000
Industrial truck, tractor operators.....	-143,000
Farm workers.....	-190,000
Farmers.....	-332,000

NEW ENGINEERS

Average starting salaries for
1988 engineering graduates

	WITH B.S.	WITH M.S.
Aerospace	\$27,864	\$34,632
Chemical	\$30,768	\$33,252
Civil	\$24,948	\$28,872
Electrical	\$29,316	\$35,196
Manufacturing	\$28,248	\$32,496
Mechanical	\$29,388	\$34,392
Petroleum	\$33,840	NA

NA=Not available

Note: Averages are based on actual offers to students reported to college placement offices by March, 1988. Manufacturing engineering is the same as industrial engineering for purposes of this table.

Basic data:College Placement Council

ENTREPRENEURSHIP SUPPORT CENTER
at
Bronx Community College

Are You Ready to Start a Business?

Many people have the potential to run a business, however, we have to know if we are ready to run a business as well. Answer each question by checking the appropriate column.

How about you?

Yes No

- a. Think about why you want to own your own business. Do you want it badly enough to keep working long hours? _____
- b. Have you worked in a business like the one you want to start? _____
- c. Have you worked for someone else as a supervisor or manager? _____
- d. Have you had any business training in school? _____
- e. Have you saved any money? _____

How about the money

Yes No

- a. Do you know how much money you will need to get your business started? _____
- b. Have you counted up how much money of your own you can put into the business? _____
- c. Do you know how much credit you can get from your suppliers, the people you buy from? _____
- d. Do you know where you can borrow the rest of the money you need to start your business? _____
- e. Have you figured out what net income per year you expect to get from the business? Count your salary and your profit on the money you put into the business. _____
- f. Can you live on less than this amount so that you can use some of the income to help your business grow? _____

How about a partner?

Yes No

a. If you need a partner with money or know-how that you don't have, do you know someone who will fit - someone you can get along with?

b. Do you know the good and bad points about going it alone, having a partner, and incorporating? _____

c. Have you talked to a lawyer about a partner? _____

How about your customers?

a. Do most businesses in your community seem to be doing well? _____

b. Have you tried to find out whether businesses like the one you want to open are doing well in the area or the rest of the country? _____

c. Do you know what kind of people will want to buy what you plan to sell? _____

d. Do people like to live in the area where you want to open your business? _____

How about protecting your business?

a. Have you made plans for protecting your business against thefts - shoplifting, robbery, burglary, employee stealing? _____

b. Have you talked with an insurance agent about what kinds of insurance you need? _____

How about buying a business someone else has started?

a. Have you made a list of what you like and don't like about buying a business someone else started? _____

b. Are you sure you know the real reason why the owner wants to sell this business? _____

c. Have you compared the cost of buying the business with the cost of starting a new business? _____

d. Is the stock up to date and in good condition? _____

e. Is the building in good condition? _____

f. Will the owner of the building transfer the lease to you? _____

g. Have you talked with other business owners in the area to see what they think of the business? _____

h. Have you talked with the company's suppliers? _____

i. Have you talked with a lawyer about it? _____

Yes **No**

Yes **No**

Yes **No**

How about advertising?	Yes	No
a. Have you decided how you will advertise (for example, newspapers, poster, handbills, radio, mail)?	—	—
b. Do you know where to get help with your ads?	—	—
c. Have you watched what other businesses do to get people to buy?	—	—
How about the prices you will charge?	Yes	No
a. Do you know how to figure what you should charge for each item you sell?	—	—
b. Do you know what other businesses like yours charge?	—	—
How about buying strategies?	Yes	No
a. Do you have a plan for finding out what your customers want?	—	—
b. Will your plan for keeping track of your inventory tell you when it's time to order more and how much to order?	—	—
c. Do you plan to buy most of your stock from a few suppliers rather than a little from many, so that those you buy from will want to help you succeed?	—	—
How about selling strategies?	Yes	No
a. Have you decided whether you will have salespeople or self-service?	—	—
b. Do you know how to get customers to buy?	—	—
c. Have you thought about why you like to buy from some salespeople while others turn you off?	—	—
How about your employees?	Yes	No
a. If you need to hire someone to help you, do you know where to look?	—	—
b. Do you know what kind of person you need?	—	—
c. Do you have a plan for training your employees?	—	—
How about credit for your customers?	Yes	No
a. Have you decided whether or not to let your customers buy on credit?	—	—

