

Digital kids

The Digital Future Project is conducted by the Center for the Digital Future at the USC Annenberg School for Communication. It has identified several trends in Internet use by children and the opinions adults have of those trends. The number of adults who said that the children in their households spend too much time using the Internet increased for the third year in a row, reaching 25 percent of respondents. The project found that the number of hours per week that children spent online continues to increase, now averaging 15.3 hours per week. Thirteen percent of adults said that children in their households spend less time with friends, a percentage that also increased for the third year in a row. Other findings include:

- There has been an increase in the number of adults who said that the grades of the children in their household have declined since the use of the Internet.
- 63 percent of adults are uncomfortable with the children in their households taking part in online communities. Only 15 percent of adults are comfortable with children participating in online communities.
- 53 percent of adults say online predators are a threat to children in their households.
- 16 percent of Internet users said they go online to find or check a fact at least daily while 7 percent go online daily and more often to check the definition of a word.
- 47 percent of users say they go online, log in, and go immediately to their e-mail accounts.

The Digital Future Project provides a broad range of positive views about the benefits of Internet use. 80 percent of Internet users age 17 and older consider the Internet an important source of information for them, up from 66 percent in 2006 and higher than television (6 percent), radio (63 percent), or newspapers (63 percent).

The Project found that membership in online communities has more than doubled in only three years. 54 percent of online community members log into their community at least once a day, and 71 percent said their community is very important or extremely important to them. 56 percent "reported meeting in person people whose avatars they had met in an online community."

75 percent of online community members said they use the Internet to participate in communities related to social causes. 40 percent saying that they use the Internet at least monthly to participate in such communities. 87 percent participate in social causes that are new to them since their involvement in online communities began. 55 percent say they feel as strongly about their online communities as they do about their real-world communities. Jeffrey I. Cole, director of the Center for the Digital Future, said [this] demonstrates that idea-sharing about any subject anywhere on Earth is possible and practical.

The Project found contrasting views about the impact of the Internet on the political process. 64 percent of users agree that the Internet has become important for political campaigns, and 55 percent of users age 16 or older said that the Internet allows a better understanding of politics.

Less than a quarter of users believe, however, that the Internet is a catalyst for political change. Only 22 percent believe that the Internet is a tool to encourage public officials to care more about what people think, and only 28 percent agree that using the Internet gives people more of a say in what government does. The number of users who said that the Internet gives people more political power has remained at about 30 percent for two years.

Activities Internet users engaged in at least weekly included e-mail (96 percent), Internet surfing without a specific destination (71 percent), looking for news online (60 percent), finding product information (43 percent), conducting online banking or other financial services (38 percent), instant messaging (37 percent), playing online games (35 percent), and searching for humorous content (25 percent).

DID YOU HEAR?

- With rising postage rates and growing marketer preference for low-cost digital communications, total U.S. direct mail spending declined 3 percent in 2008—accompanied by an even more significant cutback in mail volume (Winterberry Group).
- Eighty percent of 60-somethings used a cell phone in the past week, nearly equal to usage rates of 18-34 year olds. 71 percent of 60-somethings and 52 percent of 70-somethings used a search engine in the past week, compared to 77 percent of 18-34 year olds (TNS Compete).
- Overall media spending is forecasted to decline by 0.4 percent in 2009, after an increase of 2.3 percent in 2008. The revised forecast is down from a previous estimate of 5.4 percent growth for the year (Veronis Suhler Stevenson).
- In another study, U.S. ad spending is forecast to decline 9.8 percent in 2009, and rise 0.1 percent in 2010. Worldwide ad spending is projected to decline 5.8 percent in 2009, and rise 0.7 percent in 2010 (Aegis Group's Carat).
- In 2008 just 39 percent of Americans said they had read a newspaper the day before, either in print or online. That was down from 43 percent in 2006 (The Pew Research Center).
- 63 percent of consumers and small business owners turn to the Internet first for information about local companies and 82 percent use search engines to do so. Only 44 percent of small businesses have a website (Webvisible and Nielsen).
- "I was uploading some images to Flickr for the first time...their web page reported a real-time statistic: They were uploading 5,000 photos a minute (Joseph J. Pasky, Cathay America).

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SHORT TAKES

InfoTrends estimates that U.S. shipments of digital minilab equipment declined slightly from 2007 to 2008; however, shipments are expected to experience significant growth between 2009 and 2012 as dry minilabs penetrate the market. The next few years will see a reversal of new sales from silver halide labs to dry labs as more products become available and the cost-per-print gap narrows. Nearly 70 percent of digital minilabs sold in 2008 were dry, and nearly 100 percent of new shipments will be dry by 2013 as silver halide labs retreat to a niche product. While silver halide printing is not expected to go away completely, it will be used mainly in extremely high-volume locations for the next few years. There are many retailers in the market who would like to convert from silver halide to dry, but many are waiting to see what (if any) incentives are offered by manufacturers and what impact the stimulus package may have on financing.

