

Relevant
Opportunities &
Strategies for
Excellence



Business Education's Threats & Opportunities: Past, Present, and Future



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Business Education: past, present, and future.

- * Are there more threats and opportunities now than in the past?
- * Will the future bring more threats and opportunities than now?




Relevant
Opportunities &
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Let's discuss what "threat" means, then poll 1.

What are some current threats?

 You may respond at [PollEv.com/dittmar](https://www.poll-ev.com/dittmar) when the presenter pushes this poll

 Text **2280** and your message to **22333**

 Tweet **@poll 2280** and your message

Twitter example

@poll 22333 2280 your message i.e. administrator(s) decisions



Business Education

As business educators, two facets converge

- Student need (outcomes & learning styles)
- Employer/workplace need

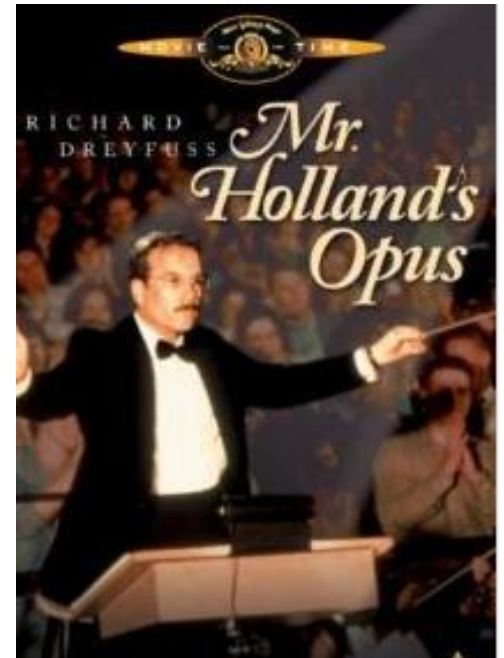
And then getting them both “right” at the same time.





Media on Education

- Mr. Holland's Opus 1995 (showed 30 years in education ending with budget cuts eliminating his program).





Media on Education

- To Sir with Love 1967
(showed student apathy until they found out someone cared and then students became engaged).
- Others.





Education Decades

Poll 2: Which decade did you enter into Bus. Ed?

1950s

1960s

1970s

1980s

1990s

2000s

2010s

2020s


2030s



Electronic adding machines being demonstrated at an open day at Stockton and Billingham College in 1979. This was the height of office technology in the late 1970s. Our picture shows Helen Taylor, left, and Sandra Moore at the keyboards.



Which decade did you enter "business education."

 You may respond at PollEv.com/dittmar when the presenter pushes this poll

 Text a **KEYWORD** to 22333  Tweet **@poll** and a **KEYWORD**

1950s	48651
1960s	49172
1970s	49175
1980s	49207
1990s	49210
2000s	49310
2010s	30908



Demographics

2001-present = New Silent Generation (Gen Z)

1980-2000 = Millennials (Gen Y)

1965-1979 = Generation X

1946-1964 = Baby Boom

1925-1945 = Silent Generation

1900-1924 - G.I. Generation





Alternate Generational Names

From Population Reference Bureau

- 2002 – present – Generation Z
- 1983-2001 - New Boomers
- 1965-1982 - Generation X
- 1946-1964 - Baby Boomers
- 1929-1945 - Lucky Few
- 1909-1928 - Good Warriors
- 1890-1908 - Hard Timers
- 1871-1889 - New Worlders





Generation Y

Generation Y, sometimes referred to as "Millennials, "Echo Boomers", or jokingly as "Generation Why?", refers to cohort of individuals born between 1982 and 1994. These are usually the children of Baby Boomers and people in early Gen X. Generation Y grew up with many world-changing events including the rise of mass communication and the Internet. The Y Generation is known as a Culture War "battleground" with growing disagreements between conservative and progressive perspectives. 1976-2001 is the widest possible definition commonly cited, but generally speaking this generation starts with the 1980s and ends in the middle of the 1990s.

Generation Z

Generation Z is the generation of people living in Western or First World cultures that follows Generation Y. Experts differ on when the earliest members of Generation Z were born, ranging from 1990 to 2001, though a majority opinion claims about 1996. Several other names have been used to refer to this population group, including "Generation V" (for virtual), "Generation C" (for community or content), "Generation Cox", "The New Silent Generation", the "Internet Generation", the "Homeland Generation", or even the "Google Generation".



Vocational-Technical Education

Vocational-Technical Education: Major Reforms and Debates 1917-Present.

Hayward, Gerald C.; Benson, Charles S.

U.S. Department of Education

Office of Vocational and Adult Education

1993

<http://eric.ed.gov/?id=ED369959>



Vocational Technical Education Reforms

This report traces the historical evolution of vocational education in the United States and the impact of federal legislation in guiding that evolution. It states that since the earliest days of the country, vocational-technical education has been a largely decentralized, state- and locally-governed enterprise. However, federal initiatives affecting vocational-technical education programs began to emerge in the latter part of the 19th century. Most of these changes have come about since 1917 when the first major federal legislation for vocational-technical education, the Smith-Hughes Act, was enacted. Following coverage of the Smith-Hughes Act and its impacts through the years, the report outlines the Vocational Education Act of 1963, the federal initiatives undertaken during 1964-1976, the Carl D. Perkins Vocational Education Act, and vocational-technical education in the 1990s, especially emerging trends such as academic and vocational integration, and tech prep. The report traces these initiatives and offers an analysis of where vocational-technical education is headed in the next century. Contains 26 references. (KC)

Descriptors: [Educational History](#), [Educational Legislation](#), [Educational Needs](#), [Educational Trends](#), [Federal Legislation](#), [Futures \(of Society\)](#), [Postsecondary Education](#), [Secondary Education](#), [Technical Education](#), [Vocational Education](#)

Publication Type: Information Analyses

Education Level: N/A

Audience: N/A

Language: English

Sponsor: N/A

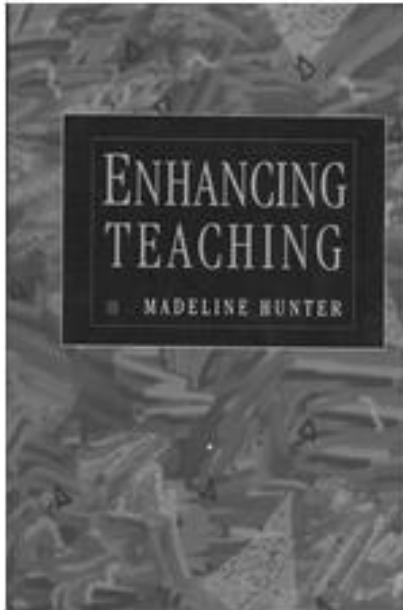
Authoring Institution: Office of Vocational and Adult Education (ED), Washington, DC.

