



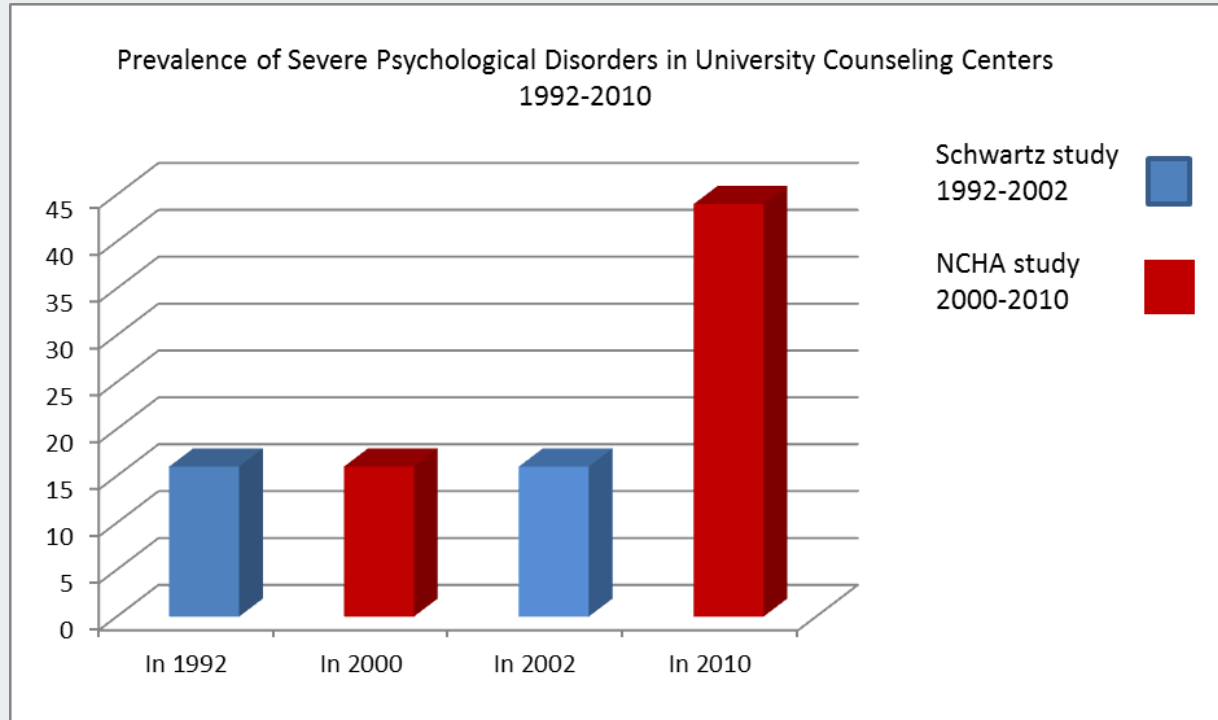
This is your brain online: The impact of technology on mental health

Presented to the MSU Pre-College Program Faculty and Staff Workshop, March 25, 2015
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Overview

- Increased Media Exposure
- Sleep
- Attention, Memory & Learning
- Anxiety
- Addiction to Technology
- Depression
- Emotion Regulation
- Identity & Relationships
- Empathy & Narcissism
- Implications for Pre-College programs

Paradigm Shift in University Mental Health



National Trends in College Mental Health

- **Increased acuity** of presenting concerns at university counseling centers:
 - Prevalence of severe psychological disorders has nearly *tripled*
 - Increase in high-risk behaviors such as harm to self and others
 - Increase in psychiatric medication
 - Increase in hospitalizations
- **Increased demand** for services was reported by **93%** of university counseling center directors (AUCCD, 2012)
 - Staff of UCCs have, on average, not grown in the past 15 years
 - MSUCC: increase of **79%** in students seen in direct service from 2006-2013

Presenting Concerns in Counseling: MSUCC in comparison to National Averages

Percentages of Students in Treatment with each Condition (MSU=3,000)			
Condition	National	MSUCC	% Diff.
Anxiety	42	58	+16
Depression	36	61	+25
Relationship issues	36	25	-11
Psychotropic medication	24	28	+4
Suicidal thoughts	16	36	+20
Significant prior treatment	14	23	+9
Alcohol abuse/dependence	10	20	+10
ADHD	9	8	-1
Sexual/physical assault	9	17	+8
Self-injurious behavior	9	15	+6
Eating disorders	6	11	+5
Oppression (racism, sexism, homophobia)	6	9	+3

Source: AUCCCD survey, 2012

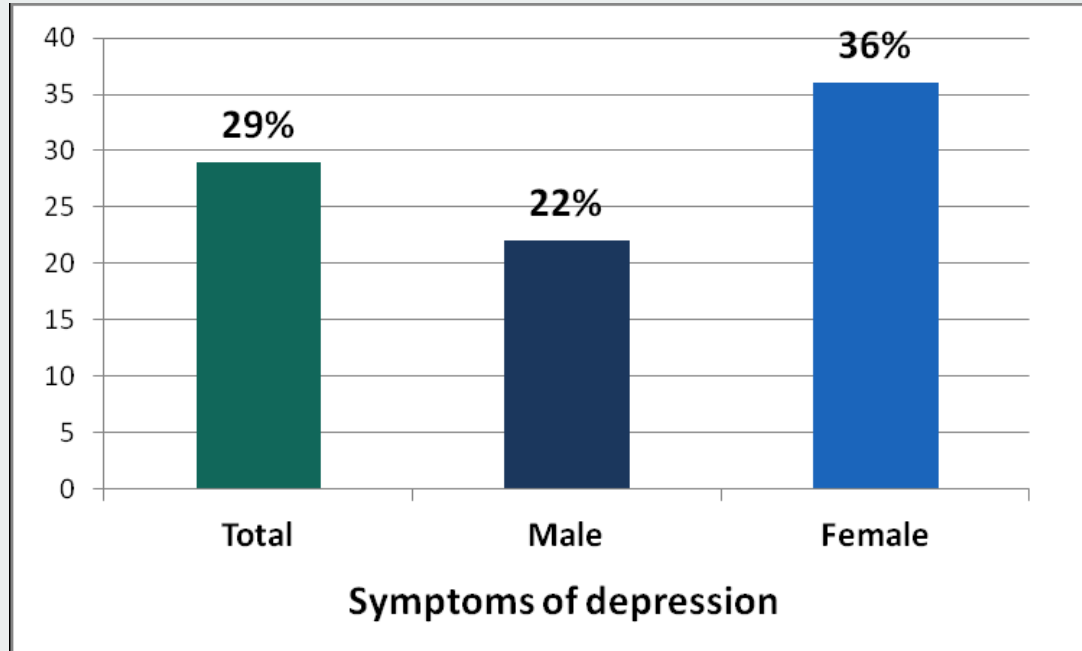
Trends in Adolescent Mental Health

- Mental disorders in adolescence are common: An estimated one in five adolescents has a diagnosable disorder.
- Adolescence is the time when many mental disorders first arise. More than half of all mental disorders and problems with substance abuse (such as binge drinking and illegal drug use) begin by age 14.
- The most prevalent mental disorder experienced among adolescents is depression, with more than one in four high school students found to have at least mild symptoms of this condition.

