

The Digital News Consumer

Presentation to the National Association of Science Writers, October 15, 2011



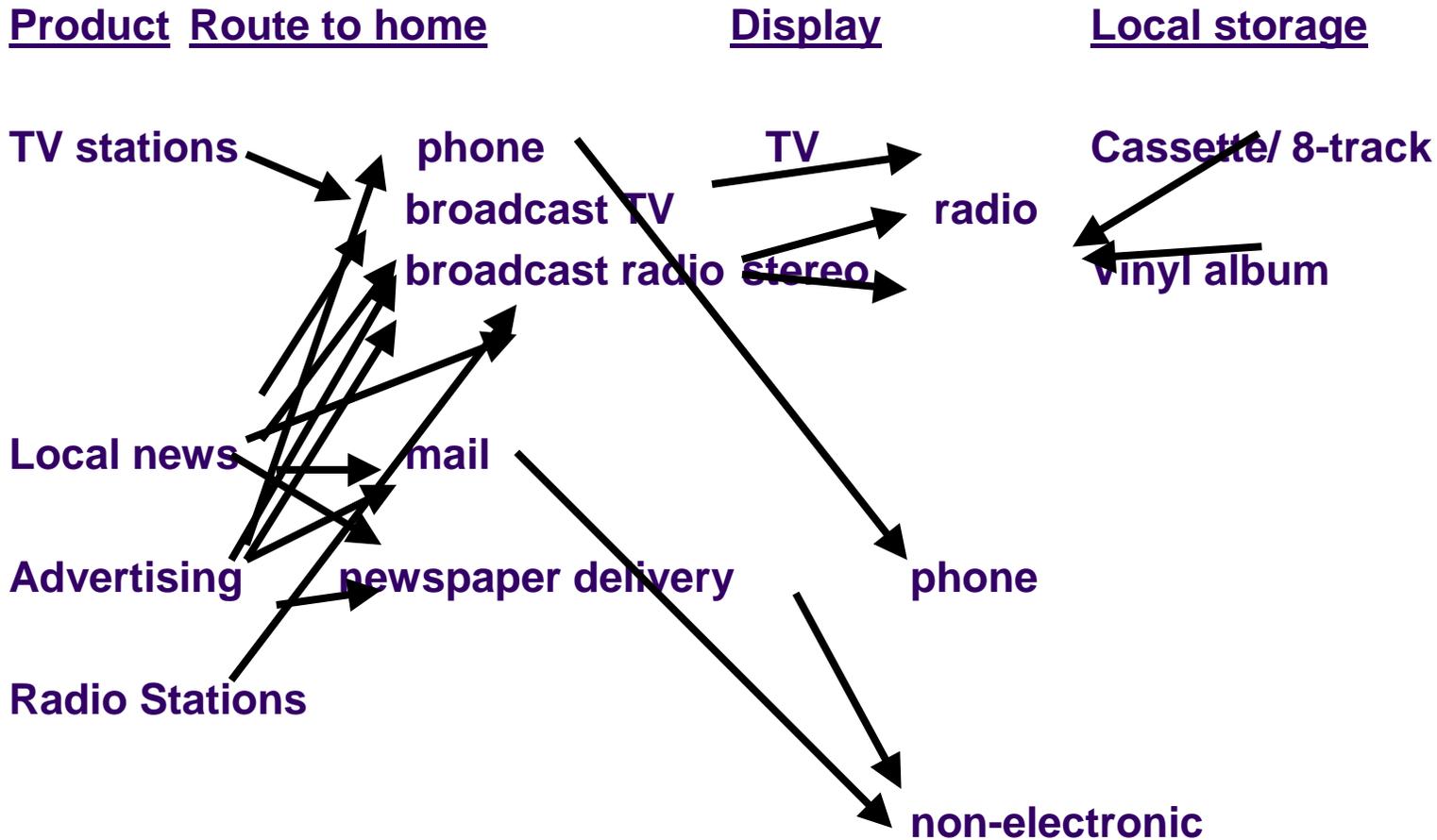
Esther Thorson, Ph.D., Associate Dean, Journalism School, *University of Missouri* and
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Communication, Journalism School, *University of Missouri*

The digital environment has massively changed behavior



- Digital devices and software are constantly creating major behavioral and lifestyle changes. News use has been no less affected.

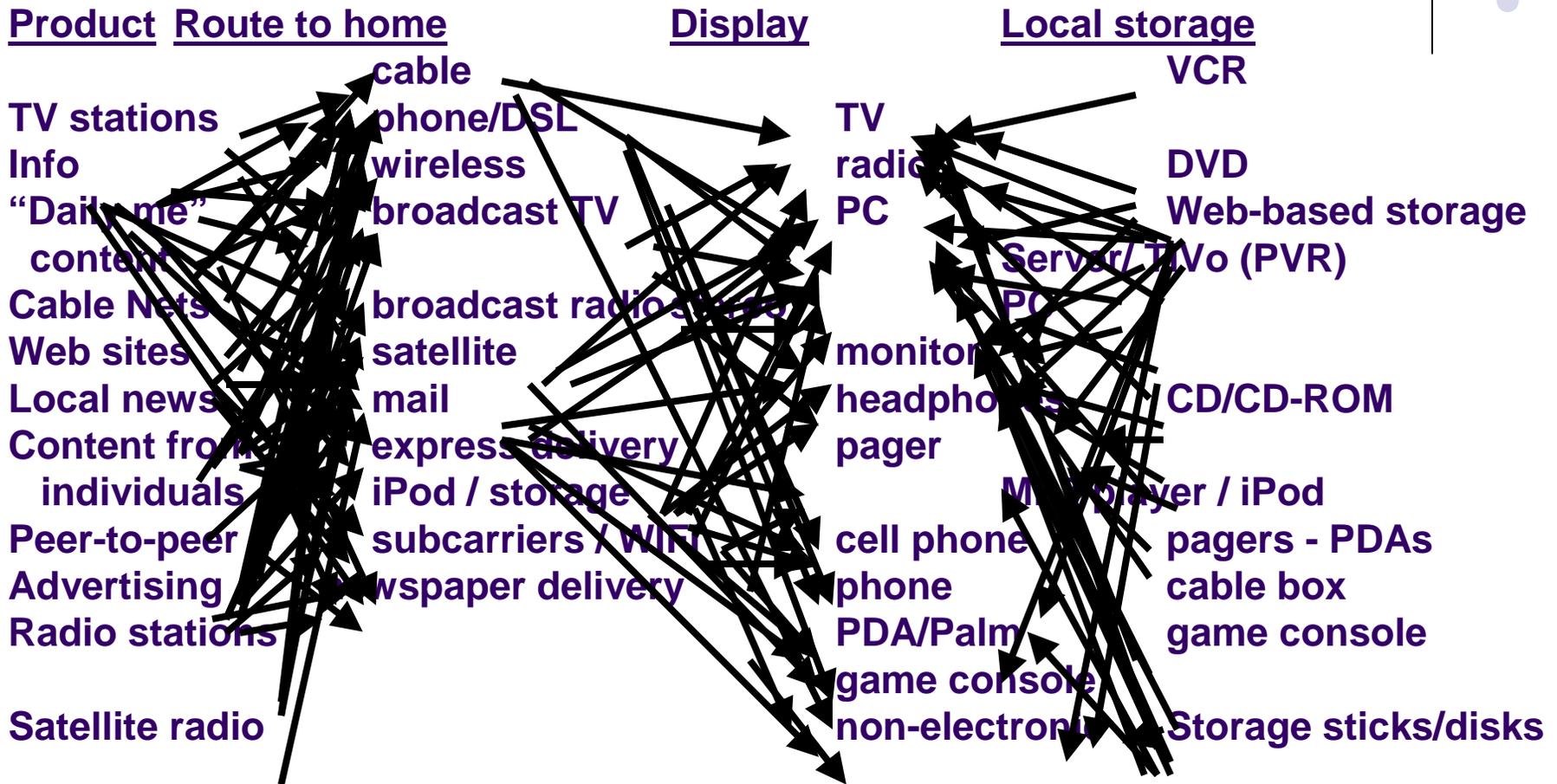
Home Media Capacity - 1975



Tom Wolzein, Sanford C. Bernstein & Co



Home Media Capacity – Today

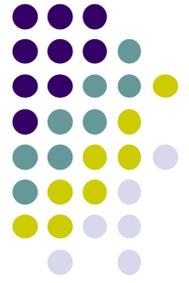


Tom Wolzein, Sanford C. Bernstein & Co

What to do?