Identifiers: Carl D Perkins Vocational Education Act 1984; Smith Hughes Act



ITIP

<http://www.hope.edu/academic/education/wessman/2block/unit4/hunter2.htm>



Madeline Hunter developed a **teacher "decision-making" model** for planning instruction. Her model is called ITIP (Instructional Theory into Practice) gained wide use in teacher training and school districts. There are three categories which are considered basic to ITIP lesson design.



ITIP's Three Categories

1. Content: Within the context of grade level, content standards, student ability/needs, and rationale for teaching, the teacher decides what content to teach.
2. Learner Behaviors: Teachers must decide what students will do (a) to learn and (b) to demonstrate that they have learned.
3. Teacher Behaviors: Teachers must decide which “research-based” teaching principles and strategies will most effectively promote learning for their students.

1. **Learning Objective)** Select an objective at an appropriate level of difficulty and complexity, as determined through a task analysis, diagnostic testing, and/or congruence with Bloom's cognitive taxonomy.

2. (**Anticipatory Set**) Motivate instruction by focusing the learning task, its importance, or the prior knowledge/experience of the learners.



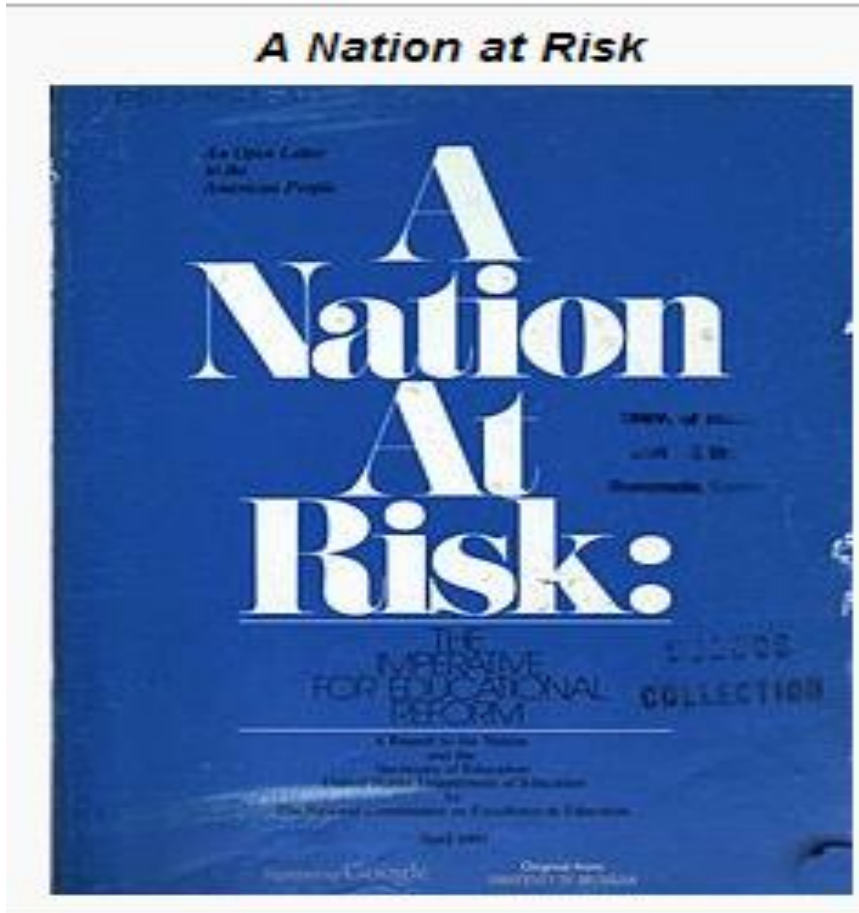
3. State the **lesson objective(s)** to the students.

4. (**Input**) Identify and teach main concepts and skills, emphasizing clear explanations, frequent use of examples and/or diagrams, and invite active student participation.

5. **Check for understanding** by observing and interpreting student reactions (active interest, boredom) and by frequent formative evaluations with immediate feedback. Adjust instruction as needed and reteach if necessary.

6. Provide **guided practice** following instruction by having students answer questions, discuss with one another, demonstrate skills, or solve problems. Give immediate feedback and reteach if necessary.

7. Assign **independent practice** to solidify skills and knowledge when students have demonstrated understanding.



A Nation at Risk: The Imperative For Educational Reform is the title of the 1983 report of American President Ronald Reagan's National Commission on Excellence in Education. Its publication is considered a landmark event in modern American educational history. Among other things, the report contributed to the ever-growing assertion that American schools were failing, and it touched off a wave of local, state, and federal reform efforts.



OBE/NCLB

Most states and districts in the 1990s adopted [Outcome-Based Education](#) (OBE) in some form or another. A state would create a committee to adopt standards, and choose a quantitative instrument to assess whether the students knew the required content or could perform the required tasks. The standards-based National Education Goals ([Goals 2000](#)) were set by the U.S. Congress in the 1990s. Many of these goals were based on the principles of [outcomes-based education](#), and not all of the goals were attained by the year 2000 as was intended. The standards-based reform movement culminated in the [No Child Left Behind Act](#) of 2001 (nation-wide mandate in the United States).



Competency Based

Competency based Curriculum traces its roots in Moscow in the 1860's when Victor della Vos developed methods for task analysis. It later trailed into American interests almost a century later. Popular in the United States in the 1970s in the performance-based vocational teacher education movement, competency approaches rode a new wave in the 1990s with the National Vocational Qualifications (NVQs) system, in England and Wales(begun in 1986), New Zealand's National Qualification Framework, the Competency Standards endorsed by Australia's National Training Board (NTB) and the Secretary's Commission on Achieving Necessary Skills (SCANS) and the National Skills Standards initiative in the United States.



SCANS

Secretary's Commission on Achieving Necessary Skills

In 1990, the Secretary of Labor appointed a commission to determine the skills our young people need to succeed in the world of work. The commission's fundamental purpose was to encourage a high-performance economy characterized by high-skill, high-wage employment. Although the commission completed its work in 1992, its findings and recommendations continue to be a valuable source of information for individuals and organizations involved in education and workforce development.



UNITED STATES DEPARTMENT OF LABOR
Employment & Training Administration



Are there more threats and opportunities now than in the past?