b. Do you know the good and bad points bout joining a credit card plan? _____

c. Can you tell a deadbeat from a good credit customer? _____

d. Do you know what percentage of bad debts to expect? _____

How about some extra questions? Yes _____ No _____

a. Have figured out whether or not you could make more money working for someone else? _____

b. Does your family go along with your plan to start a business of your own? _____

c. Do you know where to find out about new ideas and new products? _____

d. Do you have a work plan for yourself and employees? _____

e. Have you gone to the nearest Small Business Adminstration office for help with your plans? _____

NUMBER OF QUESTIONS ANSWERED YES _____

NO _____

If you have answered all of these questions carefully, you have done some serious thinking. The results above should give you an indication of your readiness for starting a business. In addition, you will understand where you need more information and resources.

THE ENTREPRENEURSHIP CENTER

THE SUCCESSFUL ENTREPRENEUR

SELF-TEST: CIRCLE THE APPROPRIATE ANSWER

1. How were your parents employed?

- a. Both were self-employed most of their working lives
- b. Both were self-employed for some part of their working lives
- c. One parent was self-employed for most of his/her working life
- d. One Parent was self-employed at some point in their life
- e. Neither parent was ever self-employed

2. Have you ever been fired from a job?

- a. Yes, more than once
- b. Yes, once
- c. No

3. What is your family background?

- a. You were born outside the U.S.
- b. One or both parents were born outside the U.S.
- c. At least one grand parent was born outside the U.S.
- d. Your grandparents, parents and you were born in the U.S.

4. Describe your work career

- a. Primarily in small business (under 100 employees)
- b. Primarily in medium-sized business (100 - 500 employees)
- c. Primarily in big business (over 500 employees)

5. Did you operate any businesses before you were 20?

- a. Many
- b. Few
- c. None

6. What is your age?

- a. 21 - 30
- b. 31 - 40
- c. 41 - 50
- d. 51 or over

7. Where do you stand in your family?

- a. First child
- b. Middle
- c. Youngest
- d. Other (foster, adoption)

8. What is your marital status?

- a. Married
- b. Divorced
- c. Single

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9. What level of formal education have you reached?

- a. Some High school
- b. High school diploma
- c. Bachelor's degree
- d. Master's degree
- e. Doctorate

10. What is your primary motivation in starting a business?

- a. To make money
- b. You don't like working for someone else
- c. To be famous
- d. As an outlet for excess energy

11. Describe your relationship to the parent who provided most of the family income

- a. Strained
- b. Comfortable
- c. Competitive
- d. Non-existent

12. How would you chose between working hard and working smart?

- a. Work hard
- b. Work smart
- c. Both

13. On whom do you rely for critical management advice?

- a. Internal management teams
- b. External management professionals
- c. External financial professionals
- d. No one except yourself

14. If you were at the racetrack, which would you bet on?

- a. The daily double - a chance to make a killing
- b. A 10 - 1 shot
- c. A 3 - 1 shot
- d. The 2 - 1 favorite

15. Name the one ingredient you consider both necessary & sufficient for starting a business

- a. Money
- b. Customers
- c. An idea or product
- d. Motivation and hard work

16. If you were an advanced tennis player and had a chance to play a top pro like Steffie Graf, what would you do?

- a. Turn it down because she could easily beat you
- b. Accept the challenge but not bet any money on it
- c. Bet a week's pay that you would win
- d. Get odds, bet a fortune and try for an upset