2. Ubiquitous desire to create media content



- From July, 2011 to today Google+ gained 40 million US users
- Twitter has 106 million users, but trends older than Facebook
 - twitter
 - 13-25: 17%
 - 26-54: 74%
 - Facebook
 - 13-25: 40%
 - 26-54: 53%
- Nearly 700 million Facebook users worldwide; 149 million in the U.S. (down 6 million)
- Flickr, YouTube
 - *Blogs (worldwide)
 - **255 million** as of December 2010.
 - **21.4 million** added blogs in 2010.

Science blogging



In 2010, it was reported that 35% of researchers surveyed said they blog or use blogs

Scientists creating their own content and communicating directly



The Economist | Log in | Register | My account | Subscribe

World politics | Business & finance | Economics | **Science & technology** | Culture | Blog

All Science & technology | Technology Quarterly

Scientific publishing

User-generated science

Web 2.0 tools are beginning to change the shape of scientific debate

Sep 18th 2008 | from the print edition

 Like 0

 Tweet 0

Participation in online science communities



The screenshot shows the Nature Network website homepage. At the top left is the 'nature network' logo. To its right is a navigation menu with links for Home, Forums, Groups, Blogs, People, Hubs, Q & A, and Your Workbench. Below the navigation is a header with the text 'Nature Network: Collaboration & Productivity'. On the right side of the header is a 'Login' link. Below the header is a large banner area. On the left side of the banner is a row of five images: a DNA double helix, a blue liquid being poured, a microscopic view of cells, green pea pods, and three scientists in a lab. On the right side of the banner is the text 'Productive collaboration with over 25,000 colleagues' and a 'Create your account' button. Below the banner are three columns of text: 'Connect', 'Discuss', and 'Explore', each with a brief description of the feature.

nature network [Login](#)

[Home](#) [Forums](#) [Groups](#) [Blogs](#) [People](#) [Hubs](#) [Q & A](#) [Your Workbench](#)

Nature Network: Collaboration & Productivity

Already have an account? [Log in](#)

Productive collaboration with over **25,000** colleagues

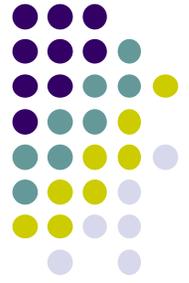
[Create your account](#)

Connect
Use Q&A and Forums to keep in touch with colleagues and make new contacts. Invite new members and start new private or public groups.

Discuss
Create your own blog or explore other blogs. Comment and discuss new issues or events.

Explore
Browse groups, forums, Q&A the way that suits you. Use our search function, browse by tags or have a look by subject.

3. Massive migration to the internet



- 60% of U.S. adults go online wirelessly, with a laptop, mobile device or tablet.
- 84% of 18-29 year-olds go online wirelessly.
- Last outpost of no or slow internet is rural and small-town U.S.

Science information and the internet

(Pew Internet and American Life Project, Nov, 2006)



- 40 million Americans rely on the internet as their primary source for news and information about science.
- This is second only to television, which is cited by 41% of Americans as the place where they get most of their science news and information.
- Newspapers and magazines are each cited by 14% as their main sources for news and information about science.
-

When Americans were asked where they would get information about stem cell research, climate change, and origins of life on Earth



- 67% of those receiving questions about stem cell research said they would turn to the internet first for information on this topic; 11% said the library.
- 59% of respondents receiving questions about climate change said they would turn to the internet first for information on this topic; 12% said the library.
- 42% of those answering questions about the origins of life on Earth said they would turn to the internet first for information on this topic; 19% said the library, and 11% said the Bible or church.

■ Pew Internet and American Life Project, November, 2006

Internet is also Americans' research tool for science



- 70% of internet users have used the internet to look up the meaning of a scientific concept or term.
- 68% have gone online to look for an answer to a question about a scientific concept or theory.
- 65% have used the internet to learn more about a science story or discovery first heard of offline.
- 55% have used the internet to complete a science assignment

■ Pew Internet and American Life Project, November, 2006

128 million people who have used the internet to get some kind of scientific information



- 52% have used the internet to check the accuracy of a scientific fact or statistic.
- 43% have downloaded scientific data, graphs, or charts from the internet.
- 37% have used the internet to compare different or opposing scientific theories.

Pew Internet and American Life Project, November, 2006

4. Decreased interest in keeping up with the news



Mean agreement with the statement: “I need to get the news (national, international, local) every day.”

- Across all ages, agreement down 6% from 1995 to 2005
- Agreement among Baby Boomers down 5% from 1995-2005
- Agreement among those 60+ down 8% from 1995-2005
- The mean of youngest group’s expressed need for news is 29% lower than oldest group’s



More “news annoyance”

Fewer Liberal Democrats and Young People Enjoy News than in '08

<i>Enjoy keeping up with news "a lot"</i>	2008	2010	Change
	%	%	
Total	52	45	-7
Conserv Rep	56	57	+1
Mod/Lib Rep	47	39	-8
Independent	45	43	-2
Cons/Mod Dem	58	46	-12
Liberal Dem	67	45	-22
18-29	38	27	-11
30-49	49	43	-6
50-64	59	53	-6
65+	64	60	-4

PEW RESEARCH CENTER June 8-28, 2010. Q37.

A ray of hope



Increase in Time Spent with News Driven by the Highly Educated and Middle-Aged

	2006-2008 Average	2010	Change
Total minutes with news	67 mins	70 mins	+3
18-29	47	45	-2
30-39	64	68	+4
40-49	66	74	+8
50-64	75	81	+6
65+	82	83	+1
Post graduate	81	96	+15
BA/BS	79	80	+1
Some college	68	71	+3
HS or less	58	58	0

PEW RESEARCH CENTER June 8-28, 2010.
Estimated time yesterday, in minutes, watching, listening to
or reading news in newspapers, on radio, on television, or
online. (Online news time added in 2004.)

5. Growing demand for personalized input



“Consumers want their media when they want it, how they want it and in whatever quantities they want it.”

-- Price-Waterhouse, 2006

- RSS feeds
- iPod personalized playlists
- Customized online communities
- TiVo
- Personalized ringtones
- Growing preference for “news with a viewpoint” that matches ones own

Top RSS feed topics

(science and technology is number 8)



The Kinds of News Alerts People Get		
	All respondents who set preferences	Home broadband users
General news or headlines	30	27
Weather	15	11
News related to your business or industry	13	14
Sports	11	12
Finance	11	12
Entertainment	10	9
Health	9	7
Science/technology	6	7
Politics	5	6
Travel	2	3
Horoscopes	2	2
Other	20	24
Don't know	5	4

Source: Pew Internet Project December 2005 survey.



6. Boomers refuse to age!

- Baby Boomers (born 1946-1964) make up 33% of U.S. population and 35% of internet users
- Generation X (born 1965-1976) make up 20% of the population and 23% of internet users
- Generation Y (born 1977-1990) make up 26% of the population and 30% of internet users