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Adler 15

Bing 1

Bing 2 (Student)

Corona 3 folding

Daugherty

Emerson

Empire

Ford

Fox Portable 1

Granville Automatic

Ideal A

Kanzler 1

Molle 3

National (portable) 5

Noiseless Portable

Piccola

Pittsburg 10

Royal 1

Royal 10

Royal Quiet De Luxe

Sholes Visible

Smith Premier 10

Standard Folding

Sun 2 Standard

Underwood 5

Yost 15

The Virtual Typewriter Museum

Keyboard Typewriters

<http://www.typewritermuseum.org/collection/index.php3?machine=royal1&cat=kf>





Office Powerhouses

Memos being circulated around the office

Dictating machines

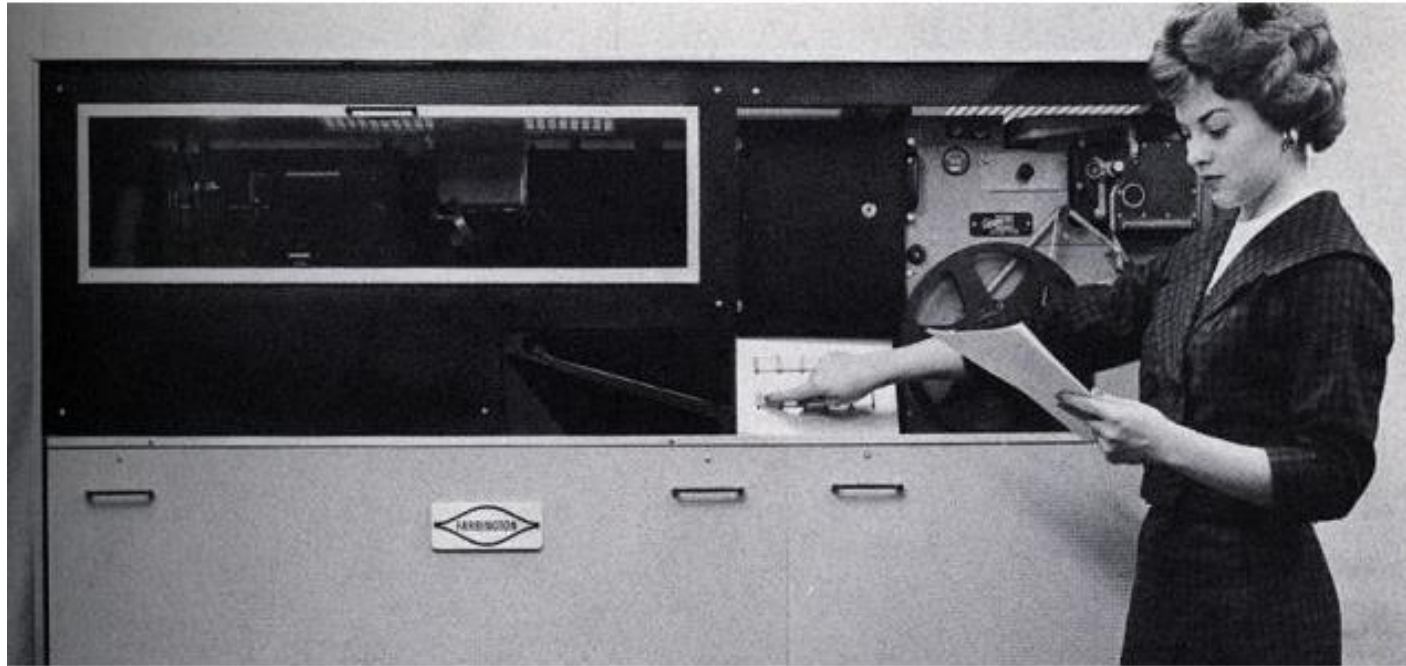
Stenographers

Typewriters

Secretaries

Telex





Reading machine circa late 50s

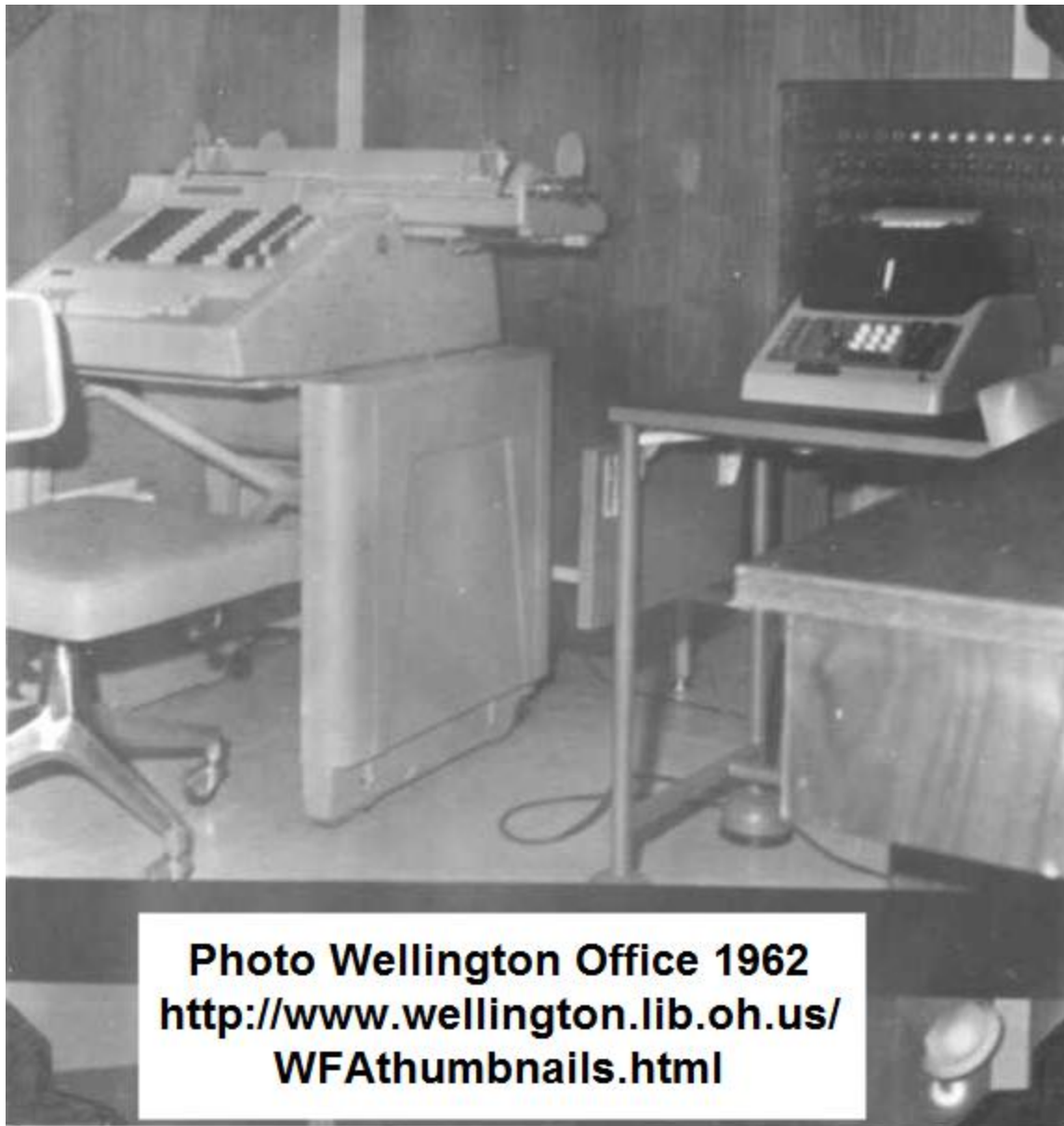


Photo Wellington Office 1962
**[http://www.wellington.lib.oh.us/
WFAthumbnails.html](http://www.wellington.lib.oh.us/WFAthumbnails.html)**