17. With which do you tend to "fall in love" too quickly?

- a. New product ideas
- b. New employees

3. entrepreneurship support center

- c. New manufacturing ideas
- d. New financial plans
- e. All of the above

18. Which of the following personality types is best suited to be your right-hand person?

- a. Bright and energetic
- b. Bright and lazy
- c. Dumb and energetic

19. Why do you accomplish tasks better?

- a. You are always on time
- b. You are super organized
- c. You keep good records

20. Which do you hate to discuss?

- a. Problems involving employees
- b. Signing expense accounts
- c. New management practices
- d. The future of the business

21. Which would you prefer?

- a. Rolling dice with a 1 in 3 chance of winning
- b. Working on a problem with a 1 in 3 chance of solving it in a set time

22. If you could choose, which of the following competitive professions would you follow?

- a. Professional golf
- b. Sales
- c. Personnel counseling
- d. Teaching

23. Would you rather work with a partner who is a close friend or work with a stranger who is an expert in your field?

- a. The close friend
- b. The expert

24. When do you enjoy being with people?

- a. When you have something meaningful to do
- b. When you can do something new and different
- c. Even when you have nothing planned

25. Do you agree with the following statement?
"In business situations that demand action, clarifying who is in charge will help produce results"

- a. Agree
- b. Agree with reservations
- c. Disagree

26. In playing competitive games, what most concerns you?

- a. How well you play
- b. Winning or losing
- c. Both
- d. Neither

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SCORING

1. a = 10 b = 5 c = 5 d = 2 e = 0
2. a = 10 b = 7 c = 0
3. a = 5 b = 4 c = 3 d = 0
4. a = 10 b = 5 c = 0
5. a = 10 b = 7 c = 0
6. a = 8 b = 10 c = 5 d = 2
7. a = 15 b = 2 c = 0 d = 0
8. a = 10 b = 2 c = 2
9. a = 2 b = 3 c = 10 d = 8 e = 4
10. a = 0 b = 15 c = 0 d = 0
11. a = 10 b = 5 c = 10 d = 5
12. a = 0 b = 5 c = 10
13. a = 0 b = 10 c = 0 d = 5
14. a = 0 b = 2 c = 10 d = 3
15. a = 0 b = 10 c = 0 d = 0
16. a = 0 b = 10 c = 3 d = 0
17. a = 5 b = 5 c = 5 d = 5 e = 15
18. a = 2 b = 10 c = 0
19. a = 5 b = 15 c = 5
20. a = 8 b = 10 c = 0 d = 0
21. a = 0 b = 15
22. a = 3 b = 10 c = 0 d = 0
23. a = 0 b = 10
24. a = 3 b = 3 c = 10
25. a = 10 b = 2 c = 0
26. a = 8 b = 10 c = 15 d = 0

YOUR ENTREPRENEURIAL PROFILE**

SCORE

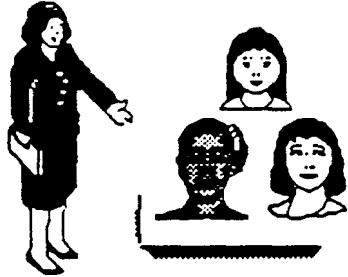
235 - 285	Successful entrepreneur. Someone who starts multiple businesses successfully
200 - 234	Entrepreneur. Starts at least one business successfully
185 - 199	Latent Entrepreneur. Always wanted to start a business
170 - 184	Potential Entrepreneur. has the ability but has not started thinking about starting a business
155 - 169	Borderline Entrepreneur. No qualifications but still in the running. Would need more training to succeed
Below 154	Hired Hand!

**Entrepreneur Survey of 1500 persons by the Center for Entrepreneurial Management

The average score for the entrepreneurs in the CEM survey was 239. CEM found that entrepreneurs come from homes where one parent was self-employed for most of his/her working life. Many had been enterprising as youngsters - working a paper route, for example. Nearly 60% are the oldest child in the family and more than 75% are married. Some 56% said they wanted to start a business primarily because they disliked working for others.