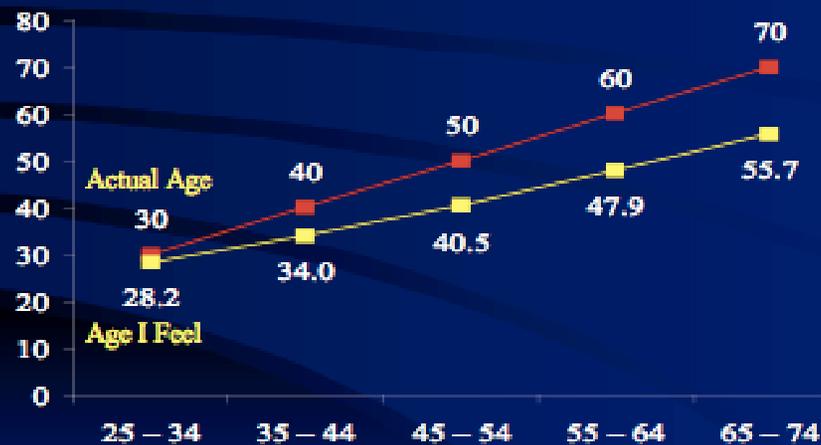
▪ Pew Center for Internet, 2009



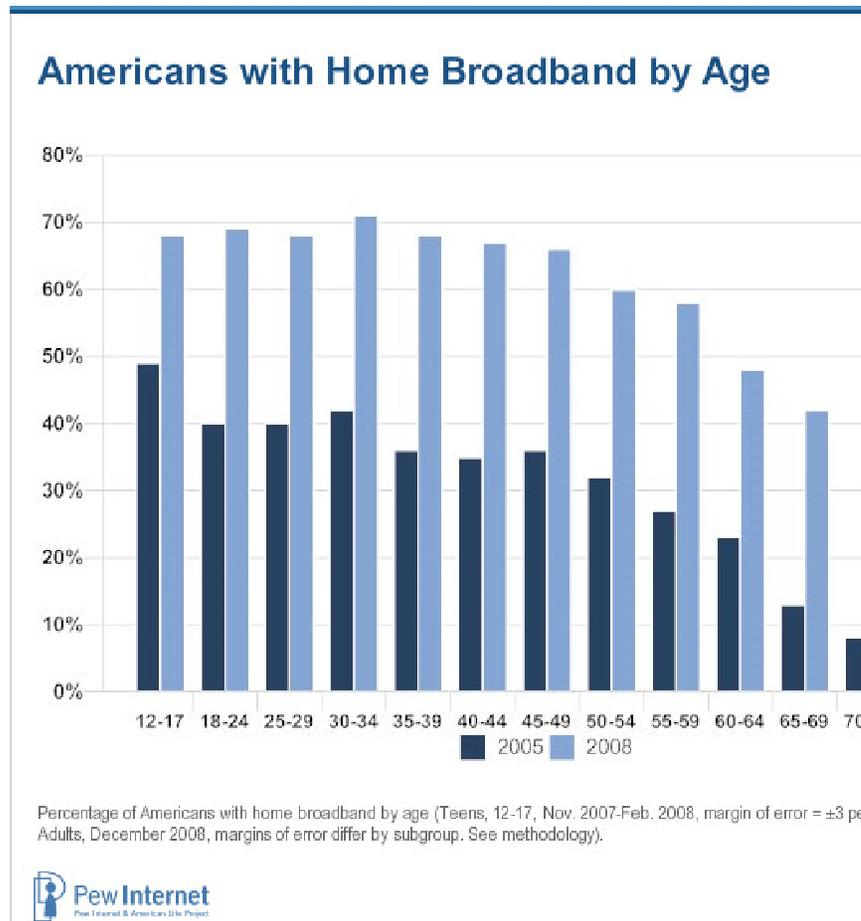
Aging Baby Boomers Feeling Young

- Aging Boomers are working to ensure a vibrant and youthful self-image

What Age Do You Feel Most of the Time?



Broadband at home is almost the same up until age 50



Many internet activities show little difference between Boomers and the younger generations



	Online Teens [^] (12-17)	Gen Y (18-32)	Gen X (33-44)	Younger Boomers (45-54)	Older Boomers (55-63)	Silent Generation (64-72)	G.I. Generation (73+)	All Online Adults ^{^^}
Use email	73	94	93	90	90	91	79	91
Use search engines	*	90	93	90	89	85	70	89
Research products	*	84	84	82	79	73	60	81
Get news	63	74	76	70	69	56	37	70
Make travel reservations	*	65	70	69	66	69	65	68
Research for job	*	51	59	57	48	33	9	51
Rate a person or product	*	37	35	29	30	25	16	32
Download videos	31~	38	31	21	16	13	13	27
Participate in an online auction	*	26	31	27	26	16	6	26
Download podcasts	19	25	21	19	12	10	10	19

7. More total media time; less information time



- Studies of daypart use show that the total media use time increased from 1995-2000 across age groups
- But a larger percent of that increased time use is going to entertainment and a smaller percent to information

2010 Kaiser Family Foundation study of youth time (2010)



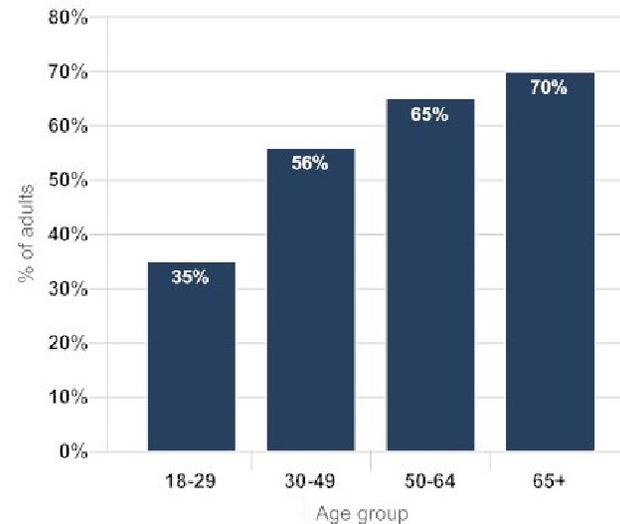
- 8-18 year-olds devote an average of 7 hours and 38 minutes to using entertainment media across a typical day (more than 53 hours a week).
- And because they spend so much of that time ‘media multitasking’ (using more than one medium at a time), they actually pack 10 hours and 45 minutes worth of media content into those 7½ hours.

While news use continues to drop over the generations



The young are least likely to be avid news consumers

The percentage of adults in each age group who say they follow the news all or most of the time



Source: PRC-Internet & American Life Project and PRC-Project for Excellence in Journalism Online News Survey - December 28, 2009-January 19, 2010. N=2,258. Margin of error is +/- 2 percentage points.

8. More superficial processing of news



- Media Multitasking

*Nielsen (2010) reported that 59% of Americans watch TV while surfing the internet

*They spend 3.5 hours per day doing it

Multitasking is superficial tasking

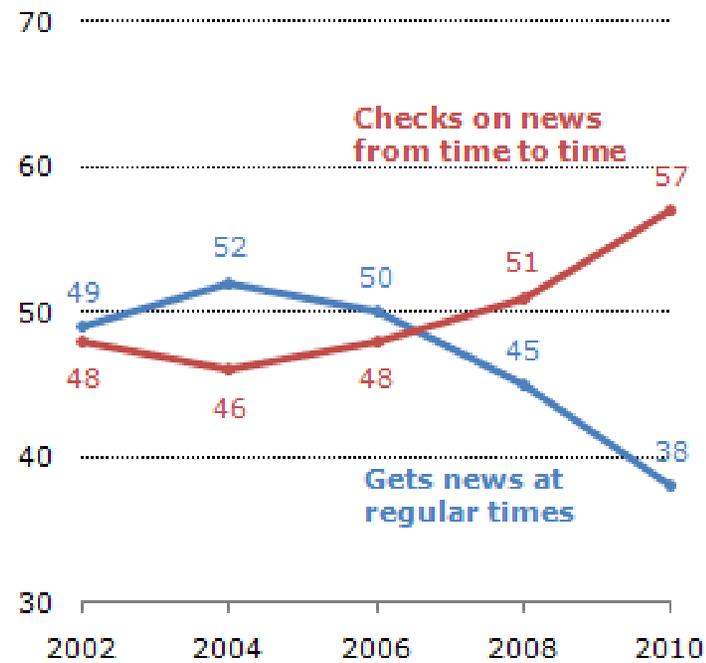


- Basel and Gips (2010) reported that people looked back and forth between TV and computer an average of 150 times per half hour
- Don Roberts and others at Stanford have shown multitaskers have far less attentional control and show poor levels of learning

More grazing and less appointment time with news



More Say They Graze for News



PEW RESEARCH CENTER June 8-28, 2010. Q91.

More accidental discovery of news



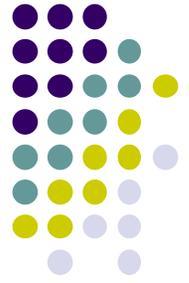
Personal approaches to the news

% who say how well each statement describes them

	Describes me very well	Describes me somewhat	Doesn't describe me at all
I like coming across news about topics and issues that I have not thought about very much before.	34	48	17
I only follow news about specific topics that really interest me.	28	39	31
I rely on the people around me to tell me when there is news or information I should know about.	15	35	49

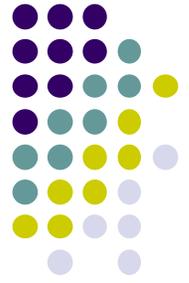
Source: PRC-Internet & American Life Project and PRC-Project for Excellence in Journalism Online News Survey - December 28, 2009-January 19, 2010. N=2,259. Margin of error is +/- 2 percentage points.