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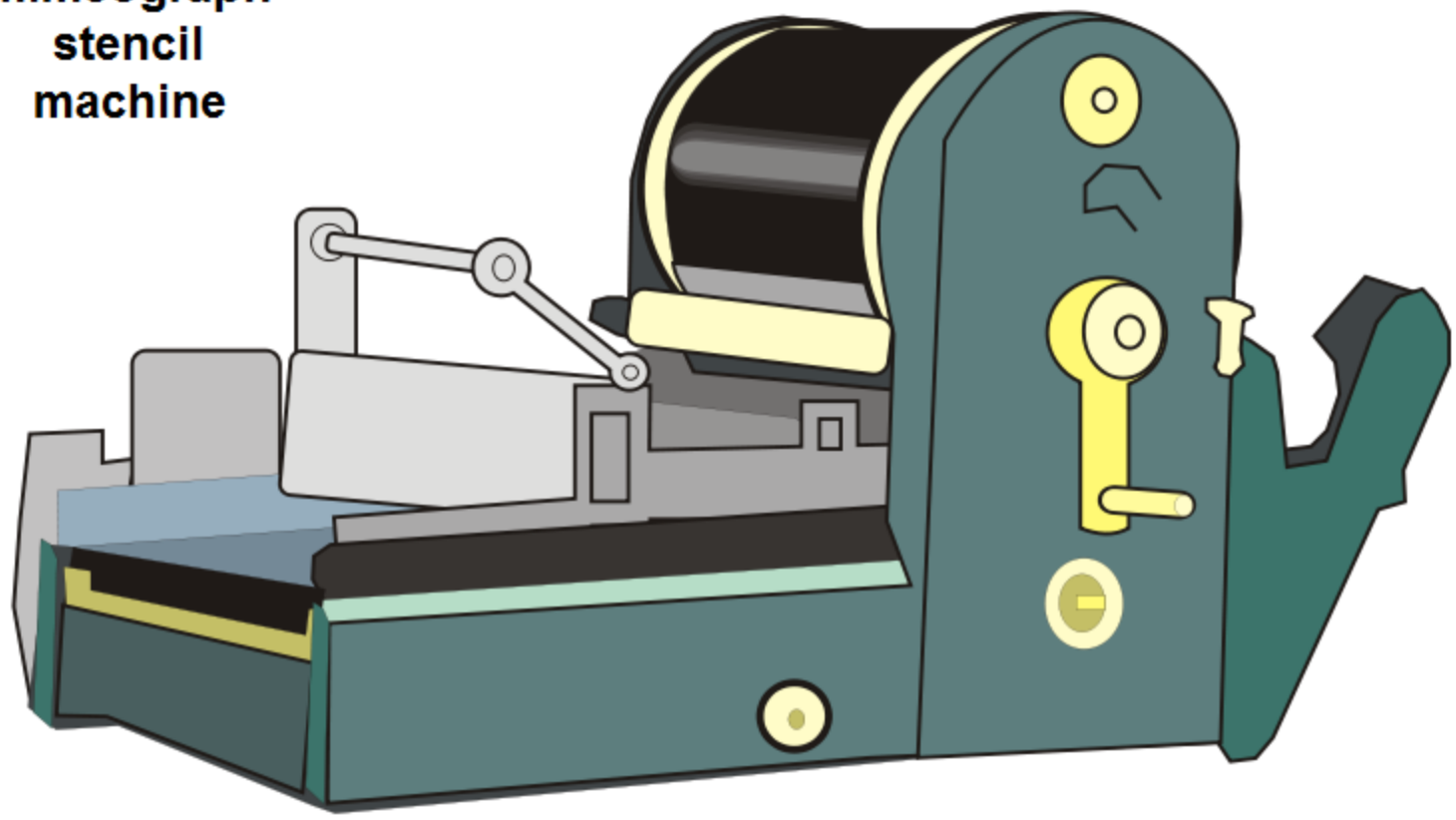
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Ditto
BRAND



**mimeograph
stencil
machine**

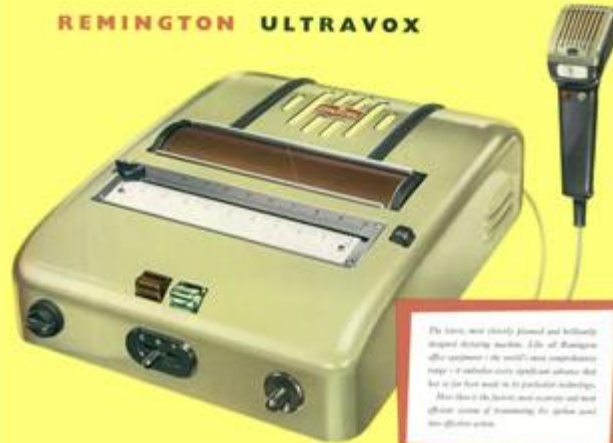




Dictating machines



REMINGTON ULTRAVOX



The latest, most clearly filmed and brilliantly
designed dictating machine. It's all Remington
efficiency combined in the world's most comprehensive
range - a complete dictating system that
has it for every need in the professional marketplace.
Also shown are the latest and greatest and best
efficiency system of transmitting the spoken word
and capturing it.



History of Computers

1960s and 1970s the term computer referred to main frames, huge computers, often water cooled, usually built by IBM, which sat in a computer center. This period also saw the development of minicomputers such as the Digital Equipment PDP-11 and Vax, and the development in the research community of the Unix operating system, but Unix did not have much of a commercial impact until nearly two decades after its initial development.

Late 1970s and early 1980s, the personal computer, also known as the microcomputer, came on the scene, and revolutionized what computing was all about.

