Psychology of Computer Criminals & Insider Crime

CSH6 Chapter 12: "The Psychology of Computer Criminals."
Q. Campbell & D. M. Kennedy

CSH6 Chapter 13: "The Dangerous Information Technology Insider: Psychological Characteristics and Career Patterns."
J. M. Post

Topics

- Hacker Psychology
- Moral Development
- Why Study Perpetrators?
- Social Engineering
- Self-Reported Motivations
- Psychological Perspectives on Computer Crime
- Social Distance, Anonymity, and Aggression

- Individual Differences and Computer Criminals
- Classifications of Computer Criminals
- The Dangerous Insider
- Stress and Attacks on Computer Systems
- Typology of Computer Criminals
- Conclusions & Implications

CSH6:

Chapter 12: Campbell, Q. & D. M. Kennedy (2014). "The Psychology of Computer Criminals."

Chapter 13: Post, J. M. (2014). "The Dangerous Information Technology Insider: Psychological Characteristics and Career Patterns."

Why Study Perpetrators?

- Detection
  - Knowing how criminals function (*modus operandi,* "m.o.") helps teach us how to spot attacks
  - E.g., recognize social engineering
- Response
  - Know what to avoid
  - E.g., baiting / insulting hackers
- Investigation
  - Focus on likely patterns
  - E.g., look for boasting in hacker groups

Why Study Perps (cont'd)

- Prevention
  - Identify and reduce childhood factors likely to twist children into hackers
  - Spot pre-criminal attitudes and behaviors leading to involvement in hacker groups and provide counseling
  - Challenge hacker propaganda
  - Provide attractive alternatives to hacking

Social Engineering

- Detection
  - Knowing how criminals function (m.o.) helps teach us how to spot attacks
  - E.g., recognize social engineering by providing role-playing games
- Response
  - Know what to avoid
- Investigation
  - Focus on likely patterns
  - E.g., look for boasting in hacker groups

Self-Reported Motivations

- Paul Taylor's research:
  - Addiction
  - Curiosity
  - Boredom
  - Power
  - Recognition
  - Politics

- Orly Turgeman-Goldschmidt's findings:
  - Curiosity
  - Thrill seeking
  - Need for power
  - Ideological opposition to information restrictions

Psychological Perspectives on Computer Crime

➢ **Self-reported motivations may be incomplete or inaccurate**

➢ **Behavior often controlled by unconscious factors**

➢ **So beware facile explanations and generalizations about criminal hacking**

Social Distance, Anonymity, and Aggression

➢ **Many criminal hacking activities are aggressive**

   ❑**Likelihood increases when perpetrators can remain anonymous and**

   ❑**When likelihood of retaliation low**

➢ **Milgram's landmark work on depersonalized obedience showed how powerful deindividuation could be in fostering unethical, immoral or illegal behavior**

➢ **Bandura showed that criminals justify their acts by minimizing their significance and blaming their victims**

   ❑**Thus some hackers blame people they hack**

Individual Differences and Computer Criminals

➢ **DSM IV suggests possibility that *some* computer criminals have personality disorders (PD)**

➢ **Antisocial PD**

   ❑**Insincerity, dishonesty**

   ❑**Superficial charm, enhanced intellect**

   ❑**Require little or no reward**

   ❑**Ignore threats of punishment**

   ❑**Self-justification, blaming victims**

➢ **NOT A UNIVERSAL DIAGNOSIS – JUST THAT SOME OF THE CRIMINALS MAY FIT PROFILE**

More About Personality Disorders

➢ **Narcissistic PD**

   ❑**Attention seekers**

   ❑**Inflated sense of entitlement**

   ❑**Lack of empathy for victims**

   ❑**Rationalization to justify behavior**

➢ **AGAIN: NOT A UNIVERSAL DIAGNOSIS – JUST THAT SOME OF THE CRIMINALS MAY FIT PROFILE**

Asperger's Syndrome

➢ **Mild form autism**

➢ **Reduced social relations and skills**

   ❑ **Low affect,**

   ❑ **Reduced interest in interaction, awkward interactions**

   ❑ **Prone to repetitive, intense interests & behaviors**

   ❑ **Obsessive or extremely focused area of intellectual interest**

➢ **NO EMPIRICAL EVIDENCE LINKING CRIMINAL HACKING TO ASPERGER SYNDROME**

   ❑ **Most Asperger victims extremely honest**

   ❑ **Asperger may be higher in computer enthusiasts than in general population**

Computer Addiction and Computer Crime

➢ **Some computer criminals may have behaviors akin to addiction**

   ❑**Concentration on computer use**

   ❑**Mood dependence on usage / hacking**

   ❑**Increased dependence over time**

   ❑**Withdrawal effects upon deprivation**

   ❑**Conflict over habits**

   ❑**Relapse when attempting to stop**

➢ **Some computer criminals report intense feelings ("rush") when engaging in criminal hacking – and depression when stopped**

Ethics and Computer Crime

- Some researchers suggest computer criminals have underdeveloped moral maturity
- "Information Wants to be Free"
- Deviant attitudes toward unauthorized use of computing / network resources
- Justifications of intellectual-property theft highly deviant if applied to physical property
- Blaming victim commonplace
- Frequently unaware of consequences of actions
- May see actions as entertainment in a playground: deny existence of real victims or real effects

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Moral Development

Kohlberg's Stages of Moral Reasoning

Stage of moral reasoning	Level	Moral behavior perceived as that which …
Preconventional	Level 1	Avoids punishment
	Level 2	Gains reward
Conventional	Level 3	Gains approval and avoids disapproval of others
	Level 4	Is defined by rigid codes of "law and order"
Postconventional	Level 5	Is defined by a social contract generally agreed upon for the public good
	Level 6	Is based on abstract ethical principles that determine one's own moral code