Reduced learning from news online than from print



- Numerous studies have been showing significantly poorer memory and comprehension of news online than for print
- Attention to news stories online is far shorter than to those in print

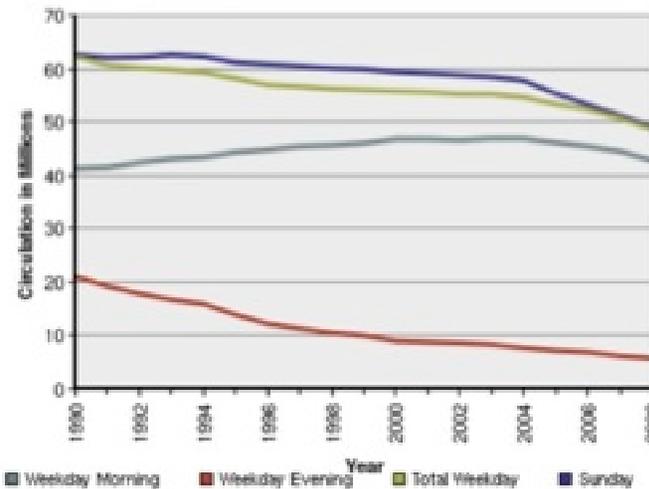
9. Redistribution of news source dominance



- With accompanying threats to the business models of newspapers, national and local television news

Total U.S. Daily Newspaper Circulation

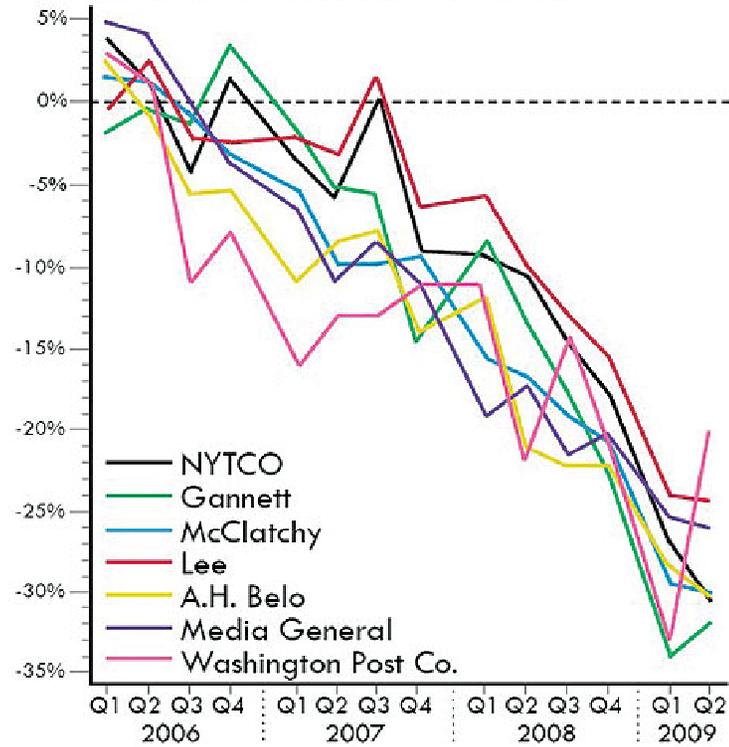
Weekday and Sunday Editions, 1990-2008



Source: Editor and Publisher Yearbook data
2008 based on E&P estimates

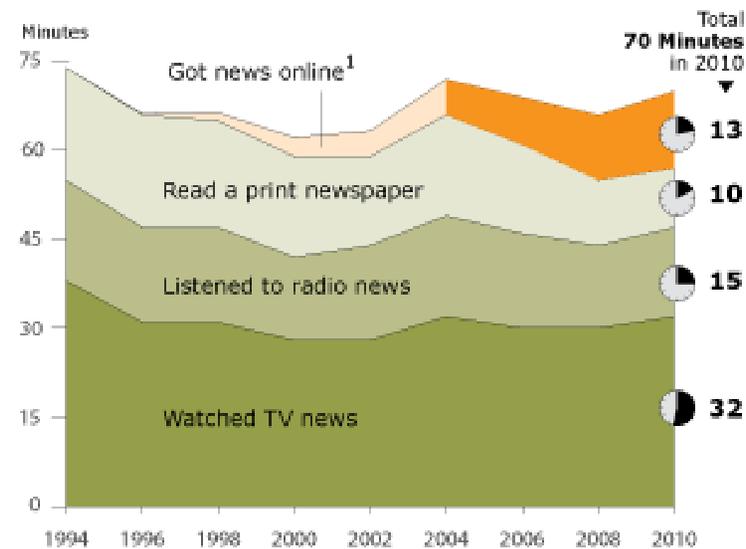


Year-over-year change in newspaper ad revenue:
NYTCO, Gannett, McClatchy, Lee, A.H. Belo,
Media General, Washington Post Co.





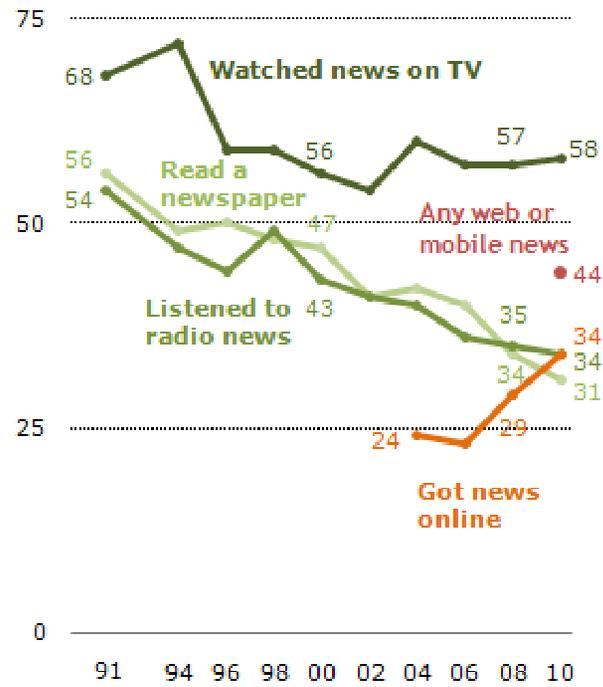
Minutes Spent With News Yesterday



PEW RESEARCH CENTER June 8-28, 2010.
Estimated time getting news from each source. Online news includes newspapers read online. Online news "yesterday" not asked prior to 2004. Pre-2004 figures estimated from other data.



Where People Got News Yesterday



PEW RESEARCH CENTER June 8-28, 2010.

So how can we think about all these changes and harness them for effective communication strategies?



First, begin with four basic communication needs:

- Connectivity
- Information
- Entertainment
- Shopping/consuming

All of the motivations are relevant to news consumption



Reasons people use the news

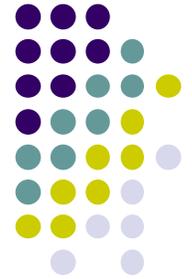
93% of adults follow the news at least occasionally. In each group, the % who cite these reasons for getting news:

	All news-following adults	Whites	Blacks	Hispanics
Enjoy talking with friends, family, about what's happening in the world	72%	71%	79%*	74%
Feel special social or civic obligation to stay informed	69%	71%*	70%*	55%
Find information in news that helps improve my life	61%	59%	69%*	65%
Provides me with entertainment, relaxing diversion	44%	43%	50%	44%
Need to follow news for my job	19%	19%	19%	16%

* indicates a statistically significant difference.

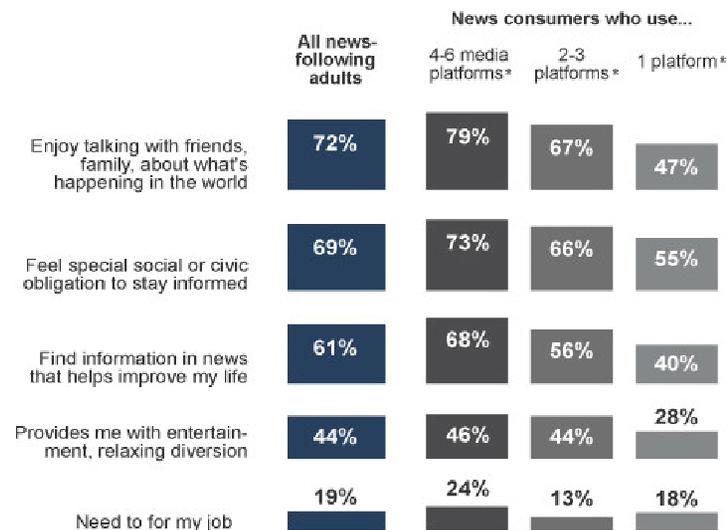
Source: PRC-Internet & American Life Project and PRC-Project for Excellence in Journalism Online News Survey - December 28, 2009-January 19, 2010. N=2,120. Margin of error is +/- 2.5 percentage points.