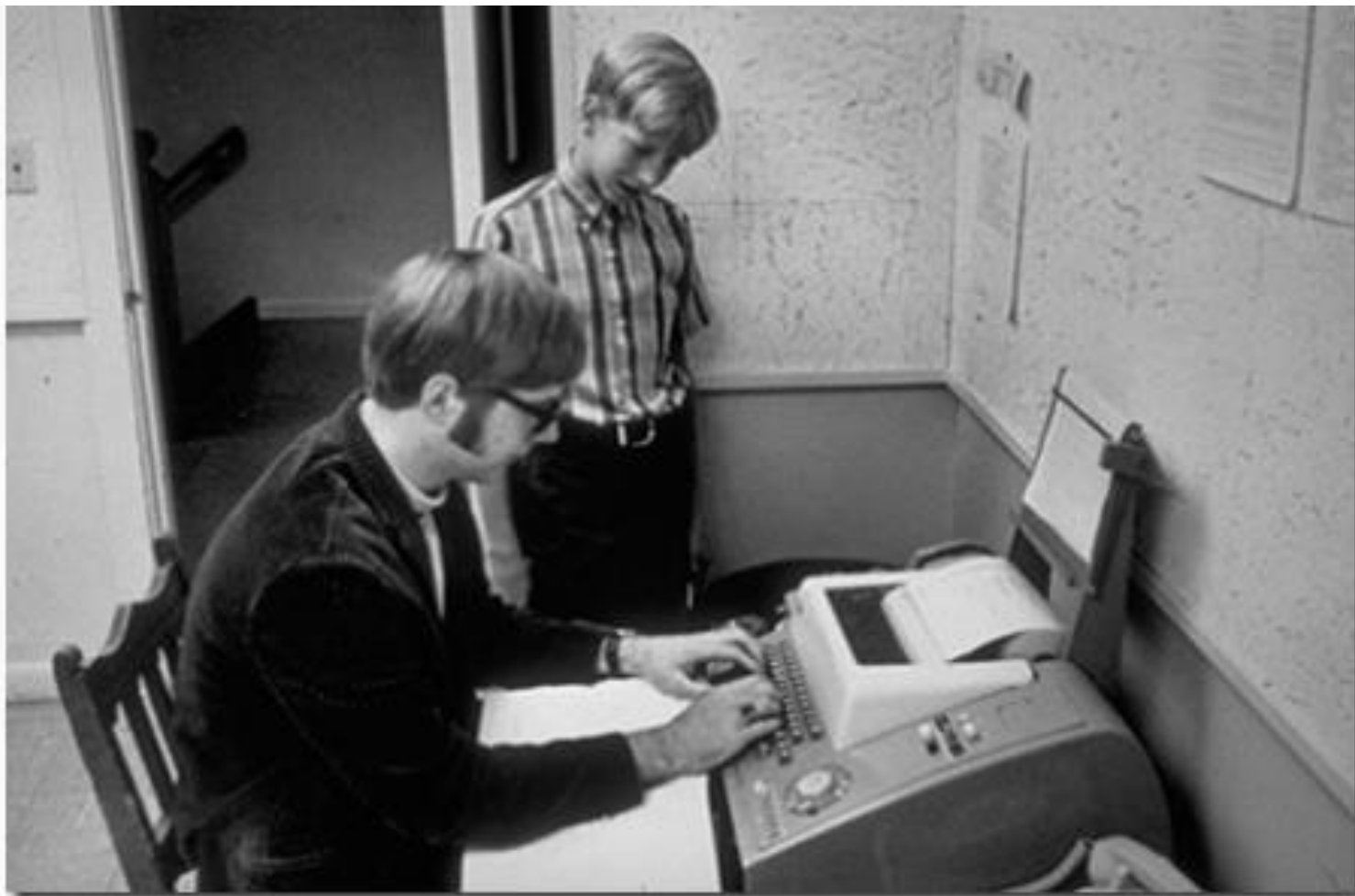


History of Computers

Ted Hoff the developer of the first microprocessor, worked for Intel was a Rensselaer graduate. The Intel 4004, an entire cpu on one chip (4 bit word) 1971.

Followed a year later with the Intel 8008, and the 8080 a few years later (1975).

The Altair 8800 manufactured by MITS was the first microcomputer. (No keyboard, no monitor, it couldn't do anything); but it could hook up to a teletype, and Bill Gates and Paul Allen wrote a basic interpreter for it.



Bill Gates and Paul Allen at Lakeside High, using a teletype to connect to a mainframe



History of Computers

The first PC OS which became more or less standard was the CP/M Gary Kildall, Digital Research.

IBM initially dismissed the PC as a toy, but in the late 1970s realized how important it would be.

When IBM decided to enter the PC market, they needed an operating system. They first went to see Gary Kildall, but apparently he refused to sign the extensive non-disclosure agreements that IBM required. The IBM people went to their second choice, Bill Gates, who ran a small software development company in Seattle which developed compilers.



History of Computers

According to popular legend, IBM did this because a top IBM executive was a friend of Bill's mother. Not knowing any better, Bill Gates signed the non-disclosure agreements without really reading them, and after some negotiations, he agreed to develop the operating system for the new IBM personal computer. The key clause in the contract stated that he was free to sell his operating system to other companies as well as IBM. There was only one small problem. Bill Gates had never written an operating system. He knew of a company called Seattle Computer Products which had written an operating system similar to CP/M called QDOS (Quick and Dirty Operating System). It consisted of about 4,000 lines of code. Bill Gates bought this OS for \$50,000, made some modifications, and presented it to IBM as MS-DOS (Microsoft Disk Operating System).



Apple
Macintosh
Circa 1984

IBM PC
circa early 80s





http://www.aimresearch.org/uploads/File/Publications/Academic%20Publications%202/Uk_Business_Schools.pdf

Obsolete Business Schools

A team of AIM Scholars attended the Forum and immediately afterwards set about synthesizing some of the key messages to emerge from the Forum and linking these to the wider literature. Debates about the relevance and value of business schools have raged for years. Accepting this context the AIM Scholars have sought to review these debates and to re-evaluate them in light of the environment facing business schools in the UK today.

The report is aimed at those directly involved in the future direction of UK business schools – particularly business school deans and senior managers, their advisory boards and university vice-chancellors. But, it is also relevant to practitioners, policymakers and stakeholder groups who are concerned that this major segment of UK higher education makes the best possible contribution to improving management practice and developing the UK economy.



[http://books.google.com/books?id=sQ7RAQAAQBAJ
&lpg=PA113&ots=vdNrW744kc&dq=business%20sch
ools%201960s&pg=PA114#v=onepage&q=business%
20schools%201960s&f=false](http://books.google.com/books?id=sQ7RAQAAQBAJ&lpg=PA113&ots=vdNrW744kc&dq=business%20schools%201960s&pg=PA114#v=onepage&q=business%20schools%201960s&f=false)

History of Business schools. Points out the 50's and 60's era and struggles to remain vital to economic growth.




Visit these websites

- Dr. Maku "world in 2030" CuNY speaker 2.9 million views <https://www.youtube.com/watch?v=219YybX66MY>
- Dr. Michio Kaku are we ready for age of abundance <https://www.youtube.com/watch?v=ceEog1XS5OI>
- Education for change; change for education https://www.youtube.com/watch?v=BHiby3m_RyM
- 6 Ways Tech Changes Education Forever: <http://www.inc.com/issie-lapowsky/7-ways-tech-changes-education.html>
- School 2033: <http://www.spinedu.com/school-2033/#.UuQLLhDnaM8>