Hearst Corp. will launch an electronic reader that it hopes can do for periodicals what Amazon's Kindle is doing for books. Hearst, which publishes magazines such as *Cosmopolitan* and *Esquire* has developed a wireless e-reader with a large-format screen suited to the reading and advertising requirements of newspapers and magazines. E-readers like Kindle and the Sony Reader are hand-held gadgets that use electronic "ink" displayed on a crisp, low-power screen to deliver an experience that approximates reading on paper, without the cost of paper, printing and delivery which can account for as much as half of the cost of publishing a periodical. Hearst invested more than a decade ago in E Ink, a Cambridge, Mass.-based startup spun out of research at MIT, which supplies the electronic-ink technology used in the vast majority of e-readers on the market today, including Amazon's Kindle, devices from Sony, and next-generation products set to launch in 12 to 18 months. The \$300 billion global publishing industry is increasingly looking to devices like e-readers to lower costs while preserving the business model that has sustained newspapers and magazines.

According to the *U.S. Local Media Annual Forecast, 2008-2013*, by BIA Advisory Services and its Kelsey Group, current and foreseeable economic conditions will reduce overall local advertising spending through 2013. BIA/Kelsey forecasts U.S. local advertising revenues will decline from \$155.3 billion in 2008 to \$144.4 billion in 2013, representing a negative 1.4 percent compound annual growth rate. A small number of traditional media will rebound with a revived economy beginning in 2011, though most traditional media will continue to decline at a slower pace. The interactive segment (mobile, Internet Yellow Pages, local search, online verticals and classifieds, voice search, e-mail marketing, and other interactive revenues generated by traditional media players) will grow from \$14 billion in 2008 to \$32.1 billion in 2013. The traditional segment (newspapers, direct mail, television, radio, print Yellow Pages, non-digital out of home, cable TV, and magazines) will decrease from \$141.3 billion in 2008 to \$112.4 billion in 2013.

Robert Stern, publisher, *MedPage Today*, says the decline in print media readership is exemplified by changing physician behaviors as they shift to web news. Physicians are often at the vanguard of changing media trends and their behavior indicates a national consumer trend shifting readership from print peer-reviewed journals to online counterparts. Physicians are more active than consumers when it comes to new media, with 83 percent of physicians watching video clips online compared to 34 percent of U.S. adults.

A team from Massachusetts Institute of Technology has found a way to make lithium-ion batteries that are smaller, lighter, longer lasting, and capable of recharging in seconds. Current rechargeable lithium batteries can store large amounts of energy, making them long-running, but they discharge energy slowly and require hours to recharge. Gerbrand Ceder and a team at MIT discovered that lithium ions travel through tunnels accessed from the surface of the material. A lithium ion at the surface is directly in front of a tunnel entrance can quickly deliver a charge. An ion not at an entrance cannot easily move to one, making it less efficient at delivering a charge. Using their new processing technique, the team made a very small battery that could be fully charged in 10 to 20 seconds.

EDSF RESEARCH: BARRIERS TO DIGITAL PRINTING IN ARGENTINA

This study was made possible through an EDSF research grant and is available at www.edsf.org. “Barriers to Digital Printing in Argentina” has been researched by the Gutenberg Foundation, a center of professional learning and investigation of FAIGA (Argentine Federation of the Graphic Industry and Related Activities). The research team consisted of Norberto Gabriel Francinni, a 2nd year student of the Graphic Production Studies; Victor Daniel Rosello, a 3rd year student of Graphic Production Studies; and María José Repetto is Licenciada en Calidad de la Gestión Educativa (USAL) (degree in school management), who since 1973, has been Public Translator in English (UADE), and a teacher and Secretary of the Continuing Learning Department at Fundación Gutenberg. Marcela Rojas, a civil engineer and Chief of the Gutenberg Foundation laboratory, is an active member of the Argentine Color Group. Julia Fossati, an electrical engineer with a master degree in business administration is head of the Continuous Learning Department.

This research is about the main technical and economic barriers to the implementation of digital printing and the capabilities that suppliers must meet in Argentina. While digital printing advances in different markets around the world, its penetration in Argentina has been slow. Digital technology embraces all printed products, from flyers to books to large format printing. Its growth depends on the requirements of the market as defined by providers, and on the economic situation the country is facing.

Technological developments affect all industries by providing solutions to problems and offering new services and/or products. They accelerate the processes and increase benefits by providing users or consumers with new technological tools.

