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# REPORT *Facts and Trends*

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## Nothing But Blue Skies for Pilots

*The U.S. airline industry is on the rebound.* In fact, industry experts are predicting a *possible pilot shortage in the next decade.* Despite this rosy outlook, airlines are facing unprecedented competition for pilots from a variety of employers. The 10,000 pilots furloughed by U.S. airlines after 9/11, as well as the new pilots graduating from flight school and pilots leaving the military for civilian positions, are finding new opportunities with overseas carriers, overnight carriers (such as **UPS** and **FedEx**), and air taxi operators.

Foreign airlines are holding recruiting drives in the **United States** and touting higher pay and free housing to attract **U.S.** pilots. The *Chicago Tribune* reports that 10 percent of **Cathay Pacific** pilots are Americans. Additionally, the number of planes used by airlines around the world is expected to double by 2025, and **Kit Darby**, president of **Air Inc.**, estimates that more than 210,000 pilots will be needed to fly these planes.

**UPS** and **FedEx** are using higher pay to attract pilots once focused on working for the major **U.S.** airlines. The *Chicago Tribune* reports that *senior pilots at UPS and FedEx earn \$40,000 more annually than pilots with the same experience who are employed by commercial carriers.*

Pilots attracted to a less stressful flight routine are beginning to seek employment as air taxi operators. These carriers are flying “very light jets” that transport three to five passengers to destinations within the **United States**—allowing pilots to return to their home city each night after work.

To address the pilot shortage, the **Federal Aviation Administration** has proposed increasing the mandatory retirement age for commercial pilots from age 60 to age 65. Although this should somewhat ameliorate the pilot shortage, growing global markets and employment options should continue to create excellent opportunities for pilots over the next decade.

*(Chicago Tribune, February 4, 2007)*

## Nurse Practitioners Replacing Physicians at Medical Centers

*Nurse practitioners*, registered nurses with advanced degrees and specialized medical training, *are increasingly taking the place of doctors at primary care centers (PCCs) in the United States*, according to the **Associated Press**. In some PCCs no doctors are on duty (nearly 20 states allow nurse practitioners to practice independently). Nurse practitioners (NPs) write prescriptions, provide prenatal care, and treat illnesses ranging from the common cold to diabetes.

*The main factor creating this trend is the decrease in the number of physicians who choose primary care.* According to the **National Resident Matching Program**, only 7.8 percent of participating U.S. medical school graduates this year matched to family medicine—a decline of 0.3 percent from 2006.

The **American Medical Association** opposes complete autonomy for nurse practitioners, stating at its website that a “physician is responsible for the supervision of nurse practitioners and other advanced practice nurses in all settings.” The **American Academy of Nurse Practitioners (AANP)** believes that NPs are an effective alternative to physicians, reporting that *patients make nearly 600 million visits to nurse practitioners each year.*

*Nurse practitioners need a master’s degree to practice in the field.* While many NPs focus on primary care, others—with additional training—become pediatric, gerontological, oncology, neonatal, acute care, school, occupational health, psychiatric, and women’s health care nurse practitioners. There are approximately 115,00 NPs in the **United States**. For more information on this career, contact the **AANP** (PO Box 12846, Austin, TX 78711, 512-442-4262, <http://www.aanp.org>).

*(Associated Press, June 26, 2006)*

## Educator Supply and Demand in the U.S.

The **American Association for Employment in Education (AAEE)** has studied the education job market for 30 years. Its most recent survey finds that the *“job market for educators has been rising at a slow but steady rate.”* An improving national economy, with a resulting improvement in many school districts’ budgets, has been one of the main fuels for this improvement in the job market.

To create the survey, the **AAEE** gathered data on 64 academic fields and academic positions (such as counselor, educator, principal, and speech pathologist). Data was gathered from more than 1,200 colleges and universities throughout the **United States**. Each education field or academic position was ranked on a scale of 1.00 to 5.00 based on the availability of job openings. The following rankings were used: 5.00-4.21 = considerable shortage of professionals in the field; 4.20-3.41 = some shortage; 3.40-2.81 = balanced; 2.60-1.81 = some surplus of professionals in the field; and 1.80-1.00 = considerable surplus.

*This year, 32 of 64 fields fell into the “considerable shortage” or “some shortage” categories. Mathematics, physics, chemistry, and bilingual education* showed considerable shortages. *Special education fields* also continue to experience a very strong job market as employers have difficulty filling positions, particularly with “highly qualified” educators. In addition, the administrative fields of *superintendent* and *high school and middle school principal* were reported as having “some shortage.” The federal *No Child Left Behind* legislation and its implementation continues to create concern regarding the “highly qualified” designation for educators. Striving for excellence in teaching is the mission of all educators, yet mandates and funding shortfalls challenge school systems to balance their staffing needs with the available supply of candidates.