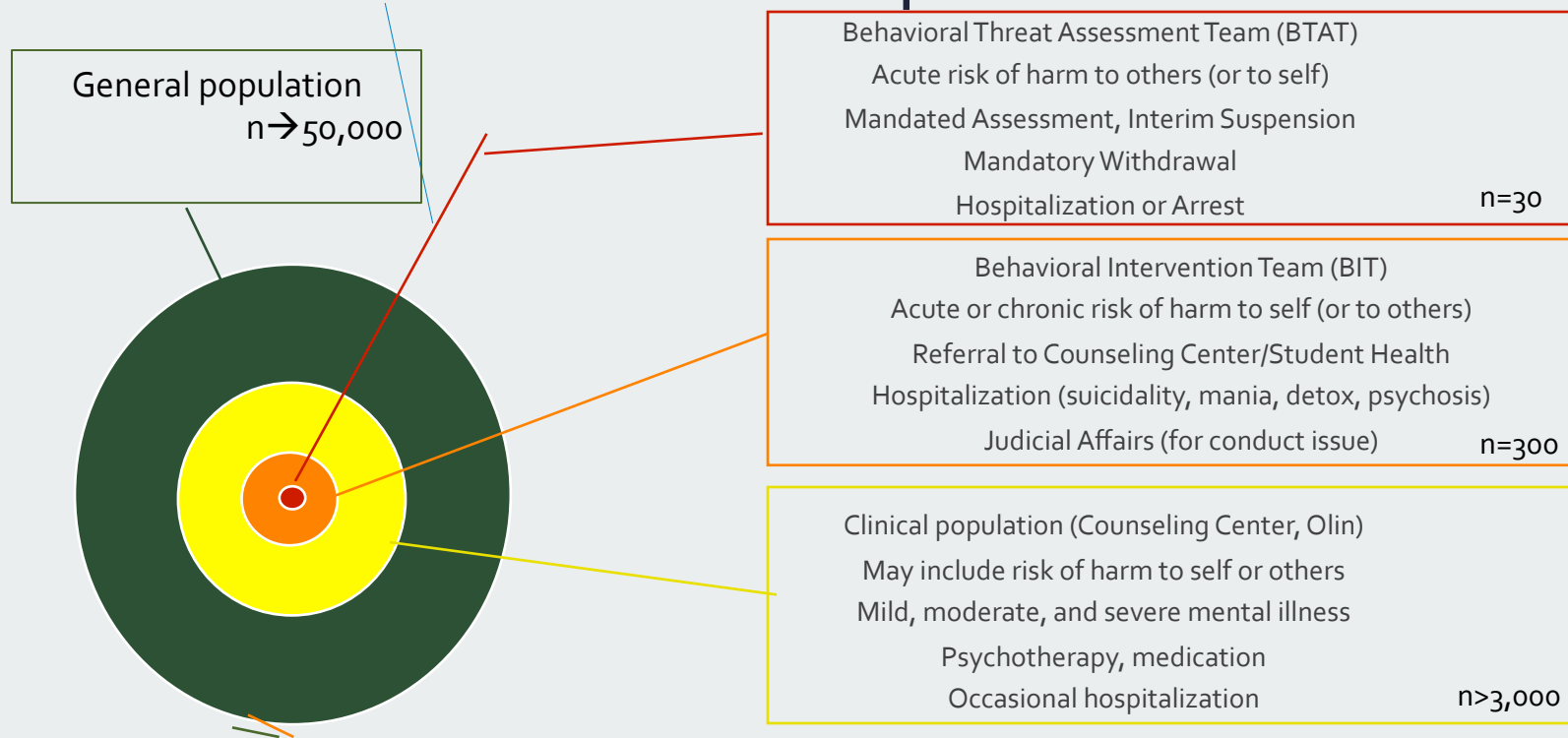
Trends in Adolescent Mental Health

- Adolescents with mental disorders are at increased risk of getting caught up in harmful behaviors, such as substance abuse and unprotected sexual activity.
- Many effective treatments exist for mental disorders, most involving some combination of psychotherapy and medication.
- The majority of adolescents with mental disorders do not seek out or receive treatment, a consequence of various barriers to care, including the fear of being stigmatized by peers and others.

Prevalence of Depressive Symptoms among High School Students - 2011



Levels of Risk and Intervention in the MSU Student Population



Possible Explanations for Trends

- Availability of mental health treatment for children and adolescents
- Socioeconomic stressors
 - Financial stressors due to parental unemployment
 - Competition for grades, internships, jobs post-graduation
- Collective/cultural anxiety
 - 9/11
 - Virginia Tech, etc.
- Recognition and reporting of trauma, including childhood sexual abuse and sexual assault
- De-stigmatizing of mental health treatment; increased help-seeking
- Changes in parenting styles
- Over-use of social media, video games, and other digital technology

Parenting Styles

- “Parents who ‘overvalue’ their kids by teaching them that they're unique and extraordinary—which they all are, of course—encourage those kids to have an inflated view of themselves and a less charitable view of others. The kids grow up to expect the world will treat them the way their parents do. Which it inevitably doesn't.”
- “That's particularly troubling because the study suggests that narcissism is growing more common. ‘Narcissism scores have been increasing over the past few decades among university students in the United States,’ said Eddie Brummelman, lead author of the study, which was published in the *Proceedings of the National Academy of Sciences(PNAS)* and is the first to measure the emergence of narcissism among kids aged 7-12. ‘Unfortunately, little is known about why narcissism seems to be on the rise in the West.’”

Positive Parenting

“The researchers also point to what may be the best parenting strategy for well-adjusted, non-narcissistic kids: a combination of ‘parental warmth’ and realism about children's abilities. Self-esteem, they write, may be the foil to narcissism, as it comes from being accepted by others and highly regarded, rather than imposing a vision of oneself on the world. ‘High self-esteem, unlike narcissism, predicts lower levels of anxiety and depression over time,’ they write.”

Digital Technology and the Brain: Neuroplasticity

"...one vital fact I have learnt is that the brain is not the unchanging organ that we might imagine. [The brain is] substantially shaped by what we do to it and by the experience of daily life. When I say "shaped", I'm not talking figuratively or metaphorically; I'm talking literally. At a microcellular level, the infinitely complex network of nerve cells that make up the constituent parts of the brain actually change in response to certain experiences and stimuli."

"Already, it's pretty clear that the screen-based, two dimensional world that so many teenagers - and a growing number of adults - choose to inhabit is producing changes in behaviour. Attention spans are shorter, personal communication skills are reduced and there's a marked reduction in the ability to think abstractly."

- Susan Greenfield, Professor of Pharmacology, Oxford University

Changes in the pre-frontal cortex

- In a UCLA study, experienced web users displayed fundamentally different neural structures in the pre-frontal cortex
- Novice users displayed similar changes after only five hours of internet use over the course of one week
- “The naïve subjects had already rewired their brains.”

Gray matter atrophy

- "Multiple studies have shown atrophy (shrinkage or loss of tissue volume) in gray matter areas (where "processing" occurs) in internet/gaming addiction. Areas affected included:
 - the frontal lobe, which governs executive functions, such as **planning, planning, prioritizing, organizing, and impulse control**.
 - Volume loss was also seen in the striatum, which is involved in reward pathways and the **suppression of socially unacceptable impulses**.
 - A finding of particular concern was damage to an area known as the insula, which is involved in our **capacity to develop empathy and compassion for others and our ability to integrate physical signals with emotion**. Aside from the obvious link to violent behavior, these skills dictate the depth and quality of personal relationships."

Behavioral Correlates

- “Taken together, [studies show] internet addiction is associated with structural and functional changes in brain regions involving **emotional processing, executive attention, decision making, and cognitive control.**”
 - research authors summarizing neuro-imaging findings in internet and gaming addiction (Lin & Zhou et al, 2012)
- “As a practitioner, I observe that many of the children I see suffer from sensory overload, lack of restorative sleep, and a hyperaroused nervous system, regardless of diagnosis—what I call electronic screen syndrome. **These children are impulsive, moody, and can’t pay attention -- much like the description in the quote above describing damage seen in scans.**”
 - Victoria Dunckley, M.D., integrative child and adolescent psychiatrist specializing in treating children with complex diagnoses and/or treatment-resistant conditions

Scope of the Problem

“This is an issue as important and unprecedented as climate change.”

- Susan Greenfield

Increased Exposure to Media



Advent of social media

Friendster	2002
MySpace	2003
Facebook*	2004
YouTube	2005
Twitter	2006

*Facebook membership doubled from 300 million to 600 million users from 2009 to 2011

Social media: "Alone together"



Linked in, checked out...

http://www.filmsforaction.org/watch/i_forgot_my_phone/#.UmerVF87TMg.facebook

Increased media exposure

- almost **50%** of American Internet users have online social profiles (2010)
- time spent social networking was **up 82%** from previous years (2009)
- More than **100 million** people access Facebook with their cell phones (2010)
- more Americans now than ever before report using television and the Internet **simultaneously [i.e. multitasking]** (2009)
- About **87 percent** of American adults own a cell phone (2012). About **44 percent** of those are smartphones. (**9% increase** in smartphone usage in one year.)

Increased media exposure

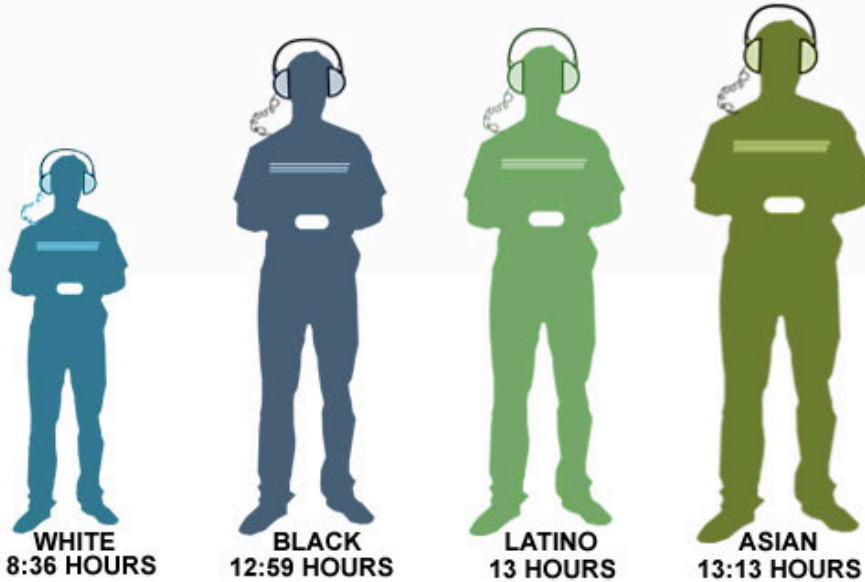
- **29.9%** of television-owning households in the United States now contain **at least four televisions** (2010)
- In 2010, television viewing reached an all-time high
- the average American is exposed to a **350% increase in total information outside of work** than the average amount they experienced only 30 years ago (2010)

Increased media exposure among children and teens

- "8- to 18-year-olds spend more time with media than in any other activity besides (maybe) sleeping"
- 2005: 6 hrs., 30 min. per day
 - 8 hrs, 33 min. of media content (with multitasking)
- 2010: 7 hours, 30 min. per day, seven days/week
 - **10 hours, 45 minutes** of media content (with multitasking) per day, seven days/week
 - an **increase of almost 2¼ hours** of media exposure per day over the past five years

Media exposure among youth of color

A NEW REPORT FROM NORTHWESTERN UNIVERSITY REVEALS THAT YOUTH OF COLOR 8- TO -18 YEAR OLDS CONSUME AN AVERAGE OF 4.5 MORE HOURS OF MEDIA THAN THEIR WHITE COUNTERPARTS.