Women in Business: How well are they doing?

by Pauline L. Black



Women-owned businesses are finally flexing their economic muscle. And what a show of strength they are making as their numbers approach the 3 million mark. Their ranks are swelling rapidly as more and more executive and professional women are leaving the sterile corridors of corporate America for the pursuit of self-determination and greater self-actualization. (A Fortune Magazine survey of 1,039 female MBA graduates of 1976, found that 30% of these women had bailed-out and were either self-employed, homemakers or unemployed.) Women business enterprises (WBEs) are the fastest growing segment of new business development in the nation -- nearly three times the rate of new male-owned businesses. Essentially, the lastest available national statistics from the recently released Census Bureau's 1982 U.S. Economic Census Report are positive and strong in their overall measurement of women in business. Some of the findings are at once

ture direction and courses of actions. Indeed, the report's assessment is not only insightful for what it actually tells us about what has been accomplished but it is equally important for what it implies about what must still be done!

WBEs earn less money in their businesses than their male-counterparts

THE NUMBERS

Women-owned businesses now total some 2,884,450 companies throughout the nation. This amounts to 23.9%, nearly, 25%, of all the existing businesses in operation in the United States today. The combined total revenue generated by these business establishments amounted to \$98.3 billion, however, this accounted for only 10.2 percent of the total income earned by all firms within U.S. industry sectors. Simply stated, WBEs own a bigger share of small businesses but earn less money as a group.

Women-owned businesses total 3 million nationally

striking, if not impressive; revealing telling patterns and trendlines about WBE activity in the marketplace. Moreover, the findings offered will proved to be instructive for fu-

In addition, the Census study findings also revealed that half of the WBEs, some one million-plus companies, had reported earnings of less than \$5,000 annually. Among all women-owned businesses, WBEs with earnings of \$1 million or more amounted to 28%. But this represented

only three-tenths of one percent (0.3%) of all U.S. companies generating income of \$1 million or more.

One interesting aspect from the survey is the organizational structure of women-owned businesses. The way in which they choose to structure their businesses has to a large degree a direct bearing on how effectively they can leverage their businesses for future expansion, capitalization, and market diversification. Ninety-two percent (2.7 million) of all women-owned businesses are single proprietorships.



BUSINESS SIZE, LOCATIONS AND TYPES

Not surprising, the average women-owned company employ only one worker, usually the proprietor. However, there are some 311,662 WBE firms that are active employers in the marketplace; these businesses with paid employees amounted to 10.8 percent of all women-owned businesses generating 66.5% of total WBE gross receipts. In addition, there are 688 WBEs that employ 100 or more employees. They generated

\$5.7 billion in gross receipts, however, these job providing WBEs represented only 0.2% of all employer firms nationally.

Four states account for 30% of all women businesses and \$37.8 billion of their total gross receipts. They are California, the largest host state with 396,294 companies generating \$12 billion in gross receipts; Texas with 220,221 firms; followed by New York with only 189,675 firms but ranked second in gross revenues at \$8.4 billion and New Jersey with 67,586 businesses.

Within the ten largest SMSAs (standard metropolitan statistical areas) women-owned businesses accounted for 21.8 percent of all WBEs. Additionally, they contributed 23.4% of total gross receipts generated by women business enterprises.

Better than 92% of all WBEs are in the service sector of the economy and are heavily concentrated in the "helping professions" or "personal service" sectors — the business version of nurturing. These business entities accounted for 63.2% of all receipts generated by WBEs. At the head of the top ten list is beauty shops (personal services), accounting for 419,113 businesses; they accounted for \$5.5 billion in earnings. Real estate agencies, the second most frequently owned businesses by women with 225,551 establishments, contributed \$4.7 billion. The third largest category of women-owned businesses, health services companies at 128,389, generated \$3.9 billion in gross receipts. The single highest income sector, \$6.6 billion, for WBEs is eating and drinking establishments which ranks fourth in frequency of ownership. (See box for complete top-ten listing).