And bless the news junkies!



News junkies have many uses for the news

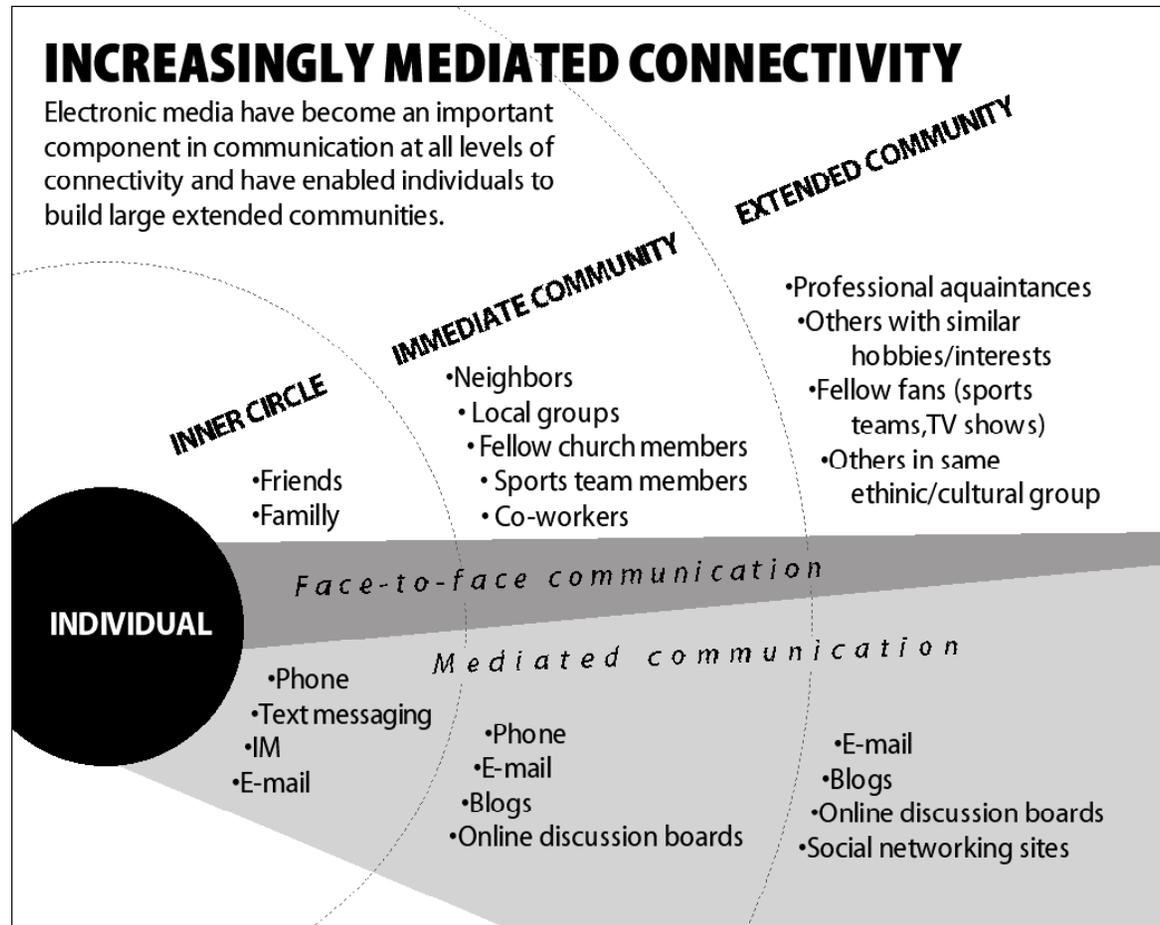
Those who use the most platforms on a typical day like news more



* Platform options were: Local print newspaper, national print newspaper, local TV news, national TV news, radio, internet.

Source: PRC-Internet & American Life Project and PRC-Project for Excellence in Journalism Online News Survey - December 28, 2009-January 19, 2010. N=2,120. Margin of error is +/- 2.5 percentage points.

Satisfaction of connectivity need with media



The Digital Environment Has Spawned **Features** That Make Communication...



- Immediate
- Participatory
- Mobile (AND Immediate)
- Searchable
- Customizable
- Rich in sight, sound and movement
- On demand (time shifting)

Usability Features of Each News Medium



Media Features	Media				
	Newspapers	Radio	TV	Cable News	Internet
Participation easy					X
Customizability					X
Time shifting	X				X
Time flexibility (24/7)				X	X
Mobility	X				X
Interactivity					X
Search capacity					X
Immediacy		X	X	X	X
Images			X	X	X
Sound		X	X	X	X
Doesn't require high attention		X	X	X	X
Doesn't require reading skills		X	X	X	X

Cell Phones exemplify the increase in features that occur within a digital device



33% of mobile users get news on their handhelds. Below are the different kinds of news they access on their handheld devices.

	% of mobile users who get this kind of news on a mobile device
Weather	26
News and current events	25
An application for news content	18
Sports scores and stories	16
Traffic info	13
Financial info	12
News via emails and texts	11

Source: PRC-Internet & American Life Project and PRC-Project for Excellence in Journalism Online News Survey - December 28, 2009-January 19, 2010. N=1891. Margin of error is +/- 2.5 percentage points.

More Mobility Features Combined with Satisfaction of Information, Connectivity, Entertainment needs



% of adult cell phone users who do each of the following on their phone...

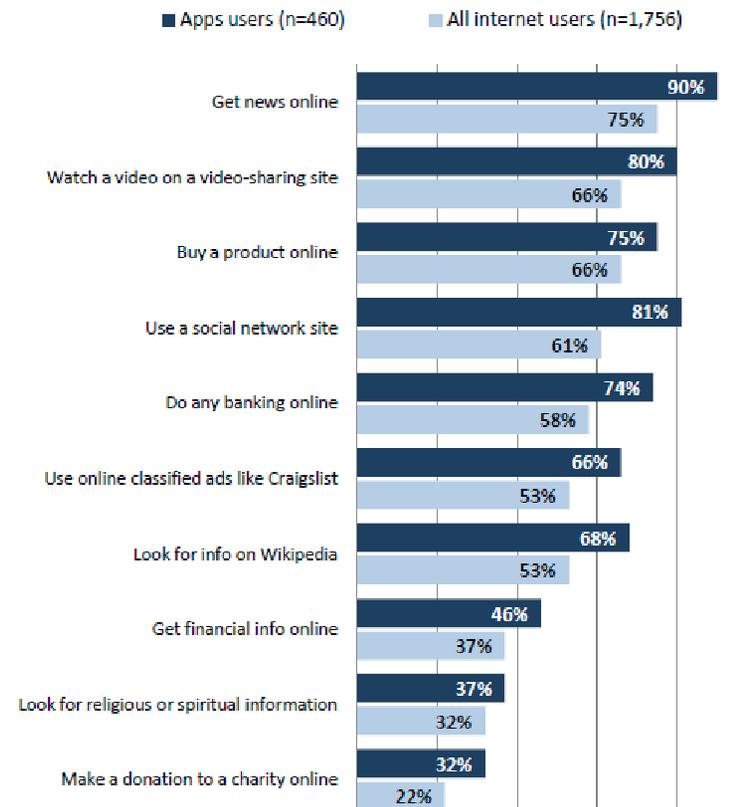
Take a picture	76%
Send or receive text messages	72
Access the internet	38
Play a game	34
Send or receive email	34
Record a video	34
Play music	33
Send or receive instant messages	30
Use an app	29

Apps extend the motivations that can be satisfied with cell phones



What do apps users do online?

% of each group who use the internet to...