Texting among teens

- 2009: “the average American teen now sends and receives around **1,500** text messages per month
- 2010: “a Nielson study reported that the average teen sends **over three thousand** text messages a month.”
- 2012: Newsweek reported that “The average teen processes an astonishing **3,700** texts a month.”
- Therefore, from 2009-2012, texting among teens increased by **147%**

Sleep



Digital Causes of Sleep Deprivation

- Staying up later to use a device
- Stress/anxiety about missing a call or text
- Interruptions due to calls, texts, alerts
- Backlighting
- Cellular signal

Sleep study: Rensselaer Polytechnic

- "...a two-hour exposure to light from self-luminous electronic displays can suppress melatonin by about 22 percent."
- "'To produce white light, these electronic devices must emit light at short wavelengths, which makes them potential sources for suppressing or delaying the onset of melatonin in the evening, reducing sleep duration and disrupting sleep. 'This is particularly worrisome in populations such as young adults and adolescents, who already tend to be night owls.'"
- "the glow of screens from TVs, computers, phones and tablets could be stopping us sleeping at night. ...devices should not be used for more than an hour, and screens should be dimmed."

Rensselaer sleep study



Effect of signal on sleep

- The radio frequency wave energy [884 MHZ] that comes from mobile phones leads to enhanced **insomnia, headaches and concentration difficulties**.
- The researchers concluded that **those who were exposed to the radio frequency took longer to fall asleep and did not sleep as well throughout the night**.

Cell phones: Sleep, stress, and depression

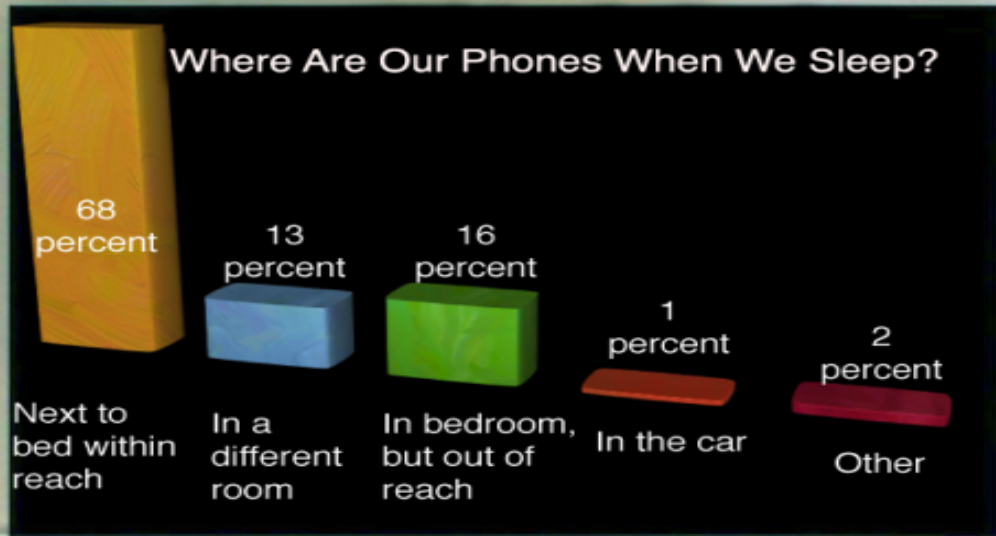
high mobile phone use was associated with sleep disturbances and symptoms of depression for the men and symptoms of depression for the women at 1-year follow-up.

overuse was associated with stress and sleep disturbances for women, and *high accessibility stress* was associated with **stress, sleep disturbances, and symptoms of depression** for both men and women.

The risk for reporting mental health symptoms at follow-up was **greatest among those who had perceived [phone usage] to be stressful.**

The Attachment To Our Phones

Where Are Our Phones When We Sleep?



Source:
2012 Time/
Qualcomm poll

Credit: Daniella Segura / Neon
Tommy

Attention, Memory, and Learning

The Effects of Multitasking





MULTITASKING

Because we needed another word for "unable to focus on the task at hand"





©2009 Luciana Ogibene

Multitasking during homework

“Although the students had been told at the outset that they should “study something important, including homework, an upcoming examination or project, or reading a book for a course,” it wasn’t long before their attention drifted: **Students’ “on-task behavior” started declining around the two-minute mark** as they began responding to arriving texts or checking their Facebook feeds. By the time the 15 minutes were up, they had spent only about **65 percent of the [time] actually doing their schoolwork.”**

Multitasking in the classroom

“For older students, the media multitasking habit extends into the classroom. While most middle and high school students don’t have the opportunity to text, email, and surf the Internet during class, studies show the practice is nearly universal among students in college and professional school. One large study found that **80 percent of college students admit to texting during class**; 15 percent say they send 11 or more texts in a single class period.”

Multitasking in the classroom

“In the study involving spyware, for example, two professors of business administration at the University of Vermont found that ‘students engage in substantial multitasking behavior with their laptops and have non-course-related software applications open and active about **42 percent of the time.**”

Multitasking in the classroom

- at St. John's University in New York, **58 percent** of second- and third-year law students who had laptops in class were **using them for “non-class purposes” more than half the time.**
- (First-year students were far more likely to use their computers for taking notes, although an observer did note one first-year student texting just 17 minutes into her very first class—the beginning of her law school career.)”

Limits of multitasking

“Under most conditions, **the brain simply cannot do two complex tasks at the same time.** It can happen only when the two tasks are both very simple and when they don’t compete with each other for the same mental resources. An example would be folding laundry and listening to the weather report on the radio. That’s fine. But listening to a lecture while texting, or doing homework and being on Facebook—each of these tasks is very demanding, and each of them uses the same area of the brain, the prefrontal cortex.”

Limits of multitasking

“there’s nothing magical about the brains of so-called ‘digital natives’ that keeps them from suffering the inefficiencies of multitasking. They may like to do it, they may even be addicted to it, but there’s no getting around the fact that it’s far better to focus on one task from start to finish.”

Multitasking and learning

- ...the assignment takes **longer to complete**, because of the time spent on distracting activities and because, upon returning to the assignment, the student has to refamiliarize himself with the material.
- mental fatigue leads to **more mistakes**.
 - Cost is especially high when students alternate between tasks that call for different sets of expressive “rules”—the formal, precise language required for an English essay, for example, and the casual, friendly tone of an email to a friend.
- Third, students’ subsequent **memory** of what they’re working on **will be impaired if their attention is divided**.
- Students who multitask on laptops in class distract not just themselves but **also their peers** who see what they’re doing.

Multi-tasking and learning

- “But evidence from psychology, cognitive science, and neuroscience suggests that when students multitask while doing schoolwork, their **learning is far spottier and shallower** than if the work had their full attention. They understand and remember less, and they have greater difficulty transferring their learning to new contexts.
- “So detrimental is this practice that some researchers are proposing that a new prerequisite for academic and even professional success—the new marshmallow test of self-discipline—is the **ability to resist a blinking inbox or a buzzing phone.**”

Multitasking and memory

- when we're distracted, our **brains actually process and store information in different, less useful ways.**
- In a controlled study, a multitasking group proved **much less adept at extending and extrapolating their new knowledge to novel contexts**—a key capacity that psychologists call transfer.
- different regions of the brain were active under the two conditions, indicating that **the brain engages in a different form of memory when forced to pay attention to two streams of information at once.** "...even if distraction does not decrease the overall level of learning, it can result in the **acquisition of knowledge that can be applied less flexibly in new situations.**"
- media multitasking while learning is **negatively associated with students' grades.**

Shallow learning: “A mile wide and one inch deep”

Meyer, of the University of Michigan, worries that the problem goes beyond poor grades. “There’s a definite possibility that **we are raising a generation that is learning more shallowly than young people in the past,**” he says. “The depth of their processing of information is considerably less, because of all the distractions available to them as they learn.”