Although these types of businesses can be quite profitable, providing high liquidity and cashflow, as well as substantial personal wealth, however, unless they are expanded into chains or franchise operations, they, essentially, remain poor vehicles for effective leveraging. Banks, venture capitalists, and many private investors still view these types of establishments as basically "mom and pop stores" unless they are positioned for regional or national expansion via franchising or aggressive marketing by company owners/management.

WBEs account for 49,727 manufacturing businesses or about 16% of all U.S. manufacturing companies. These businesses generated \$5.3 billion in revenues -- almost 10% of the total receipts for all manufacturing firms. In high technology areas such as electric/electronics and instrumentation/related products, WBEs accounted for 688 companies, generating \$135 million in sales and 152 firms, accounting for \$51 million, respectively.

As the 1990s approach, this is the frontier that women business owners must set-up "housekeeping" and achieve greater representation in number of businesses owned and revenues generated.

ENTREPRENEUR VS SELF-EMPLOYED

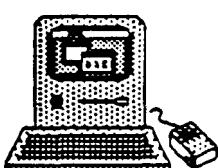
Virtually, all of the 2.8 million women business owners can be characterized as enterprising, however, not all of them can be called entrepreneurs. And please rest assured that nothing pejorative is intended. But the fact remains that when one uses the term entrepreneur, you are not referring to someone who is self-employed. According to the definition of an entrepreneur, such as the one offered by noted author and consultant, Rosebeth Moss Kanter, namely, an individual who is responsible for "...the creation of new social value that is going to grow and create jobs for other people", thus given the current pattern and trend of women in business, WBEs cannot yet claim rights to the coveted status of entrepreneur. And both the Census Report and a recent survey conducted by Inc. Magazine bears this out. Let's look closer.



The Census study points out there are only 89,000 women-owned corporations. And that less than one-half percent of WBEs earn \$1 million dollars or more annually. In fact, there are only 236 women business enterprises that generate \$5 million or more in sales annually - - most are members of the prestigious national organization, The Committee of 200, an advocacy trade association formed by them.

In addition, in its annual survey, Inc. reported that only 4 percent of "The Inc. 500" companies were owned by women. And in response to the minuscule representation of women

businesses in the survey, editor Ellen Wojahn was prompted to ask in her titled article: "Why Aren't There More Women In This Magazine", Inc., July 1986. She observes that "the archetype business heroes generally fall into three categories: the innovator, the salesman, and the wheeler-dealer. And one reason you don't hear much about business women is that these are role models to which very few women aspire." This tends to oversimplify the problem but contains a great deal of merit. "Women tend to cluster in what are the business equivalents of the helping professions... personnel, travel, catering, advertising and public relations.



Moreover, in a world in which banks and venture capitalists still perceive women as bad risks, these types of businesses require very little start-up capital", Ms. Wojahn notes. The Inc. survey found that women relied twice as much as men on family monies to fund their ventures.

CONSERVATIVE BUSINESS STRATEGIES COST... DEARLY

In the Inc. survey, a comparative analysis was done between women and men entrepreneurs. The study revealed some compelling differences in the way WBEs manage and operate their firms. As the statistics bear-out, collectively women business owners tend to be much more conservative in managing their company activities than their male counterparts. Among some of Inc.'s conclusive findings are WBEs:

- a) show a strong inclination to keep "tight reins" over their companies.
- b) are "less likely to delegate day-to-day responsibilities.
- c) are unlikely to groom an in-house heir to run the business in the future.
- d) are "less eager" to go public with their firms.

Additionally, the Inc. survey indicated that the strong motivational factors leading women to business ownership were:

a) limited future advancement prospects on their jobs - 33% of the women cited this but men mentioned this only 17% of the time and b) to make more money; men cited to be the boss more frequently. Although women wanted to make more money, in actuality they made less... 68% of the women earned salaries of \$100,000 or less but only 44% of the men reported salaries at this level.