Periodic Table of the Internet

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Li 7	Sk 2,378															Bb 8,043	Fb 29	Pr 110,962	Os 134,097	Ze 23,593	Nt 152									
Ak 16	Tt 8,127	Tc 453	Gg 24	Pa 20,671	Lh 3,670	Eb 3	Ms 11	Az 9	Ut 12	Fr 40	Md 49	Mk 8,544	Jo 470	Ya 146,195	Gr 149,876	An 39,033	Bc 177													
Lc 99	Fw 13,386	Cm 11,403	Dd 1,866	Xk 25,769	43 75,907	Cl 28	Ae 48	Sn 333	Dv 703	Ar 1,620	Su 2,932	Fo 99,425	Be 486	Tm 201,413	Ln 494,134	Td 62,488	Wd 3,015													
Av 883	Gi 23,184															Us 1,930	Pb 69,472	Wb 107,118	Fc 6,201	Ub 34,899	. 6,081	Co 8,131	Cc 7,834	Sa 16,675	Mh 81,664	Fd 1,303	It 1,000,000+	Pz 931,905	Mr 1,000,000+	Ec 10,372
Ex 916	Ik 195,541															Fk 9,999	Wh 250,607	Uc 505,029	Bk 39,254	Bd 51,037	Tx 25,651	Ff 30,140	Cr 55,869	 75,367	Gk 338,403	Or 4,600	Ep 1,000,000+	Rl 1,000,000+	St 1,000,000+	Ld 188,488

I Search Engines IV Aggregators VII Get Stuff XIII Blogs XVII Videos
 II Internet Tools V Webcomics VIII Operating Systems XIV Social Networking XVIII News
 III Site Ranking VI Productivity IX-XII Miscellaneous XV-XVI Podcasts

Wg
207,654
 ← Site URL
 ← Symbol
 ← Rank

<http://www.wellingtongrey.net/miscellanea/archive/2007-06-23--periodic-table-of-the-internet.html>

buy poster from <http://www.wellingtongrey.net/miscellanea/store/store.htm>



WCET Frontiers

Following



Choosing the Right Mobile Device to Fit Your Needs



Association for Career Technical Ed (ACTE)

ACTE NEWS

House Passes FY 14 Omnibus Bill With Perkins Increase; Senate to Vote Soon



The FY 2014 omnibus appropriations bill passed overwhelmingly on the floor of the House of Representatives yesterday by a vote of 359-67. As we previously reported, the omnibus bill includes a \$53 million increase for Perkins! The Senate is expected to vote on the measure before the end of the week. Please take a few minutes [to reach out to your Senators](#) and urge them to vote **YES** on this bill.

ED Seeks Input on College Ratings System



The U.S. Department of Education continues to seek input on its proposed college ratings system. The ratings system could take into account tuition costs, enrollment of low-income students, graduation rates, job placements rates, graduate earnings, and other factors in determining a final rating for an institution, which in turn could affect an institution's eligibility for federal student aid.



BRINGING INNOVATION TO MARKET

6 Ways Tech Will Change Education Forever

BY ISSIE LAPOWSKY

Want to know what college will look like in 10, 20, 30 years? Here are six predictions from some of the brightest minds in academia and business.



1.7k SHARES

Tensions were high Wednesday at New York University's Stern School of Business, as a group of academics, venture capitalists, and entrepreneurs faced off during a panel discussion on the future of higher education.

The panelists, including NYU President John Sexton, Harvard Business School professor

Clayton M. Christensen, and Autodesk CEO Frank Sotomayor among others, were charged with



Interactive Worlds



Virtual Actors
Digital Cinema
Merged Media









Internet Glasses (Google Glass)





WEB 2.0 Landscape

WEB APPLICATION

Widget/
component



Aggregation/
recombination



CONTENT
SHARING



RECOMMENDATIONS/
FILTERING



Rating/
Tagging

SOCIAL NETWORK

Collaborative
filtering



www.futureexploration.net

Note: Each of these Web 2.0 applications has multiple functionality - for each service the primary positioning has been used

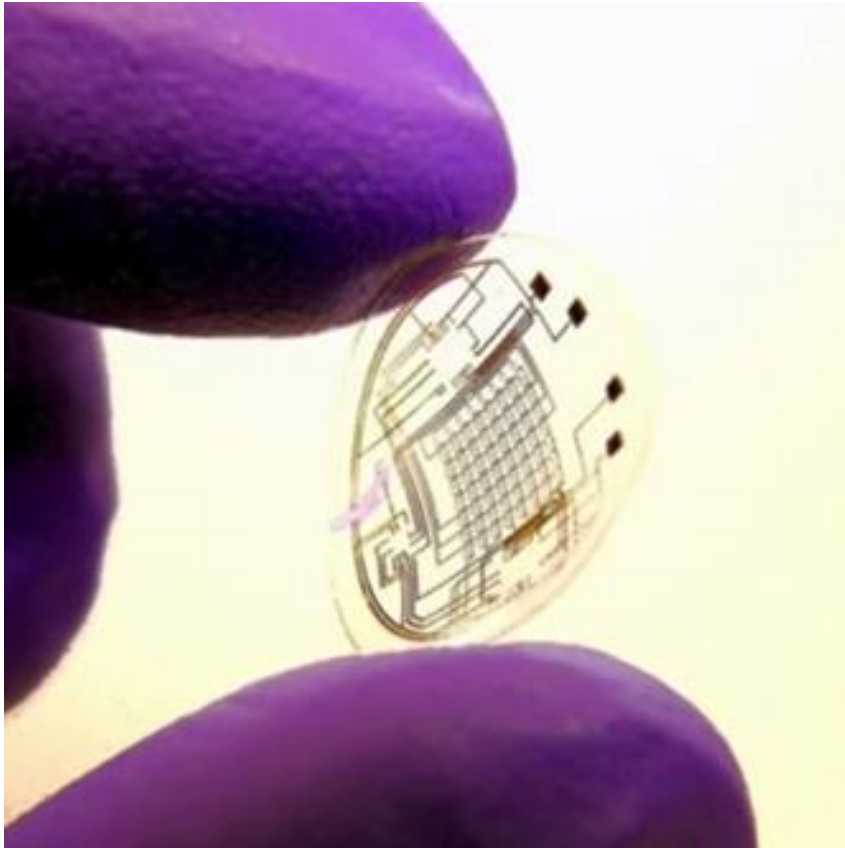
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- Microsoft
- Yahoo
- Apple
- Google
- MySpace
- Facebook
- Twitter
- LinkedIn
- Snapchat