“Tech breaks”

- This ability to resist the lure of technology can be consciously cultivated, Rosen maintains. [He advises students to take “tech breaks”](#) to satisfy their cravings for electronic communication: After they’ve labored on their schoolwork uninterrupted for 15 minutes, they can allow themselves two minutes to text, check websites, and post to their hearts’ content. Then the devices get turned off for another 15 minutes of academics.
- Over time, Rosen says, students are able extend their working time to 20, 30, even 45 minutes, as long as they know that an opportunity to get online awaits. “Young people’s technology use is really about quelling anxiety,” he contends. “They don’t want to miss out. They don’t want to be the last person to hear some news, or the ninth person to ‘like’ someone’s post.” Device-checking is a compulsive behavior that must be managed, he says, if young people are to learn and perform at their best.
-

The “biliterate brain”

- “Neuroscience, in fact, has revealed that humans use different parts of the brain when reading from a piece of paper or from a screen. So the more you read on screens, the more your mind shifts towards “non-linear” reading — a practice that involves things like skimming a screen or having your eyes dart around a web page.”
 - T.J. Raphael
- “The reading circuit’s very plasticity is also its Achilles’ heel. It can be fully fashioned over time and fully implemented when we read, or it can be short-circuited —either early on in its formation period or later, after its formation, in the execution of only part of its potentially available cognitive resources.”
 - Maryanne Wolf



Addiction

- “I clearly am addicted and the dependency is sickening.”
- “Media is my drug.”
 - Students in an “Unplugged” study at the University of Maryland
- “I am unable to focus on anything in a deep and detailed manner. The only thing my mind wants to do...is plug back into that distracted, frenzied blitz of online information.” This despite the fact that “the happiest and most fulfilled times of my life involved a prolonged separation from the internet.”
 - College senior writing to Nicholas Carr, author of *The Shallows: What the Internet is Doing to Our Brains*

“iDisorder”

- 750 teens and adults were studied
- Most respondents check text messages, email or social media “every 15 minutes” or “all the time.”
- Exceptions: people over 50

Dopamine

Judith Domath in *Scientific American* notes that the intermittent reward of checking messages leads to a dose of dopamine: “These rewards serve as jolts of energy that recharge the compulsion engine, much like the frisson a gambler receives as a new card hits the table. Cumulatively, the effect is potent and hard to resist.”

fMRIs of Internet addiction

- “New brain scan technology shows that our brains are being rewired. Heavy web users have fundamentally altered prefrontal cortexes. The brains of Internet addicts, it turns out, look like the brains of drug and alcohol addicts.”
 - Newsweek, July 2012

Gray matter atrophy

- "Multiple studies have shown atrophy (shrinkage or loss of tissue volume) in gray matter areas (where "processing" occurs) in internet/gaming addiction. Areas affected included:
 - the frontal lobe, which governs executive functions, such as planning, planning, prioritizing, organizing, and impulse control
 - Volume loss was also seen in the striatum, which is involved in reward pathways and the suppression of socially unacceptable impulses.
 - A finding of particular concern was damage to an area known as the *insula*, which is involved in our capacity to develop [empathy](#) and compassion for others and our ability to integrate physical signals with emotion. Aside from the obvious link to violent behavior, these skills dictate the depth and quality of personal relationships.

Cravings and impaired dopamine function:

Research on video games have shown dopamine (implicated in reward processing and addiction) is released during gaming and that **craving or urges for gaming produces brain changes that are similar to drug cravings**. Other findings in internet addiction include reduced numbers of dopamine receptors and transporters.

Identity and Relationships



Digital Natives and Relationships

- Lack of social skills
- Avoidance of direct social contact
- Conduct relationships online
- More online contacts, but fewer close friends
- Base self-worth on their online feedback (“likes,” “hits,” “friends”)

Digital Natives and Relationships

- Misread/exaggerate emotional content of online communication
- Seek out more online affirmation because it fails to meet emotional needs
- Express distress online – paradox of telling everyone and no one
- Bullying occurs more frequently due to lack of perceived consequences (other as object)
- Fail to learn balancing rights of self and others

Fear of intimacy

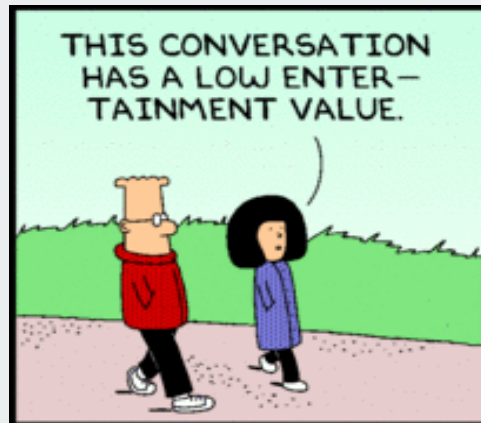
“These days, insecure in our relationships and anxious about intimacy, we look to technology for ways to be in relationships and protect ourselves from them at the same time.”

“We bend to the inanimate with new solicitude. We fear the risks and disappointments of relationships with our fellow humans. We expect more from technology and less from each other.”

—Turkle, *Alone Together*, p. xii

“Her”

http://www.imdb.com/title/tt1798709/?ref=fn_al_tt_1



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Recent studies connecting online and offline behavior

- Survey of a representative sample of 14 to 19 year olds from California in a health clinic setting – 41 percent reported cyber dating abuse during the previous three months
 - Cyber dating abuse was more common among girls than boys. It was also linked to a greater risk of physical abuse, sexual abuse and sexual assault.
- Study in the Netherlands - sex-related online behaviors are not widespread among seventh to tenth grade students.
 - However, those who do engage in sex-related online behaviors are more likely to have negative thoughts about their bodies and perceptions of themselves sexually.
 - Social media use, which was common among the teens, was tied to more evaluations of their bodies and less satisfying sexual experiences. It was also tied to less physical self esteem among girls.
- Both studies confirm "what we're finding out in research, that the online behaviors seem to mimic offline behaviors," Jeff Temple told Reuters Health.

Identity: virtual reality

“The advertising for Second Life, a virtual world here you get to build an avatar, a house, a family, and a social life, basically says, **‘Finally, a place to love your body, love your friends, and love your life.’**”

Escapism

“Doug, a Midwestern college student, played four avatars, distributed across three different online worlds. He always had these worlds open as windows on his computer screen along with his schoolwork, e-mail program, and favorite games. He cycled easily through them. He told me that **RL ‘is just one more window.’ And, he added, ‘it’s not usually my best one.’** Where was this leading?” (from a 1995 anthropology study)

“Phantasy is not imagination, but the frontier of folly.”

—Jacob Boehme

Personifying things, objectifying people

- “Zhu Zhu robotic pet hamsters [are] advertised as ‘living to feel the love.’”
- “...Chatroulette, with 1.5 million users, which randomly connects you to other users all over the world. ...People mostly hit “next” after about two seconds to bring another person up on their screens.”
- “the Zhu Zhus are designed to be loved; in Chatroulette, people are objectified and discarded. I leave my story at a point of **disturbing symmetry: we seem determined to give human qualities to objects and content to treat each other as things.**”

Emotional detachment

- “But the point is that they are real. That’s the whole point.”
 - Father to 12-year-old daughter at a display of live giant Galapagos tortoises at the Museum of Natural History, responding to the daughter’s comment that the tortoises could have been replaced by robots

Virtual “reality”

- “Look, Mommy, a jellyfish! It looks so realistic!”
 - Seven-year-old girl commenting on a live jellyfish in the Mediterranean Sea
- “When Animal Kingdom opened in Orlando, populated by ‘real’—that is, biological—animals, its first visitors complained that they were not as ‘realistic’ as the animatronic creatures in other parts of Disneyland

Empathy



Decreased empathy

- ...college students' self-reported empathy levels (as measured by the Interpersonal Reactivity Index)...have been in steady decline over the past three decades...
- A particularly pronounced slump has been observed over the past 10 years. **"College kids today are about 40 percent lower in empathy than their counterparts of 20 or 30 years ago,"** Konrath reports.
- More worrisome still, according to Jean Twenge, a professor of psychology at San Diego State University, is that, during this same period, students' **self-reported narcissism levels have shot through the roof.**
- "Many people see the current group of college students, sometimes called 'Generation Me,' " Konrath continues, "as **one of the most self-centered, narcissistic, competitive, confident, and individualistic in recent history.**"

Atrophy of the *insula*

- “A finding of particular concern was damage to an area known as the *insula*, which is involved in our capacity to develop empathy and compassion for others and our ability to integrate physical signals with emotion. Aside from the obvious link to violent behavior, these skills dictate the depth and quality of personal relationships.”
 - Victoria Dunckley, 2014

USC study: Processing speed and empathy

- "...higher emotions emerge from neural processes that 'are inherently slow.'"
- Empathy for physical pain is almost instantaneous.
- Empathy for emotional suffering "unfolds much more slowly."
- "The more distracted we become, the less able we are to experience the subtlest, most distinctively human forms of empathy, compassion, and other emotions."
- "If things are happening too fast, you may not ever fully experience emotions about other people's psychological states."