Among some of the other notably survey findings in how WBEs differ in their business management from men, included the area of capitalization. For example, each \$24 dollars raised in outside capital by The Inc. 500 firms, the women-owned companies raised only \$1 (no, this is not a misprint) of outside capital. Further, male respondents raised an average of \$2,177,490 in outside capital while women raised only \$91,390...

TOP TEN WBEs BUSINESSES

TYPE OF BUSINESS	NO. OF WBE FIRMS	GROSS RECEIPTS (\$ in millions)
1. Beauty Salons	419,113	\$ 5,500
2. Real Estate Agencies	225,551	4,733
3. Health Services	128,389	3,989
4. Restaurants and Bar	66,811	6,684
5. Special Trade Contractors	47,219	2,497
6. Food Stores	37,635	6,047
7. Apparel and Accessory Stores	29,130	2,446
8. Wholesale Trade (nondurable)	22,231	5,297
9. Auto Dealers/ Service Stations	14,353	4,754
10. Wholesale Trade (durable)	12,021	3,893
TOTAL	1,002,453	\$45,840

Source: U.S. Census Bureau

men generated a staggering 24 times more in outside capital. (It must be noted that in most instances, WBEs did not seek any external equity or debt capital investment opportunities, however, one is compelled to ask why not, since any growth-oriented business can benefit from an infusion of dollars.) Consequently, women realize less financial potential from their businesses because they are so underleveraged.

* APPROXIMATE NUMBER OF MINORITY SUPPLIERS IN ENERGY-RELATED BUSINESSES

INDUSTRY	BUSINESS TYPE	NO.
Chemical		18
	Adhesives/Sealants	1
	Chemicals Technical Laboratory	2
	Chemicals-Industrial & Food Grade	13
	Suppliers	2
Climate Control		6
	Air Conditioning Sales & Service	1
	Contractor-Heating Venting Air Cond.	2
	Heating	3
Construction		55
	Aluminum Siding	1
	Building Materials	3
	Carpentry	1
	Dry wall/Acoustical Ceiling	1
	Fencing	2
	General Contractor	35
	Masonry/Concrete	6
	Mechanical Contractor	2
	Paving	6
	Roofing	7
Consultants		1
	Electrical Engineering Consultants	1
Electrical		32
	Batteries-Other Than Auto	2
	Cable Harness	2
	Cable/Harness/Wire Assy.	1
	Circuit Boards	1

* APPROXIMATE NUMBER OF MINORITY SUPPLIERS IN ENERGY-RELATED BUSINESSES

INDUSTRY	BUSINESS TYPE	NO.
	Electronic/Hydraulic Systems Designer	1
	Electric Light Fixtures	1
	Electrical Contracting	19
	Electrical Equipment	2
	Electrical Hydraulic Pneumatic	1
	Electro-mechanical relays	2
Energy		40
	Coal/Coke Sales	1
	Energy Conservation	1
	Fiberglass Fabrication	1
	Fuel Cells Mfr.	1
	Fuel Oil Distributors	22
	Gas Turbine/Generators	1
	Insulation Installation	1
	Off Shore Transport	1
	Oil Salvage	1
	Petroleum Products	5
	Power Systems/Supplies	2
	Solid/Hazardous Waste Mgmt.	1
Industrial Hardware/Supplies		14
	Gases, Compressed Bulk	1
	General Suppliers	3
	Molding	1
	Piping Specialists	1
	Production Wire/Gauges	1
	Screw Fasteners	1
Machinery & Motors		25

* APPROXIMATE NUMBER OF MINORITY SUPPLIERS IN ENERGY-RELATED BUSINESSES

INDUSTRY	BUSINESS TYPE	NO.
	Air Compressors	2
	Aircraft Engine Components	2
	General Industrial Suppliers	10
	Hoists/Cranes/Monorail	1
	Precision Machine Parts	10
Maintenance		35
	Air Fresheners	1
	Building Maintenance	2
	General Suppliers	26
	Landscaping	1
	Plumbing	4
	Refuse Collection	1
Metal		6
	Foundry	3
	Pipes Valve Fitting	2
	Raw Materials Services	1
Professional Services		36
	Architects, Ind-Comml.	15
	Engineering Consultants	14
	Environmental/Pollution	1
	Laboratory Supplies	1
	Landscaping Architects	1
	Market Analysis & Site	1
	Property Management Consultant	1
	Water Analysis.Tech/Lab	1
Retail Sales		1
	Venetian Blinds/Window Shades	1

