EDSf REPORT
LEADING RESEARCH FOR THE DOCUMENT COMMUNICATION INDUSTRY
Volume 7 Issue 1 January - February 2008

# To read or not to read

The National Endowment for the Arts (NEA) released "To Read or Not To Read: A Question of National Consequence," a new and comprehensive analysis of reading patterns in the United States based on more than 40 studies of the reading habits and skills of children, teenagers, and adults. The report reveals recent declines in voluntary reading and test scores alike, exposing trends that have severe consequences for society.

"The new NEA study is the first to bring together reliable, nationally representative data, including everything the federal government knows about reading," said NEA Chairman Dana Gioia. "This study shows the startling declines, in how much and how well Americans read, that are adversely affecting this country's culture, economy, and civic life as well as our children's educational achievement."

"To Read or Not To Read" expands the investigation of the NEA's landmark 2004 report, Reading at Risk. While that report focused mainly on literary reading trends, To Read or Not To Read looks at all varieties of reading, including fiction and nonfiction genres in various formats such as books, magazines, newspapers, and online reading. Whereas the earlier report assessed reading among adults age 18 and older, "To Read or Not To Read" analyzes reading trends for youth and adults as well as readers of various education levels. The report is unique for its consideration of reading habits alongside other behaviors and related outcomes including academic achievement, employment, and community involvement. Among the key findings:

- Americans are reading less—teens and young adults read less often and for shorter periods compared with other age groups and with Americans of previous years.
- Less than one-third of 13-year-olds are daily readers, a 14 percent decline from 20 years earlier. Among 17-year-olds, the percentage of non-readers doubled over a 20-year period, from nine percent in 1984 to 19 percent in 2004.
- On average, Americans ages 15 to 24 spend almost two hours a day watching TV and only seven minutes of their daily leisure time on reading.
- Americans are reading less well—reading scores continue to worsen, especially among teenagers and young males.

The average reading score of 9-year-olds has improved. But reading scores for 12th-grade readers fell significantly from 1992 to 2005, with the sharpest declines among lower-level readers. 2005 reading scores for male 12th-graders are 13 points lower than for female 12th-graders, and that gender gap has widened since 1992.

Reading scores for adults of almost all education levels have deteriorated, notably among the best-educated groups. From 1992 to 2003, the percentage of adults with graduate school experience who were rated proficient in prose reading dropped by 10 points, a 20 percent rate of decline.

The declines in reading have civic, social, and economic implications. Advanced readers accrue personal, professional, and social advantages, whereas, deficient readers run higher risks of failure in all areas.

Nearly two-thirds of employers ranked reading comprehension "very important" for high school graduates. Yet 38 percent consider most high school graduates deficient in this basic skill.

American 15-year-olds ranked 15th in average reading scores for 31 industrialized nations, behind Poland, Korea, France, and Canada, among others. Readers are more likely than non-readers to engage in civic activities, such as volunteering, attending sports or cultural events.

This report compels us to consider how we spend our time, since those choices affect us individually and collectively. No government entity can solve the problem of declining reading rates. Each of us must address this issue within ourselves, our family, our schools, and our country.

## DID YOU HEAR?

- In 2006, 53 percent of people surveyed said that they printed more because of e-mail (IDC).
- Issues directly impacting the marketing plans and decisions of more than 100 senior executives include integrated marketing communications, accountability, aligning marketing organizations with innovation, and building strong brands (Association of National Advertisers)
- The number of mobile subscribers exceeded 2 billion in September 2005, and it now exceeds 2.5 billion (GSM Association and Ovum).
- Thirty-five percent of online banking households will be using mobile banking by 2010, up from less than 1 percent today. Seventy percent of bank center call volume is projected to come from mobile phones (Celent).
- Shipment of smartphones should top 20 million units (of over 800 million sold) in 2006 (Gartner).
- Eighty million packages reach U.S. consumers each year from all sources (Amazon.com).
- America's 630,000 senior business executives represent over 72,000 companies, responsible for over $1.7 trillion in annual expenditures, and manage 144 million employees, two-thirds of the US workforce, or half the nation's adult population (Ipsos Media).
- User-generated content such as digital videos, podcasts, wikis, and blogs will compete with the film, advertising, music, publishing, radio, and TV industries (Accenture).
- A study of global Internet users rated the most trusted forms of advertising: word of mouth 78%, newspapers 63%, online consumer opinions 61%, branded websites 60%, and magazines 56% (Nielsen Online Global).

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Design courtesy of Lightbulb Press, Inc.

Printing courtesy of Sir Speedy, Inc.

Mailing Courtesy of InfoPrint Solutions Company

Price: $50



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## SHORT TAKES: FACTS AND OPINIONS

A printing error invalidated the reading test results of U.S. students on an international exam. Since 2000, the Program for International Student Assessment has been administered every three years to provide a snapshot of how 15-year-olds around the world stack up in reading, math, and science. In the test, many reading questions directed students to a story or passage on the "opposite page," assuming that the test began on the inside front cover. But when the books were printed, the color on the cover bled through the first sheet. As a result, the printer left the page inside the cover blank and started the exam on the first right-hand page. Test questions about essays instructed students to look at the opposite page when the essays appeared on the previous page. Officials had reviewed a proof file of the exam before it was printed, but the error was not noticed. The U.S. reading performance portion was tossed out.