Increased narcissism

- “On a reality TV show, a girl planning her Sweet Sixteen wants a major road blocked off so a marching band can precede her grand entrance on a red carpet. Five times as many Americans undergo plastic surgery and cosmetic procedures as ten years ago, and ordinary people hire fake paparazzi to follow them around to make them look famous. High school students physically attack classmates and post YouTube videos of the beatings to get attention. And for the past several years, Americans have been buying McMansions and expensive cars on credit they can't afford.”

-Twenge and Campbell, *The Narcissism Epidemic*

Case example – Texting and driving: “I just don’t care...”

- “[A] 21-year-old Australian woman was livid when she slammed into a bicyclist while texting late last year, putting dents in her car. The victim suffered a spinal fracture and would spend the next three months in a hospital, but [Davis wasn't having any of it](#), The Standard reports.
- "I just don't care because I've already been through a lot of bullshit and my car is, like, pretty expensive and now I have to fix it," she told a responding officer two days after the Sept. 20 collision. "I'm kind of pissed off that the cyclist has hit the side of my car. I don't agree that people texting and driving could hit a cyclist. I wasn't on my phone when I hit the cyclist."
- Davis, of Port Fairy, pleaded guilty on Monday to dangerous driving and was fined \$4,500. Police say she used her phone behind the wheel 44 times before running down the cyclist. She called emergency responders but parked more than 300 feet away from the victim and refused to offer him help.

Case study: Attempted suicide at the University of Guelph

- Male undergraduate student attempted suicide while live-streaming the event on 4Chan to 200 viewers (the maximum allowed on the site); hundreds more were queued up to watch
- Many were complaining about the lighting
- Some were suggesting more effective methods – e.g. using a toaster in the bathtub
- None of the viewers called emergency responders
- Hundreds of individuals cyberbullied him on Facebook afterward.

University of Guelph suicide post

- “This is it. Tonight I will be ending my own life. I’ve been spending the last hour making the preparations and I’m ready to go through with it. As [a longtime member] who’s been on 4chan since 2004, I thought I would finally give back to the community in the best way possible: I am willing to an hero [commit suicide] on cam for you all. All that I request is for you guys to link me to a site where I am able to stream it for you guys, then I will gladly fulfill my promise.”

University of Winnipeg: The “shallowing hypothesis”

- “those who texted more than 100 a day were **30 per cent** less likely to feel strongly that leading an ethical, principled life was important to them, compared to those who kept their texting to 50 times a day or less.”
- “heavy texting was also associated with **higher levels of ethnic prejudice**”.
- “new information and social media technologies may be **displacing and discouraging reflective thought**,” said Dr. Paul Trapnell.

Psychopathy



“Sight”

<http://vimeo.com/46304267>

Increased psychopathy

- "I asked Bob Hare, "When you look around you at modern-day society, do you think, in general, that we're becoming more psychopathic?" The eminent criminal psychologist and creator of the widely used Psychopathy Checklist paused before answering. **"I think, in general, yes, society is becoming more psychopathic,"** he said. "I mean, there's stuff going on nowadays that we wouldn't have seen 20, even 10 years ago. Kids are becoming anesthetized to normal sexual behavior by early exposure to pornography on the Internet. Rent-a-friend sites are getting more popular on the Web, because folks are either too busy or too techy to make real ones. ... The recent hike in female criminality is particularly revealing. And don't even get me started on Wall Street."

Increased violence: objectification or lack of empathy

- “Acts of **violence against the homeless** have shown dramatic increases, especially over the past 10 years, and were recently estimated to be at an all-time high.”
- “**hate crimes** against Hispanics and perceived immigrants as well as against lesbians, gays, and bisexual and transgender individuals are all significantly increasing.”
- “**hit-and-run car accidents** have increased by about **20%** since 1998.”
- “Accordingly, these specific increases in crime against stigmatized, marginalized, or otherwise defenseless groups seem to support our claim that **Empathic Concern and Perspective Taking are indeed on the decline.**”

Possible causes of increased violence and decreased empathy

- Speed of processing
 - Impatience
 - Lack of higher-order emotional functions, including empathy
- Lack of empathic role models (reality TV)
- Lack of face-to-face social interaction
- Desensitization and fear
- Pressure to Succeed
- Changes in brain development (mirror neurons, striata, insula)

Loss of impulse control

- “Volume loss [of gray matter] was also seen in the *striatum*, which is involved in reward pathways and the suppression of socially unacceptable impulses.”
 - Victoria Dunckley, 2014

Possible cause: Impatience and empathy

- “Alternatively, the ease and speed of such technology may lead people to become **more readily frustrated or bored** when things do not go as planned, resulting in less empathic interactions.”
- “Furthermore, people simply **might not have time** to reach out to others and express empathy in a world filled with rampant technology revolving around personal needs and self-expression.”

Possible cause: Lack of empathic role models

- "...the rise of reality television might provide less than empathic role models for viewers."
- 2000: *Survivor*; 2002: *American Idol*
- "Both shows revolve around single winners, multiple losers, aggressive characters, and rugged competition."
- "reality programming often depicts characters with unfettered narcissism"
- "Overall, the agentic and narcissistic qualities found in modern media seem consistent with decreasing empathy."

Possible cause: Lack of social interaction in real life

- “perhaps it is easier to establish friends and relationships online, but these skills might not translate into smooth social relations in real life.”
- “There have been **significant declines in the number of organizations and meetings people are involved in** as well as in the number of average family dinners and friendly visits”
 - “Indeed, people today have a significantly **lower number of close others** to whom they can express their private thoughts and feelings”

Possible cause:

Desensitization and fear

- “exposure to media and technology may **desensitize** people to the pain of others if people are constantly bombarded with reports of violence, war, terrorism, and so on. From this perspective, a decline in empathy seems understandable.”
- “Another by-product of these trends might be **increased feelings of personal threat** because of exposure to media violence, resulting in unrealistic fears of crime and terrorism. Perhaps more prominent public acts of violence, such as those from September 11, 2001, further enhance biases against the outside world. Accordingly, this **increase in fear** might lead people to be less likely to reach out to others and express empathy.”

Possible cause: Pressure to succeed

- "...**increased expectations of success**, particularly for high school and college students, might be contributing to lower empathy."
- "Standards for college admissions have become more rigorous, leading to record numbers of rejected applications."
- "...it is possible that people are becoming less empathic because they are **feeling too busy on their paths to success.**"

Possible cause: Changes in development of mirror neurons

- Mirror neurons regulate connections between the limbic system and the frontal cortex
- They are also highly implicated in the function of empathy.
- In the fMRIs of diagnosed psychopaths, mirror neurons notably do not “fire” in situations that provoke a response among a normal population
- However, psychopaths can temporarily “switch on” their mirror neurons to mimic empathy

Intervention: “Roots of Empathy”

- “One promising intervention, the Roots of Empathy, has been successfully implemented in elementary schools by teaching children empathy through multiple structured interactions with a developing infant from their community. This work has found **decreases in aggressive behavior and increases in prosocial behavior.** “
- “Other experimental work also finds that empathy is teachable in children and young adults.”

Implications for treatment



"Let's try focussing on your posts that do receive comments."