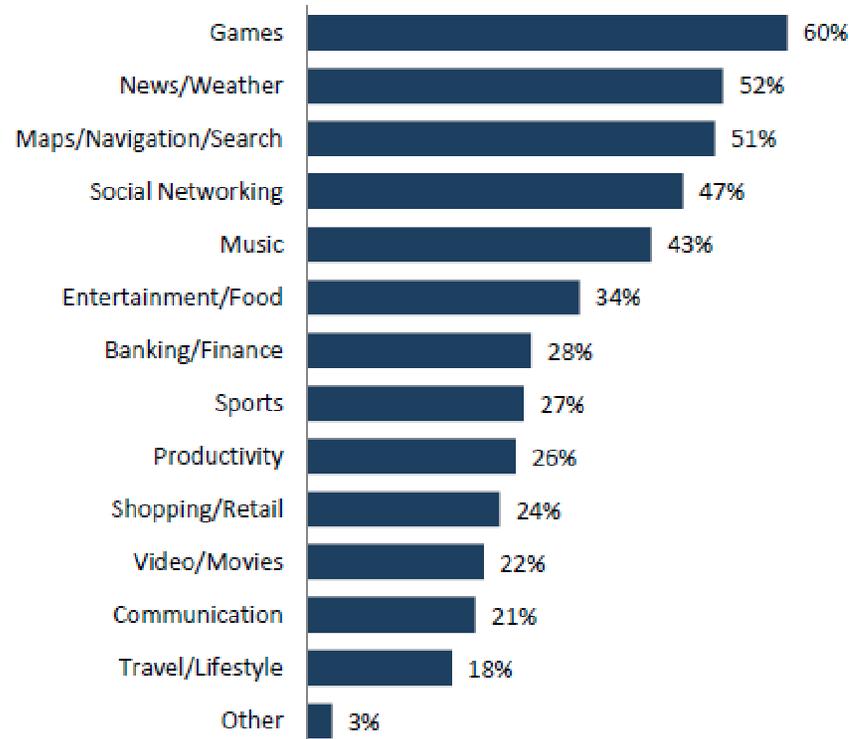


No science apps in top choices



What are the most popular types of apps?

% of Nielsen recent downloaders who have used each category of apps in the past month...



The Digital Environment Has Increased the Number of Kinds of **Voices** in the Media



- Science information that comes from a long-established source is most credible (authoritative)
- Science information from other people like me is something I can really trust (user-generated)
- Science information from the perspective of people who are creating it (created)
- Science information from those who have the same values as I have (opinionated)

People Are Migrating Away from the Authoritative Voice



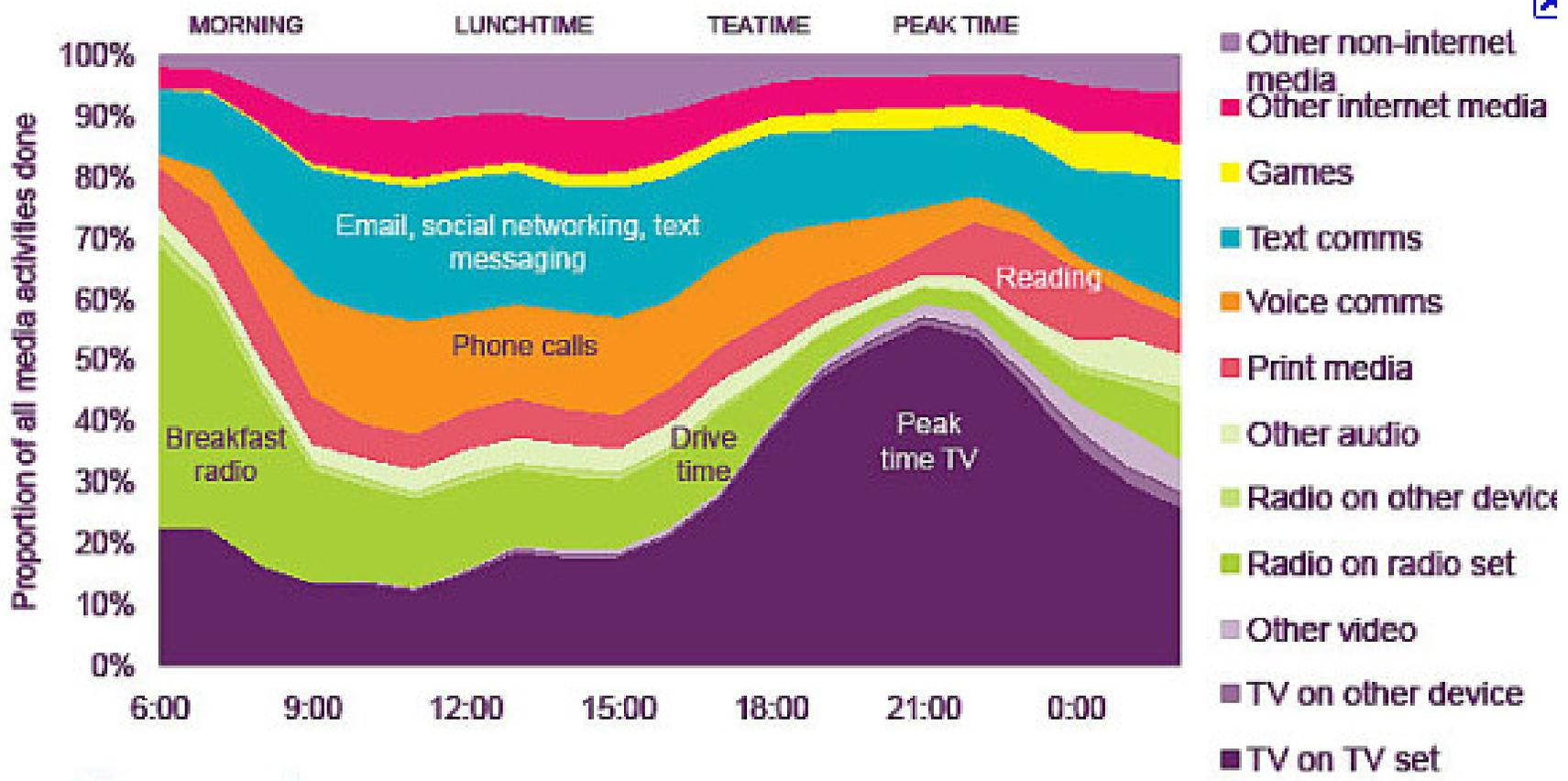
- Authoritative: Created and produced by professionals
- Created: News and information produced by audiences
- User-generated: Direct voice of scientists
- Opinionated: News and information with attitude and personality

People's use of media is determined by “apertures”



- Aperture is a window of time in which people are most likely to be responsive to a media message (interested, persuaded, etc)
- For example, Sunday morning once was “information time”—with heavy use of newspapers. It is now more likely to be “entertainment time.”

Changes in media aperture during the day



Let's put these variables together



- Uses and gratifications theory has proved one of the most useful in understanding people's behavior in the digital environment
- People use media to fulfill needs
- If those needs are fulfilled, they continue using the medium
- If not, they discard and replace it