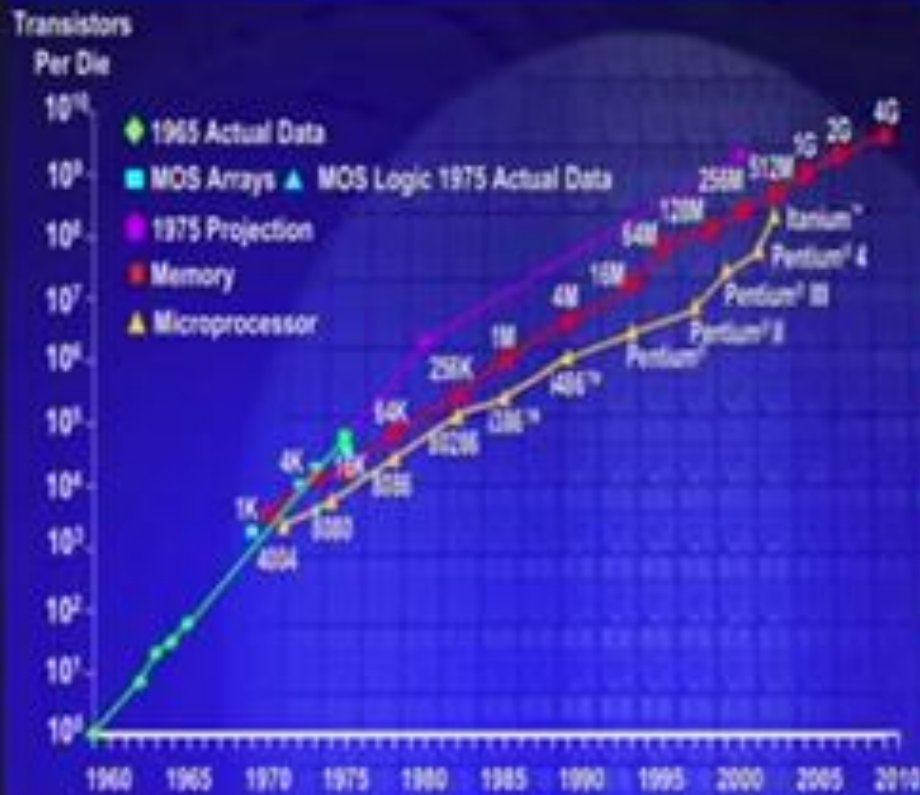


What's Next?



Computer the
size of contact
lens.

Moore's Law (Maku, 2013)



- Doubling time for computer power is 18 months
- Future can be reasonably predicted out to 2020
- By 2020, chips may cost a penny
- Millions of chips will be scattered into our world
- The computer will be everywhere, and nowhere
- After 2020: Post-silicon era: Quantum computing - Artificial intelligence – jobs and society

Newest Business Skills:



- Business Intelligence - Merger Business and IT
- Data Analytics – Data, Web, Social Media





The 100 Best Jobs



All jobs aren't created equal. In fact, some are simply better than the rest. U.S. News 100 Best Jobs of 2014 offer a mosaic of employment opportunity, good salary, manageable work-life balance and job security. Some careers offer just the right mix of these components – for instance, nearly 40 percent of our picks are health care jobs – but the list also includes strong showings from occupations in the social services and business sectors. And for the first time, our No. 1 pick is a technology job. Read more on [how we rank the best jobs](#), and check out our complete list.



Posted online at Forbes (similar at US News & others)

The Top 12 Jobs for 2014

CareerBuilder and Economic Modeling Specialists Intl. (EMSI) just released the results of their latest study that used EMSI's rich labor market database, which pulls from over 90 national and state employment resources and includes detailed information on employees and self-employed workers, to find the 12 jobs that grew 7% or more between 2010 and 2013; are projected to increase in 2014; and fall within a higher-wage category of \$22 per hour or more. Here are the top jobs for 2014.



Software Developers (Applications and Systems Software)

- Jobs added between 2010 and 2013: 104,348 (up 11%)



OCCUPATIONAL OUTLOOK HANDBOOK








Computer and Information Technology >

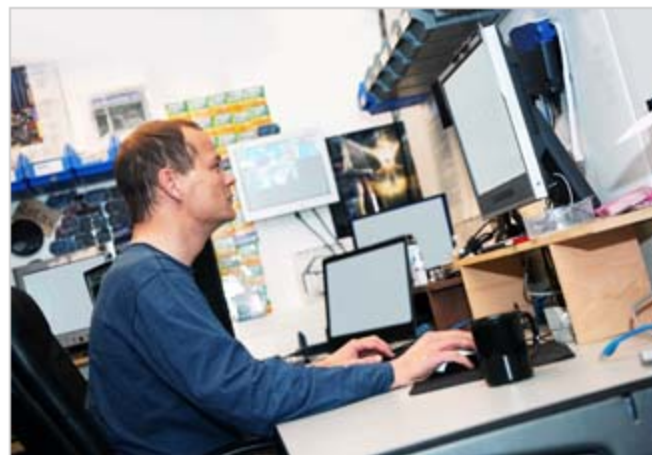
Software Developers

not "in business"

Summary

Quick Facts: Software Developers

2012 Median Pay 	\$93,350 per year \$44.88 per hour
Entry-Level Education 	Bachelor's degree
Work Experience in a Related Occupation 	None
On-the-job Training 	None
Number of Jobs, 2012 	1,018,000
Job Outlook, 2012-22 	22% (Much faster than average)
Employment Change, 2012-22 	222,600



Software developers design computer programs.

What Software Developers Do

Software developers are the creative minds behind computer programs. Some develop the applications that allow people to do specific tasks on a computer or other device. Others develop the underlying systems that run the devices or control networks.

Work Environment

Many software developers work for computer systems design and related services firms or software publishers.

How to Become a Software Developer

Software developers usually have a bachelor's degree in computer science and strong computer programming skills.



Market Research Analysts and Marketing Specialists

- Jobs added between 2010 and 2013: 54,979 (up 14%)



Market Research Analysts

Summary[What They Do](#)[Work Environment](#)[How to Become One](#)[Pay](#)[Job Outlook](#)[Similar Occupations](#)[More Info](#)

Summary

Quick Facts: Market Research Analysts

2012 Median Pay ?	\$60,300 per year \$28.99 per hour
Entry-Level Education ?	Bachelor's degree
Work Experience in a Related Occupation ?	None
On-the-job Training ?	None
Number of Jobs, 2012 ?	415,700
Job Outlook, 2012-22 ?	32% (Much faster than average)
Employment Change, 2012-22 ?	131,500

[What Market Research Analysts Do](#)

Market research analysts study market conditions to examine potential sales of a product or service. They help companies understand what products people want, who will buy them, and at what price.

[Work Environment](#)

Because most industries use market research, these analysts are employed throughout the economy. Most analysts work full time during regular business hours. Some work under pressure of deadlines and tight schedules.

[How to Become a Market Research Analyst](#)

Most market research analysts need at least a bachelor's degree. Top research positions often require a master's degree. Strong math and analytical skills are



Market research analysts prepare and discuss reports on their findings.

Training and Development Specialists

- Jobs added between 2010 and 2013: 18,042 (up 8%)



<http://www.onetonline.org>

Sample of reported job titles: Corporate Trainer, Computer Training Specialist, Job Training Specialist, Management Development Specialist, Trainer, Training Coordinator, Training Specialist, E-Learning Developer, Technical Trainer

View report:

Summary

Details

Custom

[Tasks](#) | [Tools & Technology](#) | [Knowledge](#) | [Skills](#) | [Abilities](#) | [Work Activities](#) | [Work Context](#) | [Job Zone](#) | [Education](#) | [Interests](#) | [Work Styles](#) | [Work Values](#) | [Related Occupations](#) | [Wage & Employment](#) | [Job Openings](#) | [Additional Information](#)

Tasks

- Monitor, evaluate, or record training activities or program effectiveness.
- Offer specific training programs to help workers maintain or improve job skills.
- Assess training needs through surveys, interviews with employees, focus groups, or consultation with managers, instructors, or customer representatives.
- Develop alternative training methods if expected improvements are not seen.
- Organize and develop, or obtain, training procedure manuals and guides and course materials such as handouts and visual materials.
- Present information using a variety of instructional techniques or formats, such as role playing, simulations, team exercises, group discussions, videos, or lectures.
- Evaluate training materials prepared by instructors, such as outlines, text, or handouts.
- Design, plan, organize and direct orientation and training for employees or customers of industrial or commercial establishment.
- Monitor training costs to ensure budget is not exceeded, and prepare budget reports to justify expenditures.
- Select and assign instructors to conduct training.