Implications for Pre-College Programs

Those affected are more likely to feel:

- restless, agitated, or bored
- lonely, isolated, invisible, ignored (i.e., a lack of social support or caring)
- exhausted, sleep-deprived
- depressed or hopeless
- tense, stressed, overwhelmed
- socially anxious and avoidant
- self-centered or narcissistic
- a lack of empathy or compassion toward others
- a lack respect for rules, limits, and authority

Those affected tend to avoid:

- Direct interpersonal contact, including:
 - Eye contact
 - Phone conversations
 - Emotional intimacy
 - Conflict (e.g. break-ups via texting)
 - Help-seeking
- Thoughtful reflection (considering alternative actions, reasons for their own behavior or the behavior of others, pausing to ask “why”)
- Putting on the emotional brakes – de-escalate, relax, calm down, self-soothe

Those affected are more likely to engage in:

- impulsive behavior (hyperactivity, excessive talking, interrupting, hitting)
- reckless or thrill-seeking behavior
- Older adolescents: impersonal or casual sexual encounters (sexting, Tinder, Grindr, #AfterSex, Lulu, Hot or Not, OkCupid, MSU ap for “hook-ups”)
- use of illicit or prescription drugs to alter their mood
- self-injurious behavior such as cutting and burning
- suicidal behavior
- aggressive behavior, including bullying (online or face to face)

Suggestions for Pre-College Faculty and Staff

- Orientation for parents/families
 - Anticipate challenges
 - Discuss medication for mental health issues
 - Maintain lines of communication between families and staff
- Anticipate higher-maintenance students
- Increase staff-to-student ratio
- Some students may experience digital withdrawal

Suggestions for Pre-College Faculty and Staff

- Consider educating students regarding digital impact on:
 - Sleep
 - Communication – importance of face-to-face
 - Concentration/learning/memory
- Consider implementing mindfulness and relaxation practices
- Establish contacts for consultation, crisis intervention, referral
- Look for signs of distress
- Be willing to have difficult conversations, ask about risk (QPR)

Questions and Discussion

Current and Future Responses at MSU

- Increased staffing in Counseling Center
- Integrated Mental Health with Student Health Services
- Increased gatekeeper training – QPR + Multicultural/ Intercultural Dialogue (with OISS and OIII)
- Primary prevention efforts – including partnerships with Healthy Campus Initiative, MPH faculty, Health and Wellness Pillar, Health Education, etc.
- Mobile crisis unit + Psychological First Aid

Current and Future Responses at MSU

- Expanded consultation, crisis intervention, referral: Liaisons to Colleges and other units (OISS, LBGT, Career)
- Counselors-in-Residence in Neighborhoods
- BTAT and BIT – focus on campus awareness, training
- Survey of faculty, advisors, staff regarding student mental health
- Retention study on positive impact of counseling (e.g., students of color)

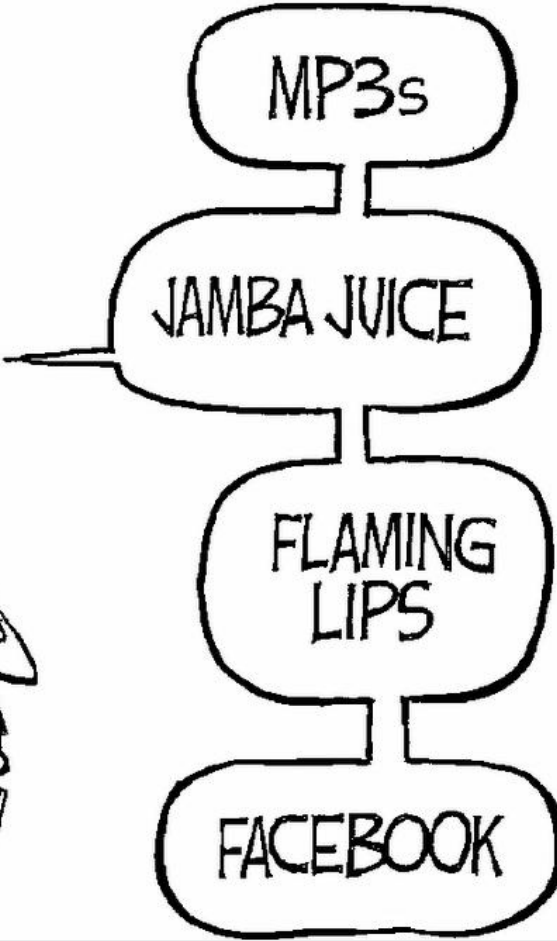
Tips for Managers

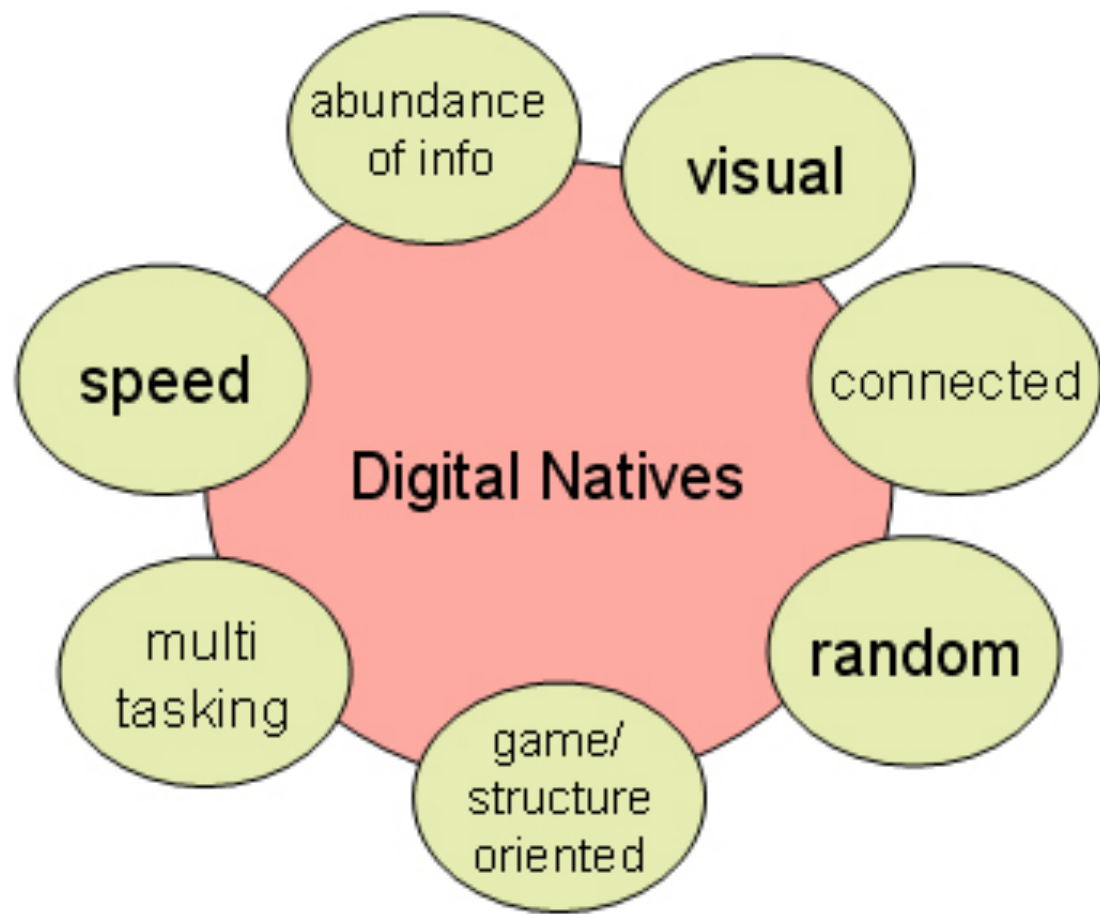
- Share information regarding the negative impact of social media and technology on learning, memory, sleep, mood, stress, anxiety
- Discuss importance of “unplugging” while in classroom and while studying
- Discuss relevance of the T-shaped professional to the “soft” skills that tend not to develop when over-using technology as a mode of learning and relating; over-stress basic professionalism, communication, timeliness, time management, formal communication, voicemail, phone calls, in-person interviews
 - Strongly encourage scheduling appointments with you in person or by phone
- Normalize anxiety and social avoidance – emphasize that it gets easier with practice and persistence

Discussion of Implications for RHS

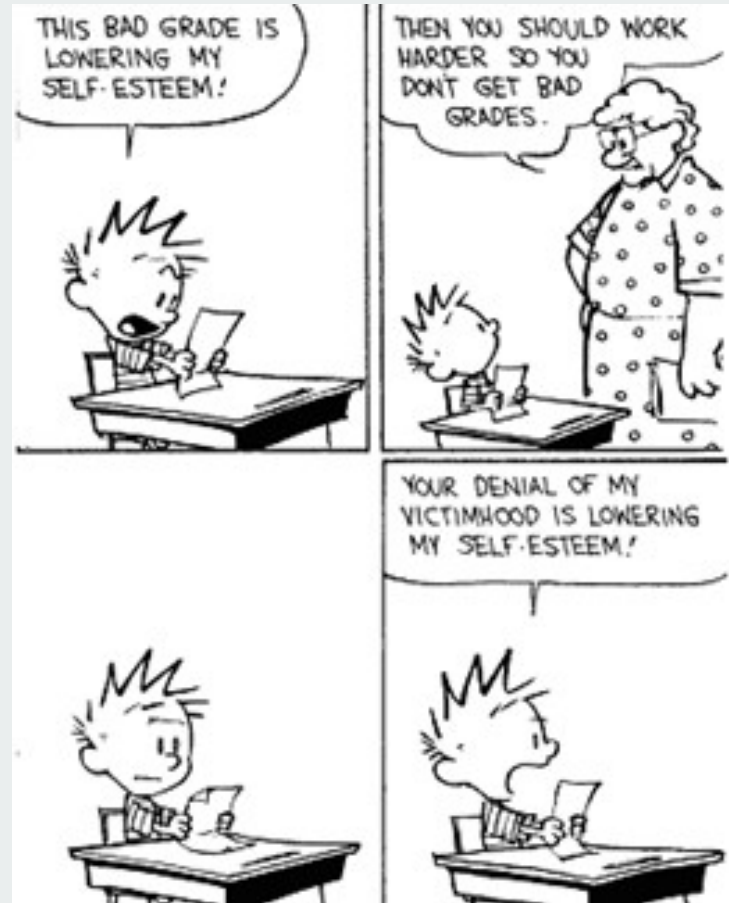
Tips for advisors - continued

- Discuss importance of interpersonal dialogue, empathy, emotional support
 - Offer this support through eye contact, expressions of concern, exploration of students' social support
- Share mental health and wellness information early and often, including resources for consultation and referral for mental health treatment
- Consult with the Counseling Center early and often regarding any behaviors or messages of concern