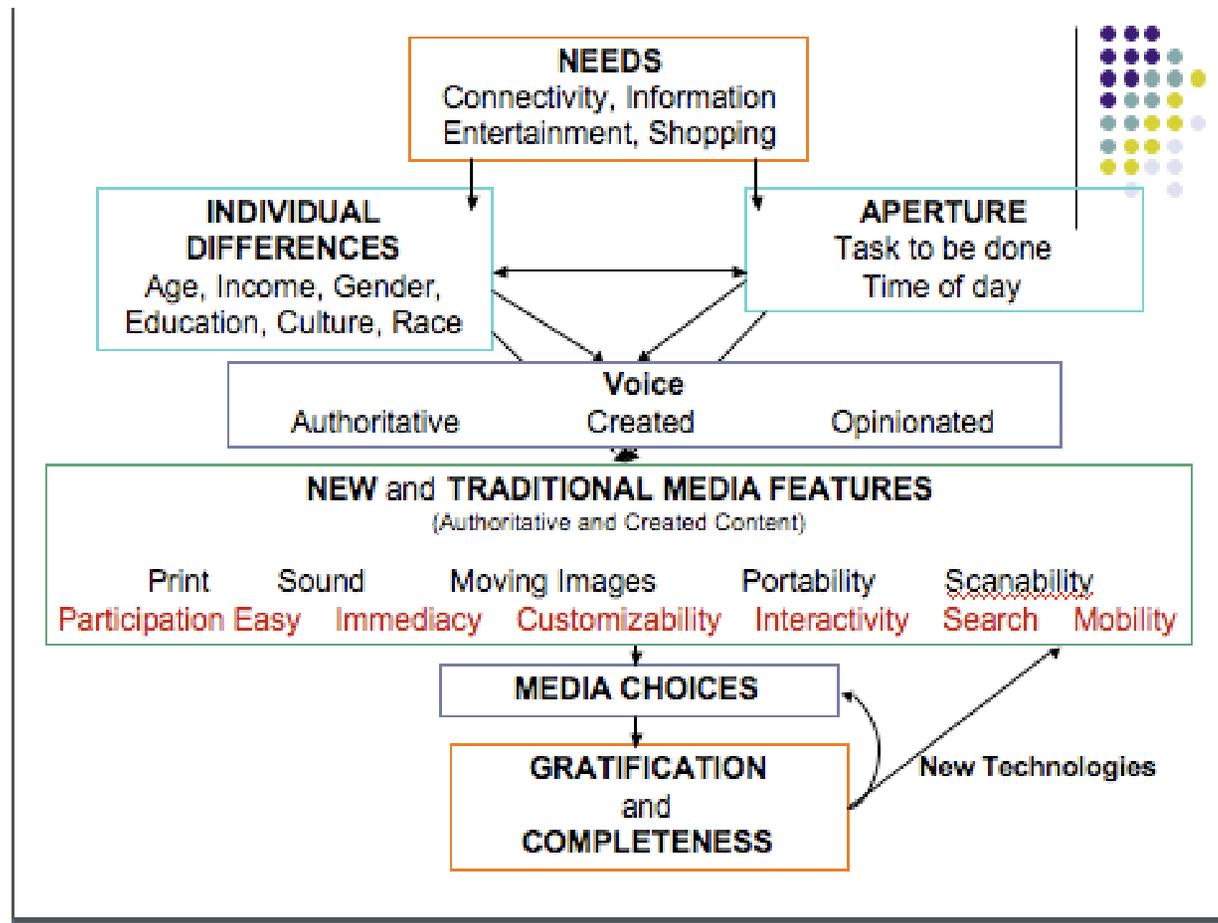
MEDIA CHOICES: People Have Become Media Omnivores, Devouring Personally Chosen Combinations of Media



- 78% of Americans get news from a local TV station
- 73% get news from a national television network such as CBS or a cable TV station such as CNN or FoxNews
- 61% get some kind of news online
- 54% listen to a radio news program at home or in the car
- 50% read news in the print version of a local newspaper
- 17% read news in the print version national newspaper such as the *New York Times* or *USA Today*.



Media Choice Model

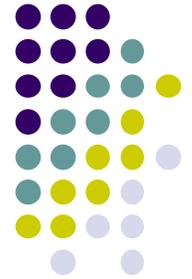


What does this mean for science communication?



Let's apply the model to people's
orientation toward science
information

Media Choices for Science News Vary by Demographics



Demographic profile of those who rely on TV and those who rely on the internet for most of their science news and information		
% in each demographic group who use specific means for science information	Rely on TV for most science news	Rely on the internet for most science news
Gender		
Male	45%	55%
Female	55	45
Parental status		
Parent of child under 18	36	42
Age		
18-29	19	36
30-49	40	43
50-64	23	17
65+	18	4
Race/ethnicity		
White (not Hispanic)	68	73
Black (not Hispanic)	15	10
Hispanic (English speaking)	13	10
Education		
Less than high school	20	5
High school grad	43	26
Some college	21	32
College +	16	37
Student (full or part-time)	9	26
Income		
Under \$30K	33	22
\$30K-50K	20	19
\$50K-\$75K	13	15
Over \$75K	17	32
Internet use		
Has internet access	62	100
Has broadband at home	32	68
Number of cases	791	364

Source: Pew Internet & American Life Project Survey, January 2006.

Changes in Appetite for Science News Over Time



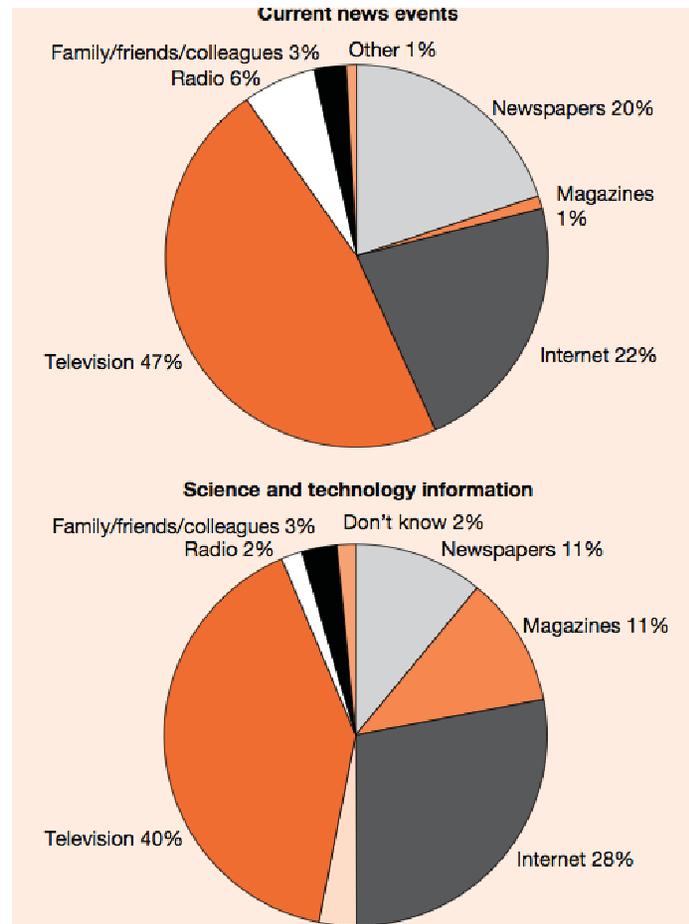
News followed “very closely” by American public: 1996–2008

(Percent)

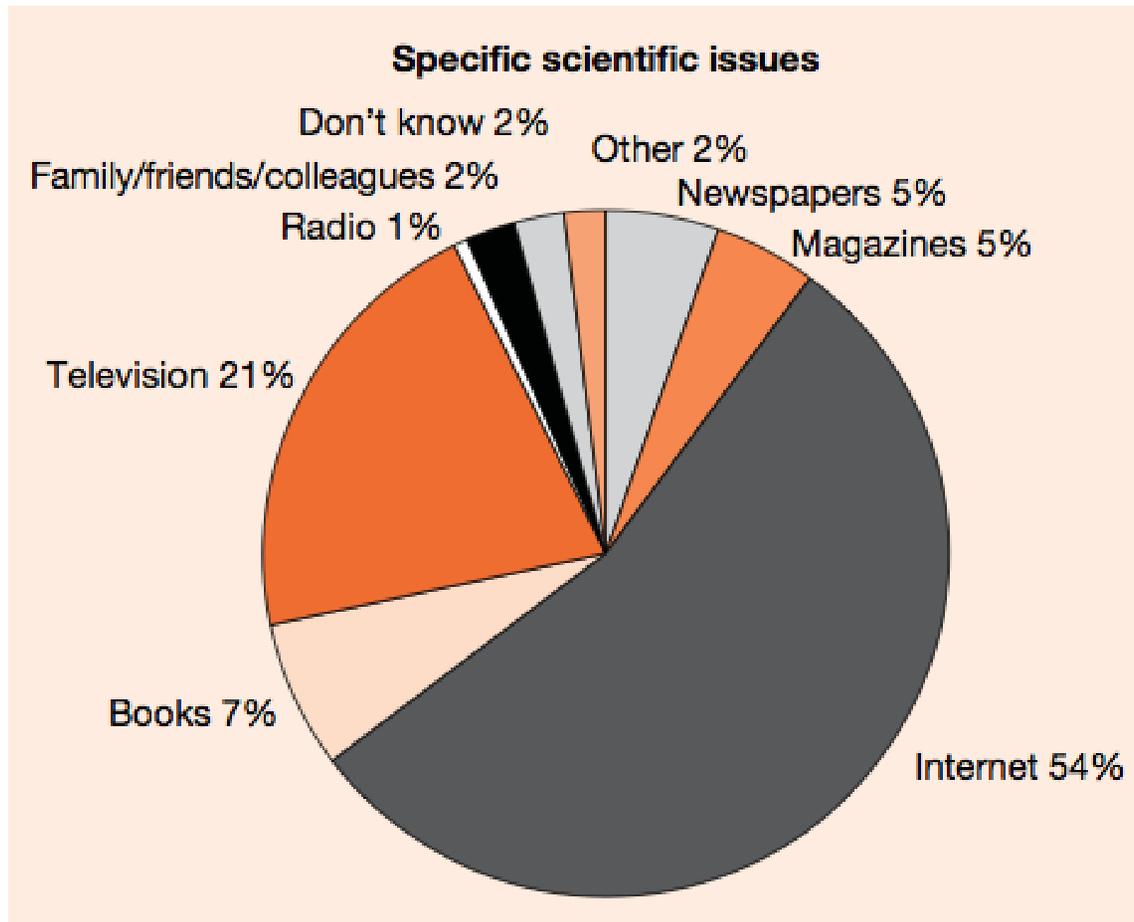
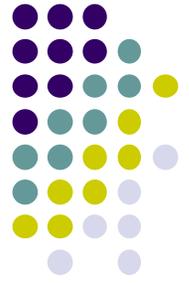
Type of news	1996	1998	2000	2002	2004	2006	2008
Weather	NA	NA	NA	NA	53	50	48
Crime	41	36	30	30	32	29	28
Education	NA	NA	NA	NA	NA	NA	23
Community	35	34	26	31	28	26	22
Environment	NA	NA	NA	NA	NA	NA	21
Politics/Washington news	16	19	17	21	24	17	21
Local government.....	24	23	20	22	22	20	20
Health news.....	34	34	29	26	26	24	20
Sports.....	26	27	27	25	25	23	20
Religion.....	17	18	21	19	20	16	17
International affairs.....	16	16	14	21	24	17	16
Business and finance	13	17	14	15	14	14	16
Consumer news	14	15	12	12	13	12	13
Science and technology.....	20	22	18	17	16	15	13
Culture and arts.....	9	12	10	9	10	9	11
Entertainment	15	16	15	14	15	12	10
Celebrity news.....	NA	NA	NA	NA	NA	NA	7
Travel	NA	NA	NA	NA	NA	NA	6