Financial Analysts

- Jobs added between 2010 and 2013: 17,060 (up 7%)



Physical Therapists

- Jobs added between 2010 and 2013: 14,011 (up 7%)





Web Developers

- Jobs added between 2010 and 2013: 13,364 (up 11%)



Summary Report for: 15-1134.00 - Web Developers

<http://www.onetonline.org>

Design, create, and modify Web sites. Analyze user needs to implement Web site content, graphics, performance, and capacity. May integrate Web with other computer applications. May convert written, graphic, audio, and video components to compatible Web formats by using software designed to facilitate creation of Web and multimedia content.

Sample of reported job titles: Webmaster, Web Designer, Web Developer

View report:

Summary

Details

Custom

[Tasks](#) | [Tools & Technology](#) | [Knowledge](#) | [Skills](#) | [Abilities](#) | [Work Activities](#) | [Work Context](#) | [Job Zone](#) | [Education](#) | [Interests](#) | [Work Styles](#) | [Work Values](#) | [Related Occupations & Employment](#) | [Job Openings](#) | [Additional Information](#)

Tasks

- Design, build, or maintain web sites, using authoring or scripting languages, content creation tools, management tools, and digital media.
- Perform or direct web site updates.
- Write, design, or edit web page content, or direct others producing content.
- Confer with management or development teams to prioritize needs, resolve conflicts, develop content criteria, or choose solutions.
- Back up files from web sites to local directories for instant recovery in case of problems.
- Identify problems uncovered by testing or customer feedback, and correct problems or refer problems to appropriate personnel for correction.
- Evaluate code to ensure that it is valid, is properly structured, meets industry standards and is compatible with browsers, devices, or operating systems.
- Maintain understanding of current web technologies or programming practices through continuing education, reading, or participation in professional conferences, workshops, or groups.
- Analyze user needs to determine technical requirements.
- Develop or validate test routines and schedules to ensure that test cases mimic external interfaces and address all browser and device types.



Logisticians

- Jobs added between 2010 and 2013: 11,897 (up 10%)



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Summary

Quick Facts: Logisticians

2012 Median Pay ?	\$72,780 per year \$34.99 per hour
Entry-Level Education ?	Bachelor's degree
Work Experience in a Related Occupation ?	None
On-the-job Training ?	None
Number of Jobs, 2012 ?	125,900
Job Outlook, 2012-22 ?	22% (Much faster than average)
Employment Change, 2012-22 ?	27,600

What Logisticians Do

Logisticians analyze and coordinate an organization's supply chain—the system that moves a product from supplier to consumer. They manage the entire life cycle of a product, which includes how a product is acquired, distributed, allocated, and delivered.

Work Environment

Logisticians work in nearly every industry. The job can be stressful because logistical work is fast paced. Most logisticians work full time during regular business hours.



Logisticians work to understand customers' needs and how to meet them.



Database Administrators

- Jobs added between 2010 and 2013: 11,241 (up 10%)










Computer and Information Technology > Database Administrators

not "in business"

[EN ESPAÑOL](#)[PRINTER-FRIENDLY](#)[Summary](#)[What They Do](#)[Work Environment](#)[How to Become One](#)[Pay](#)[Job Outlook](#)[Similar Occupations](#)[More Info](#)

Summary

Quick Facts: Database Administrators

2012 Median Pay 	\$77,080 per year \$37.06 per hour
Entry-Level Education 	Bachelor's degree
Work Experience in a Related Occupation 	Less than 5 years
On-the-job Training 	None
Number of Jobs, 2012 	118,700
Job Outlook, 2012-22 	15% (Faster than average)
Employment Change, 2012-22 	17,900

What Database Administrators Do

Database administrators (DBAs) use specialized software to store and organize data, such as financial information and customer shipping records. They make sure that data are available to users and are secure from unauthorized access.



Database administrators ensure that data are available to many different users.

Work Environment

Almost all database administrators work full time. About a quarter worked more than 40 hours per week in 2012.

business skills needed



Event Meeting, Convention and Event Planners

- Jobs added between 2010 and 2013: 10,867 (up 14%)





Interpreters and Translators

- Jobs added between 2010 and 2013: 8,377 (up 14%)





Petroleum Engineers

- Jobs added between 2010 and 2013: 7,158 (up 21%)





Information Security Analysts

- Jobs added between 2010 and 2013: 5,671 (up 8%)





"It is one of the [most] sought-after positions," said Rob Bearden, CEO of Hortonworks. "The desire on the enterprise side to find truly qualified data scientists has resulted in almost open headcount. It's probably the biggest imbalance of supply and demand that I've ever seen in my career. ... The talent pool is, at best, probably 20 percent of the demand."

Looking for a career change or a college major that's all but guaranteed to result in a hefty salary with copious benefits? Big data may not seem the obvious choice, but it could be your best.

With more and more companies using big data, the demand for data analytic specialists,—sometimes called data scientists, who know how to manage the tsunami of information, spot patterns within it and draw conclusions and insights—is nearing a frenzy.

Big Data Talent War: 10 Analytics Job Trends

A gap is emerging among data-savvy professionals, with big-data-analysis and predictive skills trumping routine business-intelligence and information-management talents.



The median salaries looks nice, but who's at the top of the pay scale? The big push is to find people who can tell the CEO what's going to happen next, not what happened last week or last month. And with that demand, a generation gap is emerging within BI and information management workforce, says Stacy Blanchard, an executive at Accenture Analytics, a 20,000-plus-employee unit of the management consulting and technology services firm of the same name. The next generation is driving forward-looking, predictive insights. "They're typically statisticians who are deep into data modeling, they're close to the technology, and they know the right algorithms to use with the data available," says Blanchard.

In short, businesses and government agencies are putting their faith in data-driven decisions, and that's increasing demand for analytics and information management expertise.

Relevant
Opportunities &
Strategies for
Excellence



* Take-a-ways?

Hot jobs require business skills: business intelligence, marketing, training, finance, accounting.

Government focus on preparing people for work.

Completion rates.

Relevant
Opportunities &
Strategies for
Excellence



Business Education: past, present, and future.

* Are there more threats and opportunities now than in the past?

* Will the future bring more threats and opportunities than now?

* Take-a-ways?

Relevant
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Business Education's Threats & Opportunities: Past, Present, and Future



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