The following sections detail national and regional demand by field:

**Relative Demand by Field****Fields with Considerable Shortage (5.00-4.21)**

Special Education (multicategorical)	4.39
Mathematics Education	4.36
Special Education (severe/profound disabilities)	4.31
Special Education (emotional/behavioral disabilities)	4.29
Bilingual Education	4.27
Physics Education	4.27
Special Education (mild/moderate disabilities)	4.27
Chemistry Education	4.26

**Fields with Some Shortage (4.20-3.41)**

Special Education (learning disability)	4.19
Dual Certificate (general/special)	4.15
Special Education (mental retardation)	4.13
Special Education (hearing impaired)	4.02
Speech Pathologist	4.02
Special Education (early childhood)	4.00
Biology Education	3.98
English-as-a-Second-Language	3.94
General Science Education	3.91
Audiologist	3.91
Languages-Spanish	3.89
Earth/Physical Education	3.87
Physical Therapist	3.85
Special Education (visually impaired)	3.85
Occupational Therapist	3.63
School Nurse	3.63
Superintendent	3.62
Principal-High School	3.53
Principal-Middle School	3.48
Computer Science Education	3.47
School Psychologist	3.47
Technology Education	3.44
Reading	3.43
Library Science/Media Technology	3.41

**Fields with Balanced Supply and Demand (3.40-2.61)**

Agriculture Education	3.40
Principal-Elementary	3.36
Counselor	3.34
Elementary-Middle	3.32
Languages-Japanese	3.32
Speech Education	3.28
Home Economics/Consumer Science	3.24
Business Manager	3.19
Languages-French	3.18
Languages-Classics	3.18
Gifted/Talented Education	3.17
Music-General	3.13
Music-Instrumental	3.12
Human Resources Director	3.10
School Social Worker	3.08
English/Language Arts	3.06
Curriculum Director	3.05
Music-Vocal	3.05
Languages-German	3.04
Driver Education/Traffic Safety	3.00
Business Education	2.96
Elementary-Intermediate	2.92
Elementary-Pre-Kindergarten	2.81
Elementary-Kindergarten	2.77
Theatre/Drama	2.72
Journalism Education	2.71

Art/Visual Education	2.70
Elementary-Primary	2.67

**Fields with Some Surplus (2.60-1.81)**

Health Education	2.59
Dance Education	2.51
Physical Education	2.50
Social Studies Education	2.45

**Fields with Considerable Surplus (1.80-1.00)**

None

**Regional Data Trends****Region 1-Idaho, Oregon, Washington**

*Ten fields are reported in considerable shortage: chemistry, science-general, and eight special education fields; 16 fields are reported in some shortage; 19 fields are reported as balanced. Twelve fields are reported in some surplus.*

**Region 2-Arizona, California, Nevada, Utah**

*Fifteen fields are reported in considerable shortage: bilingual education, biology, chemistry, mathematics, physics, speech education, seven special education fields, and the support services of audiology and speech pathology.*

Five fields, including art/visual education, health education, journalism, languages-classics, and social studies, are reported to be in some surplus.

**Region 3-Colorado, Montana, New Mexico, Wyoming**

*Forty fields are reported in considerable or some shortage; among them bilingual education, computer science education, English-as-a-second-language, mathematics, all the science fields, all principal positions, all the science fields, school psychologist, and all the special education fields.*

Nineteen fields are reported as balanced. Three fields, including German, Japanese, and speech education, are reported in some surplus.

**Region 4-Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota**

*Thirty-two fields (including chemistry, mathematics, physics, special education, and speech pathologist) are reported in considerable or some shortage.*

Four fields—elementary-primary, health education, physical education, and social studies—are reported in some surplus. Dance education is reported in considerable surplus.

**Region 5-Arkansas, Kansas, Oklahoma, Texas**

*Five fields (bilingual education, English-as-a-second-language, Japanese, mathematics, and physical therapist) are reported in considerable shortage.* Sixteen fields (including biology, earth/physical science, elementary-middle school, and Spanish) are reported in some shortage; 34 fields are reported as balanced. Some surplus is reported in seven fields (including art/visual education, driver education, journalism, and physical education).

**Region 6-Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, West Virginia**

*This region reported a strong demand for educators. Seventeen fields (including bilingual education, biology, chemistry, mathematics, physics, and special education) are reported in considerable shortage; 26 fields (including elementary-middle school, science-general, and Spanish) are reported in some shortage. Only dance and driver education are in some surplus.*

**Region 7-Illinois, Indiana, Michigan, Ohio, Wisconsin**  
*Seven fields (bilingual education, mathematics, physics, and four special education fields) are reported in considerable shortage;* 19 fields (including biology, chemistry, and earth/physical science) are reported in some shortage. Nine fields (including dance education, all elementary levels except middle school, journalism, physical education, social studies, and theatre/drama) are reported to be in some surplus.