Technological developments compel Argentine businesses to adapt, not only to economic and social problems, but also to technological solutions. Businesses must search for changes in the market and offer the benefits of using these new technologies, which can be successful only through deep knowledge and correct usage of the technology. This research covered graphic arts trends in Argentina, with a focus on digital printing, its application and limitations for graphic entrepreneurs.

Key findings:

- Digitally printed products are in little demand because the industry has not adequately explained what digital printing is and what can be achieved with it.
- Product developers, advertisers, and designers are not aware of what can be done with digital printing because reliable information about how this technology is used is scarce.
- There is a high degree of resistance to technological change on the part of users of digital printing technology in Argentina.
- The high degree of resistance to change is due to the combination of two factors: lack of technological information about digital printing systems, and a lack of economic cost data that does not allow long-term financial confidence for investment in machinery or replacing existing technologies.
- Digital printing demand varies across Argentina. There are some areas of wider implementation than others. Areas of wider implementation include Greater Buenos Aires, Mendoza, Córdoba, and Santa Fé.
- A few digital system operators trained to solve the technical and operational problems of the printing systems in use.

- The companies that have acquired digital technology do not have suitable or trained personnel and must invest in training.
- Many users did not have an updated or efficient database. The database and software for the application of direct marketing must be improved.
- Digital printing complements traditional printing. Printers with both offset and digital have been most successful.

Several factors influence the sector's business decision-making. Digital printing is considered a cleaner technology, is easier to operate, represents technological innovation, results in a reduction in building space, and provides fast turnaround of jobs to customers.

The cost of the machinery is a decisive factor for businessmen in the acquisition of digital printing technology. The most common options for obtaining printers are leasing and direct purchase. For the purchase of inkjet printers, supplier financing appears as the primary option.

A lack of information and knowledge about digital printing systems is among the top barriers. The report states that suppliers are not educating the market as well as they should.

90 percent of the paper used in Argentina is imported and this is done because of equipment manufacturer's recommendations.

Survey results show that the calibration and profiling of the printer is mainly conducted by the manufacturer's technical support (the machine supplier). Fifteen percent of companies apply their own profiles and the rest state they do not know what they are or what they are for. Nineteen percent of users are unfamiliar with the necessity of producing color profiles for each utilized machine. Usage of generic profiles is clearly related to the poor quality of digital printing.

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PRINTED ELECTRONICS

IDTechEx finds that the market for printed and potentially printed electronics, including organics, inorganics, and composites, will rise from \$1.92 billion in 2009 to \$57.16 billion in 2019. The majority of the market in 2009 (71 percent) is for electronics which are relatively mature: conductive inks (for membrane keyboards and flex connectors, etc.), sensors (disposable blood glucose sensors) and Organic Light Emitting Displays (OLEDs) which are on glass substrates and not printed as yet.

Work on thin film transistors is shifting increasingly from mostly organic based materials to a more even balance between organics and inorganics, due to the high performance that inorganics can achieve. Photovoltaics account for a market of \$0.41 billion in 2009.

At least 2,250 organizations are working in the area. This includes academic institutes as well as companies—roughly a 50-50 split. Of the total market in 2009, 35 percent of these electronics will be predominately printed. In following years photovoltaics, OLEDs (on glass) and e-paper displays will grow rapidly, trailed by thin film transistor circuits, flexible OLEDs, sensors and batteries. By 2019 the market will be worth \$57.2 billion, with 76 percent printed and 73 percent on flexible substrates.

The market for e-paper displays will be \$80 million in 2009 but the value of the products that use the technology have been used in over \$1 billion worth of products. With 14 e-readers now available, interest in this technology is booming.

PRINTED HUMAN TISSUE

A team of scientists at University College London has greatly improved the chances for creating artificial tissue—they can weave threads made of stem cells into almost any shape. Ultimately this could lead to artificial transplants, with the resulting synthetic tissue able to adapt to many purposes.

The new method can create “printed” line-based structures of embryonic cells for the very first time, and there are a number of techniques for doing this, including inkjet-like printing. In the UCL technique, a solution of biodegradable polymer and embryonic stem cells are passed through an electrospray nozzle—a nested arrangement of stainless-steel needles. The charged liquid is attracted toward another charged copper ring, and then emerges behind it as a very fine string or thread. By tracing this thread back and forth across a surface, the team can build up a flexible cell “fabric” with the viscous polymer holding the structure together. By tracing matter over a mold any number of 3D-shapes can be produced.

This paves the way for artificial organs or even muscles—once the structure is “printed” chemical commands or environmental cues make the stem cells morph into the required body tissue and the biodegradable polymer is removed when it becomes superfluous. It will be decades before the technology matures to the point it is a routine procedure, but the possibility of printing out a new body part may one day move from the realm of science fiction into science fact.

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