Entitlement



Influence**Baby Boomer****Generation X****Generation Y**

Role Model	Men of character	Men and women of character	What is character?
Respecting Elders	Automatic	Is polite	Whatever?
Money	Earn it	It is not everything	Give it to me
Loyalty	Work my way to the top	Shortcut to the top	Give me Saturday off or I will quit
Change	Resist it	Accept it	Want it
Decision Making	Calculated	Based on research	Based on advice of friends
Learning	Important	Want structure	Want freedom and experiences
Technology	Ignorant of it	Comfortable	Feel it in their gut

Gen Y – “They don't care how much you know until they



"WELL, YES, WE COULD READ YOUR BLOG... OR YOU COULD JUST
TELL US ABOUT YOUR SCHOOL DAY."

Digital Native Learners

Prefer receiving information quickly from multiple multimedia sources.

Prefer parallel processing and multitasking.

Prefer processing pictures, sounds and video before text.

Prefer random access to hyperlinked multimedia information.

Prefer to interact/network simultaneously with many others.

Prefer to learn "just-in-time."

Prefer instant gratification and instant rewards.

Prefer learning that is relevant, instantly useful and fun.

Digital Immigrant Teachers

Prefer slow and controlled release of information from limited sources.

Prefer singular processing and single or limited tasking.

Prefer to provide text before pictures, sounds and video.

Prefer to provide information linearly, logically and sequentially.

Prefer students to work independently rather than network and interact.

Prefer to teach "just-in-case" (it's on the exam).

Prefer deferred gratification and deferred rewards.

Prefer to teach to the curriculum guide and standardized tests.