**Region 8-Delaware, District of Columbia, Maryland, New Jersey, New York, Pennsylvania**

*Chemistry, computer science, mathematics, physical therapist, and special education-multicategorical are in considerable shortage.* Twenty-seven fields (including agriculture, bilingual education, English/language arts, and special education-learning disability) are reported in some shortage. Art/visual education, dance education, all elementary levels except middle school, physical education, and social studies are reported in some surplus. Health education is reported in considerable surplus.

**Region 9-Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont**

*Fourteen fields (including bilingual education, chemistry, earth/physical science, gifted/talented education, mathematics, physics, Spanish, and technology education) are reported in considerable shortage.* Fourteen fields (including biology, elementary-middle school, principal at all education levels, Spanish, and speech pathologist) are reported in some shortage. Dance education, health education, home economics, music-instrumental, music-vocal, occupational therapist, and school social worker are reported in some surplus. Library science/media technology is reported in considerable surplus.

**Region 10-Alaska**

*Of the 15 fields reported, two (English/language arts, mathematics) are in considerable or some shortage* and nine (including computer science, all elementary levels except pre-K, all music categories, and Spanish) are in some shortage.

**Region 11-Hawaii**

*Of the 35 fields reported, 32 are in considerable (including English-as-a-second-language, mathematics, all science categories, and all special education categories) or some shortage* (including art/visual education, counselor, school psychologist, social studies, and technology education). Elementary-intermediate and elementary-middle school were reported as balanced, and languages-classics reported as some surplus.

(American Association for Employment in Education Executive Summary 2006, <http://www.aaee.org>)

## Students Paying for Internships

*Approximately 75 percent of college students participate in an internship or some other type of professional work experience by the time they graduate,* according to the Collegiate Employment Research Institute at Michigan State University. And as more students recognize the value of internships (as a way to gain hands-on experience in a career, make industry contacts, and make them stronger candidates for top jobs), **some are beginning to pay search firms for help in finding top internships.**

According to the *Chicago Tribune*, companies such as **University of Dreams** are charging students \$6,499 to \$8,999 (which includes dorm housing, some meals, and work-related transportation) to

help them land an eight-week summer internship at companies such as **Paramount Pictures** and **MTV Networks**. Most internships arranged by **University of Dreams** are unpaid, but the company works with colleges to help the students receive college credit for their work.

*Most career services professionals strongly advise students against paying for help finding internships, arguing that the very act of finding an internship teaches students job search skills and helps them assess their personal interests and career goals. They also believe that students need look no further than their college career centers for qualified—and free—assistance with finding quality internships.*

(*Chicago Tribune*, March 12, 2007)

## How to Master the Job Fair

In an increasingly competitive employment environment, **job fairs are becoming key tools for job applicants to introduce themselves and their qualifications to top companies.** But large job fairs can also be crowded, chaotic settings where company representatives may meet hundreds of potential employees in one day. How do you make the most of your face-time with company reps and avoid becoming just another name on a stack of resumes? **Rich Lubicz**, director of recruiting at **International Profit Associates**, a **Buffalo Grove, Illinois**-based business development group, offers the following advice for success at job fairs in the *Chicago Tribune*:

✓ **Avoid Dressing Too Casually.** It is always better to be overdressed rather than underdressed. Suits for men and women are appropriate job fair wear. Additionally, you will want to tone down makeup and jewelry, as well as cover tattoos, in order to make the best impression with recruiters.

✓ **Come Prepared.** Be sure to learn about the companies and the positions you are interested in before you get there. Visit each company's website to learn about their products/services and the industry in general. Creating a short list of questions to ask the recruiter about career options and the company will show the recruiter that you're serious about landing a job at the company.

✓ **Prepare a Pitch.** Create a 30-second description of your skills and career objectives for the recruiter. Plan to only talk with the recruiter for two to three minutes total; you don't want to monopolize his or her time.

✓ **Mind Your Manners.** Listen as much as you speak. After each exchange, thank each recruiter for their time. Treat everyone you meet as a potential contact. If you make an especially promising contact, follow up with an email or handwritten note thanking the recruiter for his or her time and reaffirming your interest in employment at the company.

(*Career Builder*, *Chicago Tribune*, September 3, 2006)

## Salaries of Mechanical Engineers

*Mechanical engineers earned a median base salary of \$88,000 in June 2006,* according to *Compensation in Mechanical Engineering*, a new report by **Abbott, Langer & Associates, Inc.** This is a 5.2 percent increase from \$83,657 in June 2005. Men typically earned more than women in mechanical engineering in 2006—\$89,500 vs. \$73,000.