* APPROXIMATE NUMBER OF MINORITY SUPPLIERS IN ENERGY-RELATED BUSINESSES

INDUSTRY	BUSINESS TYPE	NO.
Transportation		4
	Auto Sales & Service	2
	Equipment Transport	1
	Vehicle Leasing	1

U.S. DEPARTMENT OF ENERGY
OFFICE OF MINORITY ECONOMIC IMPACT

Resources for Entrepreneurship Training Program
in Energy-Related Fields

From: TPC Training Systems
Suite 1500
310 South Michigan Avenue
Chicago, IL 60604
(312) 537-6610

Videotapes

Construction Materials (AV-1065)
Insulating Materials (AV-1066)
Basic Electricity: Direct Current (BE12)
Basic Electricity & Electronics: Direct Current (B801)
Basic Electricity & Electronics: Alternating Current (B802)
Electronic Power Supplies (B806)
Basic Air Conditioning (B830)
Basic Plumbing & Pipefitting (B730)
Basic Plumbing & Plastic Piping (B731)
Welding Safety (B515)

Training Units

Instructional Support Manuals including lesson plans, transparencies, tests and answer keys, student texts, subject index.

Asbestos: Overview of Asbestos & Health Effects
Regulatory requirements
Liability and Risk Control
Assessment/setting priorities
Abatement options
Operations and Maintenance Programs
Glove Bag Techniques
Respiratory Protection Program
Disposal and Emergency Planning

HVAC (Heating, Ventilation, Air Conditioning) Apprentice Training Program (includes student workbook, 49 lessons, trainees guide and instructors lesson plan)

Topics: HVAC Safety
HVAC Math
Refrigeration Practices
Blueprint Reading & Construction Information
Drafting for HVAC
Basic Refrigeration Systems 1
Basic HVAC Electricity & Electronics

Energy Conservation in Buildings (5 unit course - 3527, 50 hours, 25 lessons).

Topics: Examining Energy Conservation Basics
Reducing Energy Losses in Building Structures
Increasing Heating/Cooling System Efficiency
Conserving Energy in Mechanical Systems
Conserving Energy in Electrical Systems

AACJC Publications

American Association of Community & Junior Colleges
Energy Communications Center
One Dupont Circle, N.W., Suite 410
Washington, D.C.
(202) 293-7050

1. Energy Education Programs: Perspectives for Community, Junior and Technical Colleges
2. Shoulders to the Wheel: Energy-Related College/Business Cooperative Agreements

Enterprise Media
374 Congress Street
Suite 400
Boston, MA 02210
(617) 482-5001

Videotape Presentations with Workbooks
"The Entrepreneurs, Volumes 1 through 5"

National Technical Information Service
U.S. Department of Commerce
5285 Port Royal Road
Springfield, VA 22161
(703) 487-4600

"Directory of Federal and State Business Assistance"

Plants Sites and Parks
10240 West Sample Road
Coral Springs, Fl 33065
(305) 753-2660

"Utility/Energy Update"
"ASbestos: What You Don't Know Can Hurt You" (Pull-out)

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Organizations

The School for Entrepreneurs
The Tarrytown Group
Tarrytown Conference Center
Box 222
Tarrytown, NY 10591
(914) 591-8300

TWG (The Washington Group)
c/o John Adams
Resources for Human Systems Development
2914 27th Street
N. Arlington, VA 22202
(703) 524-8126

Inner Game Corporation
127 Berrington Place
Los Angeles, CA 90049
(Sports as a metaphor for learning about business,
relationships and life.)