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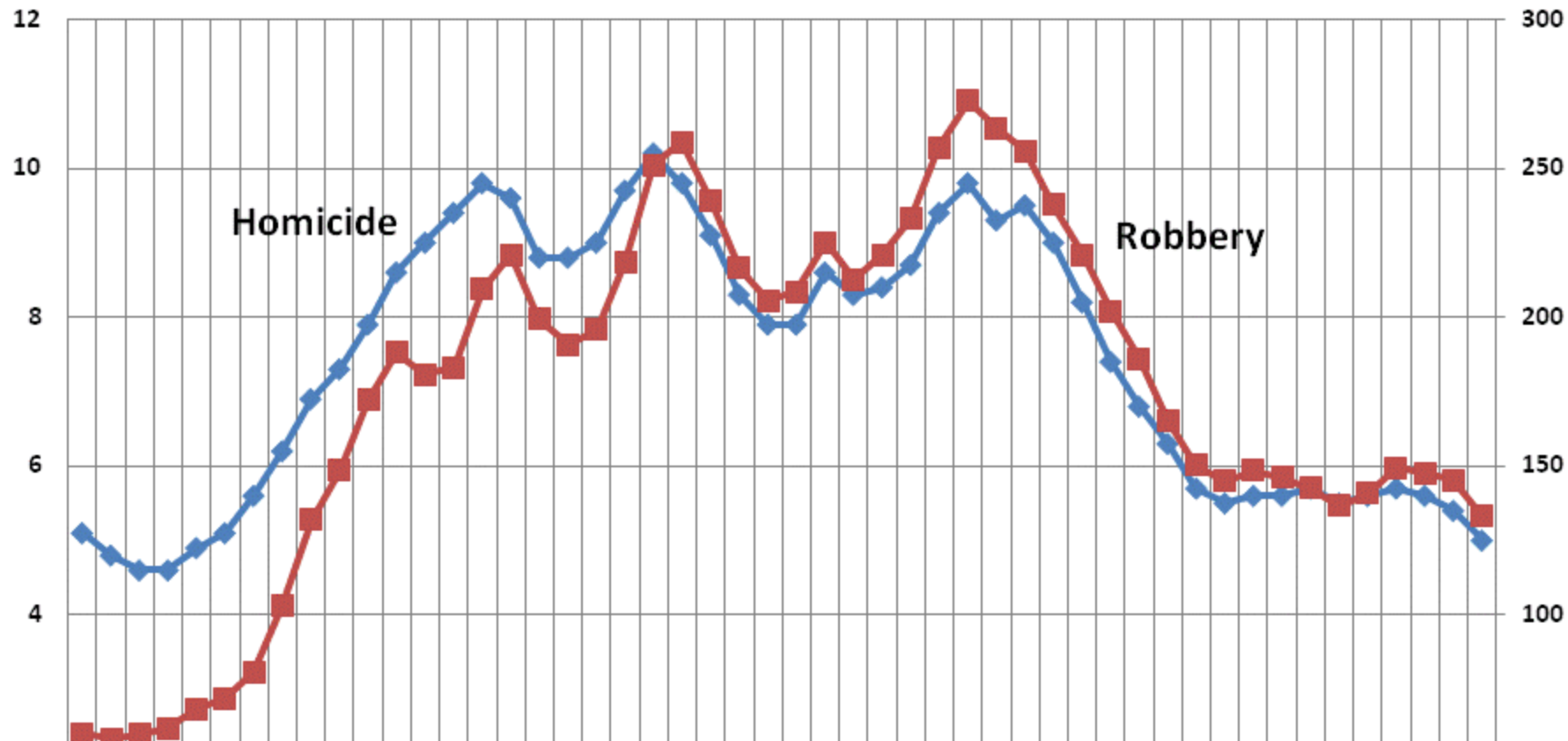
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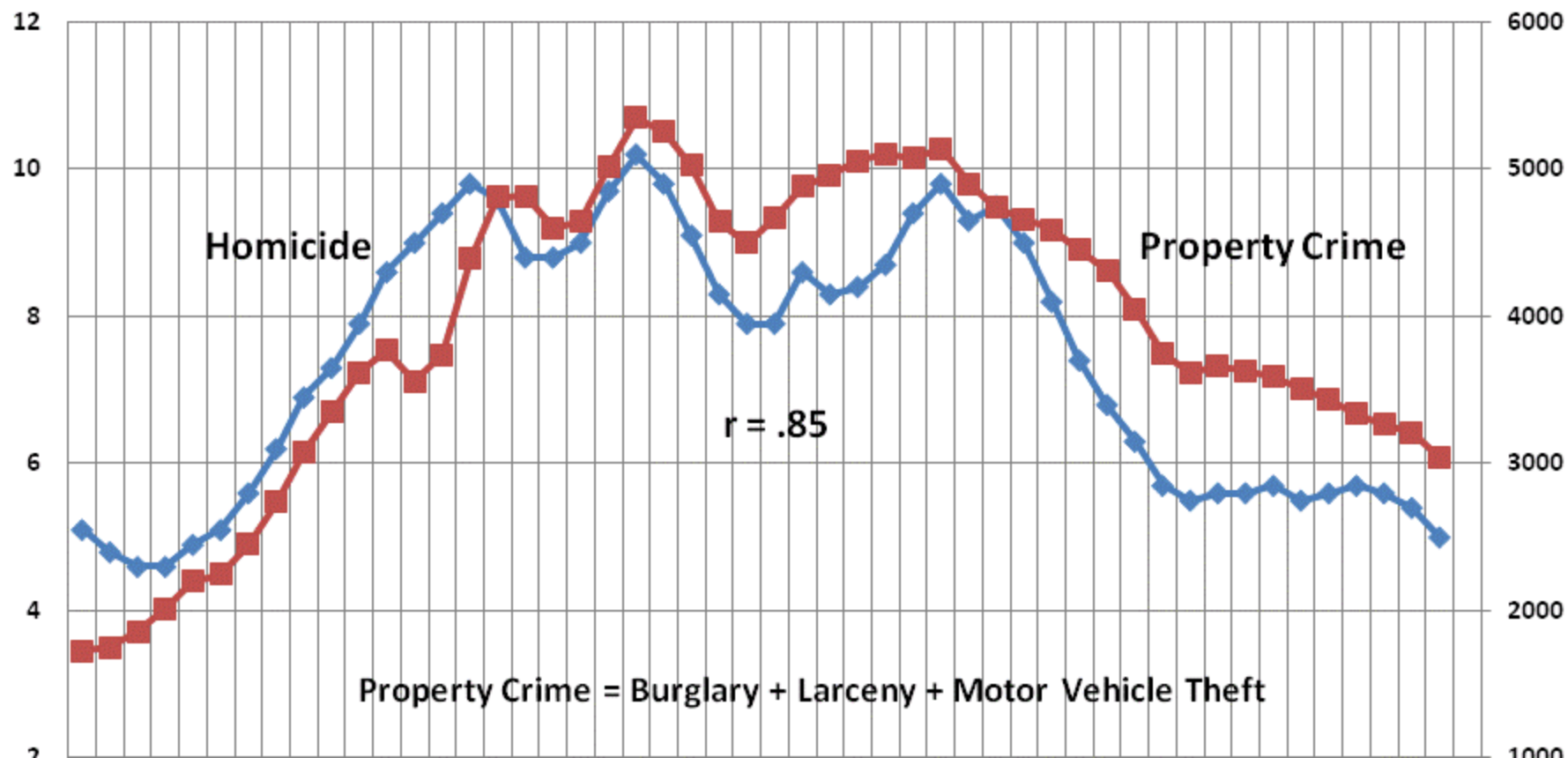
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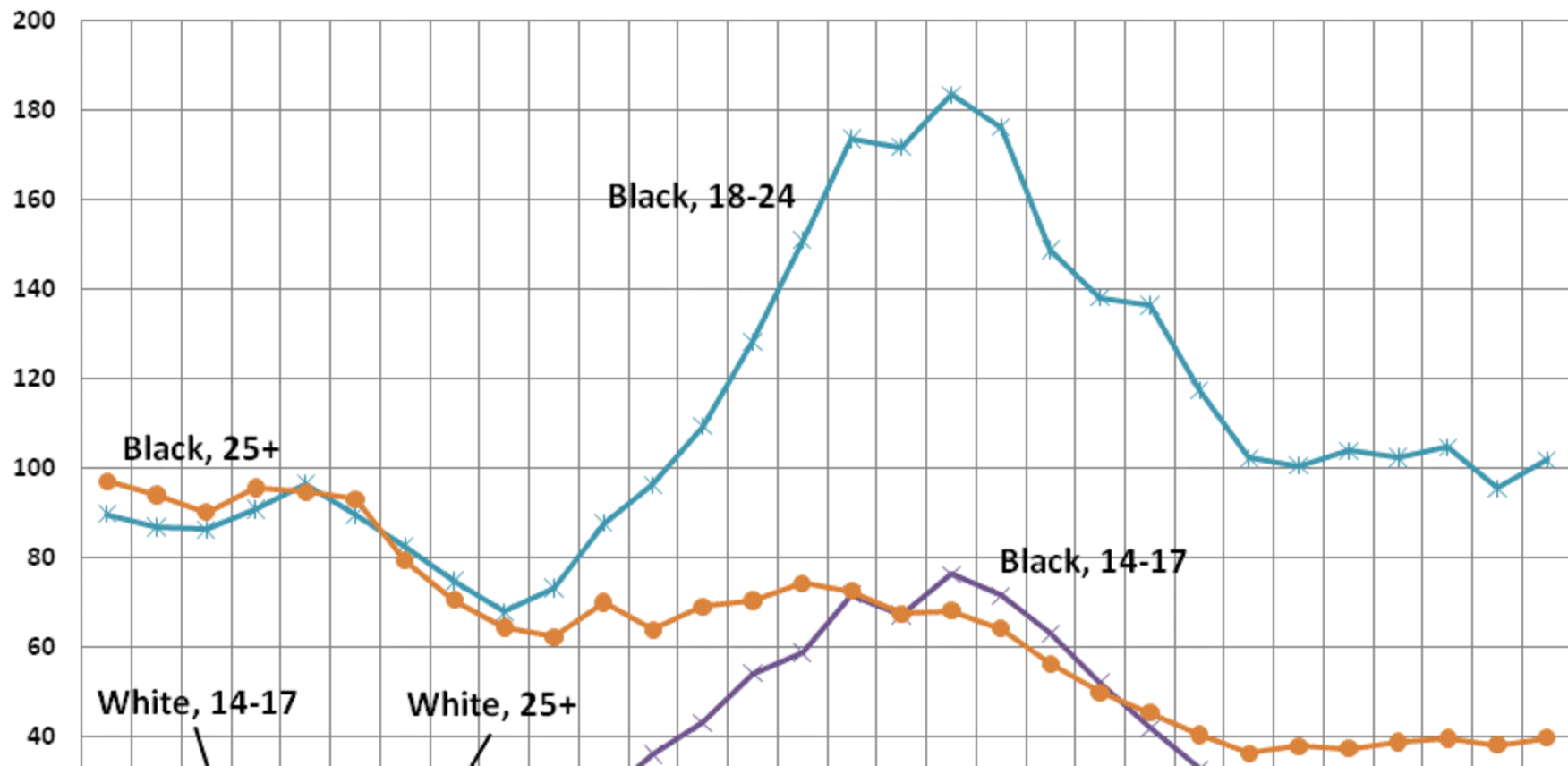
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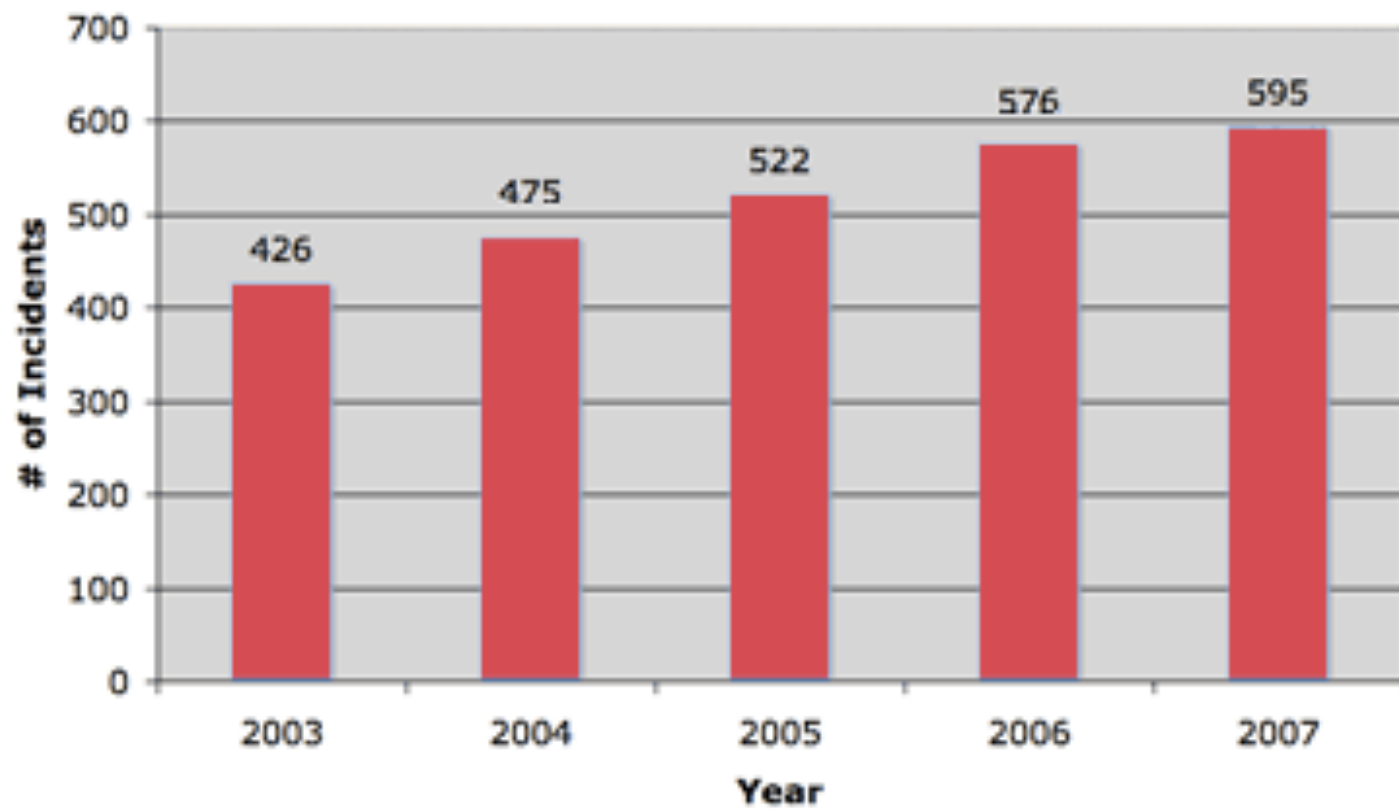
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Male Homicide Victims per 100,000 Population by Race and Age, 1976-2005



Anti-Hispanic Hate Crime Incidents



Hate Crimes in US by Religion