*Even a digital proof is useless unless it is proofread.*

The Reserve Bank of India is considering the use of long-lasting and more durable plastics for printing currency notes to replace paper notes that have a shorter life. The bank is deliberating the option of printing plastic currency which can be a mixture of paper, plastic, and cotton.The objective is to deal with the problem of soiled notes, particularly in small denominations. Paper currency notes have a very short life of up to 4-5 months and are soiled quickly. Australia and New Zealand now use plastic currency.

*Paper or plastic? You may get both.*

Picture a battery that looks like a piece of paper that can be bent or twisted, trimmed with scissors, or molded into any shape needed. While the battery is only a prototype a few inches square right now, researchers at Rensselaer Polytechnic Institute who developed it see potential in electronics and other fields that need smaller, lighter power sources. They would like to scale up to the point where you can imagine printing batteries like a newspaper. The battery uses paper infused with an electrolyte and carbon nanotubes that are embedded in the paper. The carbon nanotubes form the electrodes, the paper is the separator and the electrolyte allows the current to flow. Researchers see potential uses in combination with solar cells, perhaps layers of the paper batteries could store the electricity generated until it is needed.

*An origami battery?*

At the bottom of many e-mails, one now sees the message: "Save Trees. Print only when necessary." Environmental websites have encouraged readers to add the don't-print plea to their automatic e-mail signatures. Despite 1980's predictions of a paperless office, Americans use enough sheets every year to build a 10-foot-high wall that would stretch from New York to Tokyo and beyond, according to GreenPrint Technologies. An estimated 97 billion e-mails zip through cyberspace every day. More e-mails usually mean more printouts and that means more paper and more energy to shred or recycle it.

*A no-print policy along with purges of e-mails can save millions of dollars to produce documents connected to lawsuits.*

Spending on word-of-mouth (WoM) marketing jumped 35.9 percent in 2006 to $981 million and is expected to top $1 billion in 2007, according to an analysis of the emerging WoM industry presented by PQ Media. The Keller Fay Group says there are a projected 3.5 billion brand-related conversations per day in the U.S., with nearly 80 percent of consumers trusting recommendations from family, friends, and "influential" persons over all other forms of advertising and marketing. Spending on WoM marketing is forecast to grow 37.7 percent in 2007 to $1.35 billion as brand marketers shift more dollars to WoM as part of cross-platform marketing campaigns. Total WoM marketing expenditures are projected to climb at a compound annual rate of 30.4 percent in the 2006-2011 period to $3.7 billion as brand marketers take advantage of dedicated WoM marketing strategies for improved return on investment. Among the key trends driving growth, the Internet has enhanced the ability of consumers to exchange ideas about brands through social networks like Facebook and MySpace and consumer-generated media like blogs.

*WoM is really "marketing gossip."*

## EDSF RESEARCH: CMS IN CHINESE PRINTING INDUSTRY

This project researched the application of Content Management Systems (CMS) in printing and publishing enterprises in China. The research shows that a notable percentage of large and medium-sized printing and publishing corporations in China are using CMS, and that the use of CMS has already become a developing trend in Chinese printing and publishing businesses. With the diversification and regionalization of the Chinese printing and publishing industry, a trend has emerged regarding CMS market share. For large and medium-sized business enterprises, the use of CMS to achieve effective management in the face of fierce competition is the only solution. The purposes of this project were:

1. To reflect the application of CMS in the printing and publishing industry in China.
2. To summarize and work out a CMS scheme suitable for the Chinese printing and publishing industry based on the results.
3. To build a prediction model for the market to use as a reference for CMS providers.

Geographically, the concentration of the Chinese printing and publishing industry decreases from the south to the north. Approximately 80 of the largest 100 Chinese printing enterprises are located in three areas, the Pearl River Delta, Yangtze River Delta, and Bohai-Rim. Pearl River Delta is led by the Guangdong province which includes Guangzhou, Shenzhen, Dongguan, Zhongshan, Foshan, and Huizhou; Yangtze River Delta mainly includes Shanghai and some cities of Jiangsu and Zhejiang province such as Nanjing, Suzhou, Wuxi, and Hangzhou; Bohai-Rim is comprised of Beijing and Tianjin and includes Tangshan, Baoding, and Dalian.

Pearl River Delta is based in the Guangdong Province. Since the 1980s when Hong Kong printing enterprises moved northward bringing advanced technology, equipment, market knowledge, and modern management concepts, the Pearl River Delta has become more advanced. The Pearl River Delta was built using an international business model with strong financial support and seasoned professionals. This led to the development of a strong printing industry with large-scale enterprises, abundant products, advanced equipment, increased technology, and quality products.