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Moral Reasoning By Age (Kohlberg, 1963)

Percentage of answers vs Age

Legend:
- 1 & 2
- 3 & 4
- 5 & 6

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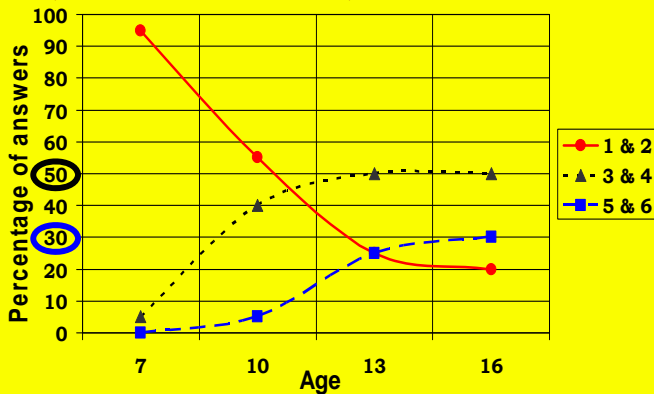
Classifications of Computer Criminals

- Many different frameworks used over years
  - Novices / Students / Tourists / Crashers / Thieves
  - Lamers / Neophytes / Elite
  - Pranksters / Hacksters / Malicious Hackers / Personal Problem Solvers / Career Criminals / Extreme Advocates / Malcontents, Addicts & Irrational Individuals
- Roger' New Taxonomy
  - Newbie / Cyber-punk / Internals / Coders / Old Guard / Professional Criminals
- Class Apart: Virus Creators

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The Dangerous Insider

- Predominantly introverts
  - More interested in ideas than in social relationships
  - Internalize stress
  - Express themselves online
- Research by Dr Jerrold Post on computer technology insiders
  - Reviewed > 100 cases computer crime
  - Interviewed many security professionals
  - Results follow on next slides

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Characteristics of Dangerous Computer IT Insiders

- Social & Personal Frustrations
- Computer Dependency
- Ethical Flexibility
- Reduced Loyalty
- Entitlement
- Lack of Empathy

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Social & Personal Frustrations

- History of frustrations in relationships
  - Personal
  - With coworkers
- Prefer predictability & structure of work
  - Like computers
- Propensity for anger toward authorities
- Some display *revenge syndrome*
  - Getting even for perceived injury
  - May have chosen computer work with explicit or implicit intention of striking back at unfair society

Computer Dependency

- Unusual emphasis on computer-mediated activity
- May replace face-to-face interactions by virtual-world contacts
- May use online persona as mechanism for
  - Influence
  - Manipulation
  - Recruitment
- May become so involved in computer work as to be classified as addicted

Ethical Flexibility

- *Small proportion* (<10%) approve of illegal acts
  - Criminal hacking
  - Sabotage
  - Espionage
- Believe that
  - Inadequate security fully justifies penetration, unauthorized exploitation
  - Computers = toys
  - Data not real
  - Consequences not serious

HACKERS AHEAD

Reduced Loyalty

- Little sense of long-term involvement
  - High turnover in field
  - Sense of being peons rather than collaborators
  - Ties into sense of entitlement (see next slide)
- Loyalty more towards peers
  - IT professionals
  - Non-criminal hackers
  - Criminal hackers

I work for money. If you want loyalty, get a dog.

Entitlement

- Feeling of being special
- Entitled to corresponding
  - Recognition
  - Privileges
  - Exceptions
- Fragile egos
  - Easily offended
- Prone to anger
  - Enraged by failure to recognize them as special
  - Seek revenge for slights

Lack of Empathy

DIAGNOSTIC AND STATISTICAL MANUAL OF MENTAL DISORDERS
FOURTH EDITION
TEXT REVISION
DSM-IV-TR®
AMERICAN PSYCHIATRIC ASSOCIATION

- Little or no regard for effects of their actions on others
- Incapable of recognizing consequences of their actions
- Overall, the entire set of observations fit two related personality disorders:
  - Avoidant/schizoid
  - Antisocial/narcissistic/paranoid
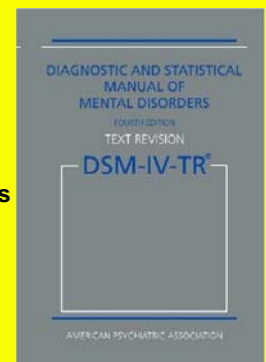
Stress and Attacks on Computer Systems

- Course of insider computer crime shows gradual increase in severity of incidents
- Starts with minor infraction
  - Often overlooked
  - Fear of upsetting valuable employee
  - But intervention could prevent slide into further infractions
- Moderate infraction is next
  - Again, often not dealt with by management
  - Should take appropriate action
    - ✓Suspension or termination of employment

Typology of Computer Criminals

See *CSH6* §13.6 for full detail; only a few types discussed here.

- Machiavellians
  - Hack to advance careers
  - Frame rivals or superiors to rise in status
  - E.g., consultants who plant time bombs; one case where specialist caused problems in systems around world to get free travel to exotic locations
- Proprietors
  - Feel that they own the systems they work on
  - Sequester information to maintain power
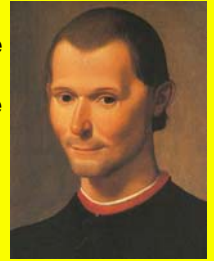
Niccolò Machiavelli
(1469-1527)
Image from Wikipedia

Conclusions & Implications

- Use effective hiring practices
  - See *CSH6* Chapter 45 on "Employment Practices and Policies"
  - Background checks
- Effective monitoring & detection systems
- Provide *online* support services as part of Employee Assistance Program
- Formal termination procedures
- Include human factors in IT security audits

Now go and study