NA = not available, question not asked

Comparing news use and science and technology news



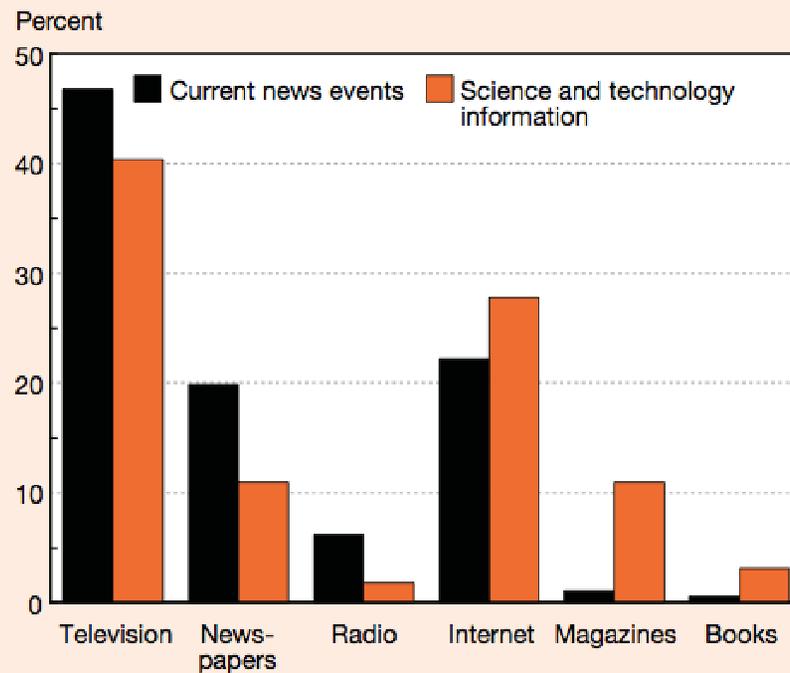
When it comes to specific issues, internet grows; television plummets



News Topic Drives the Omnivore Media Choice Pattern



Primary source of current news events and science and technology information: 2008



SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2008). See appendix tables 7-1 and 7-2.

Science and Engineering Indicators 2010



Where internet users go online for science information

Website	% of all internet users
Discovery.com	31%
PBS.org	28
NationalGeographic.com	23
USGS.gov	23
NASA.gov	19
Website of the Smithsonian Institution	14
Science.com	10
Nature.com	9

Source: Pew Internet & American Life Project Survey, January 2006.

**So what can be
learned from these
media patterns?**

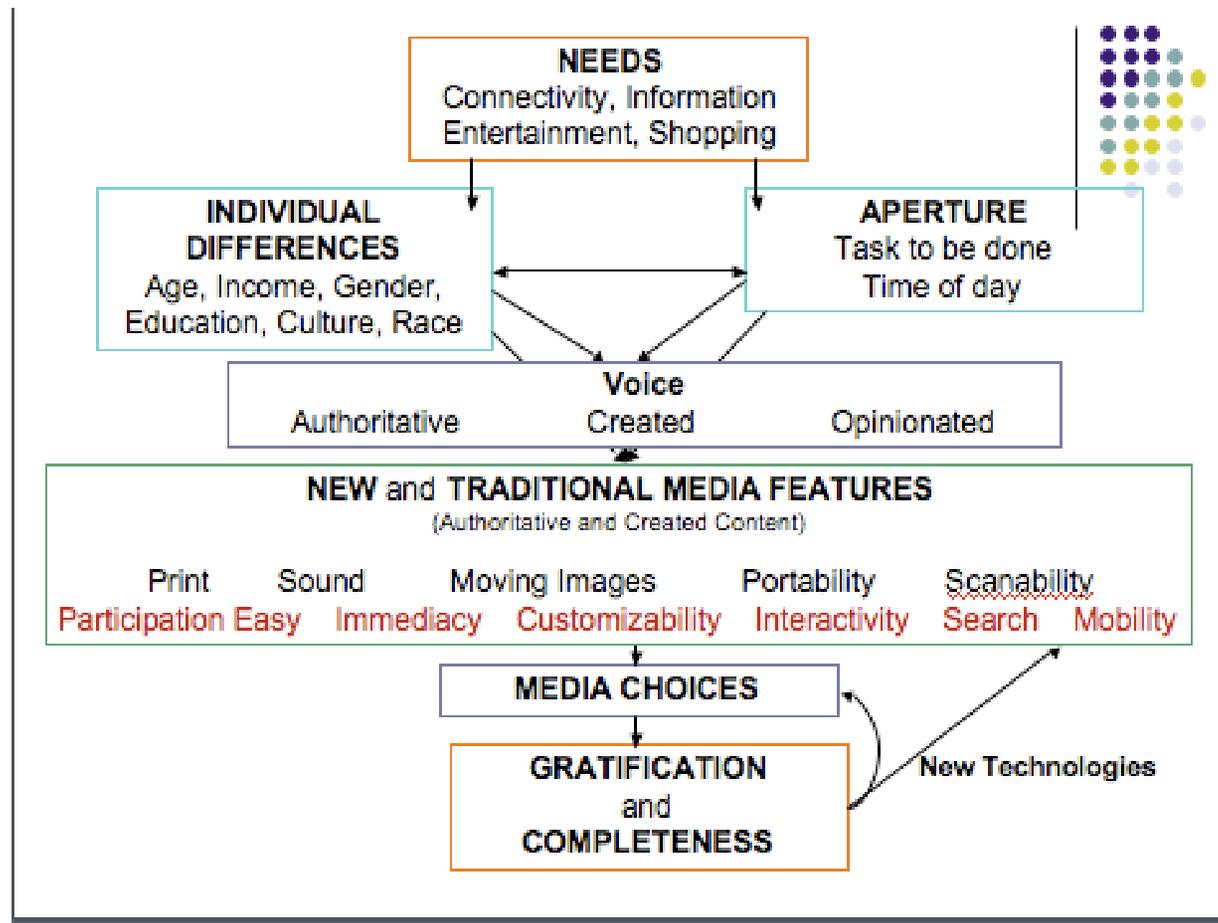


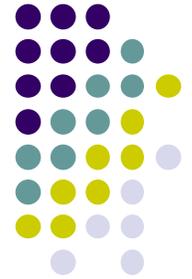


Nine big changes

1. Growth in media choices
2. Drive to create content
3. Migration to the internet
4. Decreased interest in keeping up with news
5. Demand for personalized input
6. Boomers keep up with everyone
7. More total time; less information time
8. More superficial processing of news
9. Redistribution of news source dominance

Use the media choice model to organize the continuing changes as they occur





Thank you