The Yangtze River Delta is one of the most prosperous economic regions in China. It is known as "the sixth largest group of cities." In recent years, throughout the entire Yangtze River Delta printing industry, state-owned enterprises throughout the region are being restructured and intensified; joint-stock and non-government enterprises are growing rapidly; and capital from Taiwan, Hong Kong, and foreign countries is continually entering this area.

Currently the Bohai-Rim is economically behind the Pearl River and Yangtze River Delta. Its printing industry is also relatively backward. There is a lack of vitality because there are too many large enterprises and very few medium and small enterprises. Beijing has paid a great deal of attention to this problem, and the government is planning to accelerate the development of the printing industry, and to promote it within the entire Bohai-Rim region. Research results:

- CMS has been used in the publishing industry for a comparatively long time, and as a result, productivity has greatly increased. The application of CMS within the print industry started later and has not been applied to production except in some large and medium-sized printing enterprises which have used CMS for a relatively long period of time. Nearly 75 percent of printing enterprises have used CMS for less than three years.
- Chinese Printing and Publishing enterprises in the Pearl River Delta region use CMS more than in other areas; joint ventures and foreign-owned enterprises use CMS more than other enterprises.
- Most of the printing enterprises that use CMS are not completely satisfied with CMS and want improvements in compatibility and functionality. The majority of the printing and publishing enterprises only use a few important modules of CMS rather than the entire system.
- The future of the CMS application in Chinese printing and publishing enterprises was analyzed and forecast from microcosmic and macroscopical points of view. It turns out that the CMS application in these enterprises will have a bright future. It was predicted that more than 50% of companies in large and mid-sized printing and publishing companies will use CMS by 2012.
- Solutions for printing and publishing enterprises are now in use and benefitting early CMS users and suppliers.

This research provides insight into the implementation of CMS in the Chinese printing and publishing industry. On the whole, nearly 30 percent of the large and medium-sized printing enterprises are using CMS. Presently, CMS implementations are different from place to place due to cultural and economic differences. CMS implementations in China also differ from corporation to corporation based on the type and size of the enterprise. As a result, enterprises wanting to select a CMS solution do so according to their own needs. The solutions put forward by this research are a good reference for enterprises wanting to implement a CMS system.

CMS providers should have an opportunity to make their product compatible with other software to enable more output methods.

**The EDSF Study "Solutions for the Application of CMS in the Printing and Publishing Industries of China," by Professor Qiang Wang and students Jie Wu, Liang Tian, Jun Lu, Wu Lin, and Hui Li, Wuhan University, Wuhan, Hubei, China, is available at www.edsf.org.**

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## PRINTING CELLS

Bio-printing is advancing so rapidly that scientists believe it might soon be possible to "print" living cells to create replacement limbs or organs. Current methods use a solution of cells dubbed "bioink" in standard inkjet printing heads to make layers of cells on the microscale, though this has a limited degree of precision. Suwan Jayasinghe at University College in London is developing an approach called Pressure Assisted Spinning.

Three needles nested inside one another separately deliver cells, a viscous polymer and pressurized air. The pressurized air draws out and mixes the cells and polymer. Because the polymer is viscous, it flows out in a continuous stream of sticky thread with living cells spaced along the 50 nanometer-wide thread's length. The thread is shaped by pressure not mechanical force, making it gentle on the cells. Scanning the needle across a surface can build up a flat sheet of the material, while scanning over a 3D shape can produce a scaffold of cells ready to grow into any shape, which in theory could be bone or tissue.

Jayasinghe has proven that cells are printable objects and is close to doing what biology does—putting down layers one by one to build living things. Rebuilt consumer printers with the paper feed system replaced by a computer-driven platform that moves the sample under the nozzle are used. The next step is to print different cells on top of one another to study the way they interact with each other. It's not far-fetched to predict printing larger structures, such as implantable organs.

## PRINTING SCREENS

Sony has introduced the world's first OLED (organic light-emitting diode) television set. The 11-inch OLED TV, now quite expensive at $1,700, realizes a 3mm-thinness (at thinnest point) and unparalleled image quality. OLEDs do not require a backlight to function and therefore draw far less power. When powered from a battery, it can operate longer on a charge. OLED devices can be made thinner and lighter than LED devices.

Another advantage compared to current display technologies is that OLEDs can be printed onto almost any substrate with inkjet technology, making new applications like displays embedded in clothes or roll-up displays possible. Inkjet printing represents a powerful tool for accurate deposition of liquids which makes it useful for graphics applications but also allows the potential for the direct writing of electronic devices. Researchers have also shown the highly reproducible inkjet printing of semiconducting nanocrystals can be used for the fabrication of optoelectronic devices.

Inkjet printing of colloidal nanocrystals is effective and can be applied not only for photosensitive materials but also for fabrication of electrodes, opening up prospects for low cost, all-inkjet-printed photodetector devices. Inkjet printing is ideal for the manufacture of such devices because it allows precise control over the amount and location of deposited material. Therefore, very small amounts of the semiconducting materials are required for the fabrication of the devices and waste is at a minimum.

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*To read or not to read*

*Printing cells*

*Printing screens*

*Short Takes*