Mechanical engineers in the *Southwestern states earned the highest median salary (\$93,000) in 2006,* followed by those in

the **Pacific** states (\$92,000) and the **Mountain** states (\$91,000). Median salaries were lowest in the **North Central** states (\$80,000) and **South Central** states (\$83,000).

*Median salaries were slightly higher in non-manufacturing firms than in manufacturing firms—\$90,000 vs. \$87,000.* Mechanical engineers in petroleum/coal/natural gas extraction and refining earned the highest median salary (\$104,000) and those in wood and wood products earned the lowest (\$59,220).

*Mechanical engineers in large firms have higher median salaries than those in smaller firms.* For example, mechanical engineers working in companies with 10,000 or more employees earned a median salary of \$97,000, while those working in firms with 50-99 employees earned a median \$92,000.

Median salaries were *lowest in production engineering/processing/manufacturing (\$80,000) and product design (\$81,466).*

*Level of education plays an important role in the salaries of mechanical engineers.* Individuals with a doctorate degree earned a median salary of \$99,100, while those with a trade/technical school diploma earned just \$65,750.

Not surprisingly, *years of engineering experience is another important factor impacting salaries.* Mechanical engineers with less than one year of experience earned a median salary of \$52,500 in 2006. Median salaries steadily increase with years of experience, and mechanical engineers with 25 or more years of experience earned a median of \$104,000, nearly twice the amount earned by entry-level engineers.

*Mechanical engineers whose principal specialty is petroleum engineering or ocean, offshore, and Arctic engineering earned a median of \$110,000 in 2006, more than all other engineering specialties.* Those whose specialty is teaching/training or textile engineering earned the least—\$64,460 and \$68,548 respectively.

The **Abbott, Langer & Associates** report (<http://www.abbottlanger.com>) is based on a 2006 salary survey. Invitations to participate in the survey were sent to members of the **American Society of Mechanical Engineers**, and usable responses were received from 7,363 individuals.

(CPST Comments, February 21, 2007, <http://www.cpst.org>)

## Privacy: Once a Defining Right for Americans

Widespread surveillance of private individuals is technically feasible and economically viable, as tiny, powerful cameras now cost next to nothing. *Increased surveillance has become socially acceptable in an age when many people fear terrorism and crime.*

The **USA Patriot ACT** of 2001 sets aside the constitutional requirement of a search warrant for government officials who wish to search someone's home in order to thwart possible terrorism. Its provisions have been used to justify searches in pursuit of drug dealers and even copyright abusers. Cell phone conversations are presumed not to be private, opening them to government eavesdropping at will.

The contents of most Internet-connected computers are open to virtually unobstructed snooping by anyone with the will to examine them and a minimum of skill. All but the most secure can be invaded by more capable hackers.

In the **United States**, the growth of surveillance also is driven by the fear that lawsuits following a future terrorist attack could claim that failure to install monitoring equipment constitutes negligence.

**"It is our choices that show what we truly are, far more than our abilities."**

—Professor Albus Dumbledore

In the absence of a major terrorist event, however, *privacy will continue to be considered a right in the United States, and privacy-related lawsuits will likely increase* as more people feel violated or inconvenienced by surveillance cameras, such as those used for traffic enforcement.

In large- and medium-sized cities around the world, spaces that remain unwatched by video cameras will continue to shrink. Growing numbers of companies, and even a few private citizens, will encrypt their computer data.

*The number of criminal cases based on surveillance data will grow rapidly* in countries with the required technological sophistication and infrastructure.

This article is excerpted from a report, *53 Trends Now Shaping the Future*, published by the **World Future Society** and available for \$8 each (\$7.20 for Society members) The report is also available as a PDF file. Order online from the Futurist Bookstore, <https://www.wfs.org>.

## Humor in the Job Interview?

Senses of humor are like snowflakes—no two are alike, *but are jokes and levity appropriate in a job interview? The answer is a qualified yes*, according to **Dennis M. Barden**, senior vice president at **Witt/Kieffer**, an executive search firm. In an article on the topic in the *Chronicle of Higher Education*, Mr. **Barden** says that *"humor is a powerful tool" in the job interview if used correctly.* He believes that properly used humor can lighten the tenseness of an interview and provide interviewees with the opportunity to demonstrate their quick wit and creativity.

*But it is no laughing matter when an attempt at humor goes awry.* Everyone has been in a situation in which an irreverent comment or "joke" was taken the wrong way. To avoid an interview blowout, Mr. **Barden** recommends that *interviewees skip the canned jokes and focus on demonstrating their sense of humor by 1) laughing at the jokes of others, 2) building on the jokes of others by adding their own witty commentary, 3) and, if they do decide to initiate humor, make it self-deprecating to show the interviewer their true personality and their ability to not take themselves too seriously.*

(*The Chronicle of Higher Education*, February 9, 2007)

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