

# Using Psychology to Understand and Detect Online Identity Deception

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# PRESENTATION OUTLINE

## **1. Psychological Issues in Identity**

- Sources, Dynamic, Representation (f-to-f and online)
- Is it Deception?

## **2. Deception and Online Identity**

- Motivation: five levels of online identity deception

## **3. Psychology and Detecting Identity Deception**

- F-to-f research (content/NVC), Online research (content/style)

## **4. Future Research / Summary**

- Fusion Psychology/Computing

# **[1] PSYCHOLOGICAL ISSUES IN IDENTITY**



# Sources of identity

- identity derives from multiple sources:
- physical attributes (e.g. ethnicity, age, physique, gender)
- psychological attributes (e.g. social class, nationality, most groups, personality)
- identity is constantly changing as sources change (e.g. redundancy, becoming 40, having children, moving to new city)

# Identity as dynamic

- Developmental / life-span Psychologists: changes from child, adolescent, adult stages
- Clinical / counselling Psychologists: current vs future self, real vs fantasy self
- Social Psychologists public (social identity) vs private self (individual identity)

# Representing identity: face-to-face

“Identities are given meaning through the **language** and **symbolic systems** through which they are represented” (Woodward, 1998, p8)

- **Language** and NVC = facial expressions, vocal cues, body language, e.g. accent
- **Symbolic systems** = clothing, jewellery, hair

# Representing identity: online

- apply Woodward's definition to Identity online:

**Language** = computer-mediated communication

- communicate attitudes / feelings associated with our identity

**Symbolic systems** = Home Pages, MySpace profiles, Avatars etc

- visually presenting image of our identity

# Is it deception?

- aspects of identity easily changed online
  - are there differences between e-identity and real-life identity?
  - or experimenting with future or fantasy selves?

## Is this deception?

Denegri, J. & Taylor, J. (2005). Deviance on the Internet: a labelling game. Social Science Computer Review.

## [2] DECEPTION AND ONLINE IDENTITY

*'the authenticity of identities is always in question online, because of the masking and distancing of the medium'* (Rheingold, 2002)

## **Study focussed on motivation: Five levels of 'deception' identified**

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1. Honest identity
2. Minor deception
3. Deception for self-exploration
4. Deception as normative
5. Deviant as anti-normative

# 1. Honest identity (reflect / confess)

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- answer question 'Who Am I?' and make this personal information public
- Buten survey: 91% felt they presented themselves accurately on home pages, 67% felt that it was inappropriate to misrepresent yourself on home pages

## 2. Minor deception (impression management)

Jaffe et al.

“a person "manages identity" by deliberately exhibiting and withholding pieces of social information, for the purpose of influencing the perceptions of others towards that person”

## 3. Deception for self-exploration

- explore one's 'real-life' identity
- may focus on one attribute  
'one side of my identity that would not exist in any other medium'
- experiment with new identities (desired or future)

## 4. Deception as normative

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- wholesale new identity
- in MUDS/MORPGS (multi-user games) adopted identities (e.g. gender switching) are normative and playful, not deviant
- Avatars chosen to represent personality, gender, status, social class, physique, attractiveness etc

## 5. Deception as anti-normative

- wholesale new identity
  - false identity used to:
    - illegally obtain services, goods
    - exert power over someone
    - immoral intentions
- e.g. online dating sites (Whitty, 2007)

## **[3] THE ROLE OF PSYCHOLOGY IN DETECTING IDENTITY DECEPTION**



# What can Psychology tell us about those who deceive?

- Wiseman, 2007 (diary study) adults tell approx 2 lies per day, 33% of conversations involve some form of deception, 80% lies remain undetected, 80% lie to secure a job, 60% cheated on partner
- Psychologists have studied skilled deceivers (sales, politicians, criminals) to identify indicators e.g. Vrig, 2007 forensic evidence, EWT, confessions to identify cues from criminals in real police interrogations
- personality, e.g. high self-monitors

# Demonstration: Are you a good liar?

- Use 1st finger of dominant hand
- Draw capital letter Q on your forehead
  - Did you draw letter so that you could read it?  
(i.e. tail of Q on right-hand side of your forehead) ...or
  - Did you draw letter so that someone facing you could read it?  
(i.e. tail of Q on left-hand side of your forehead)
- Measure of 'self-monitoring': low = former and high = latter
- Low self-monitors come across as being same person in different situations, behaviour guided by inner feelings/values and less aware of their impact on those around them -> less skilled in deceit
- High self-monitors concerned with how other ppl see them, happy being centre of attention, adapt behaviour to suit situation, skilled at manipulating the way others see them -> tend to be good at lying

# What can Psychology tell us about detecting deception?

Notoriously difficult to detect:

- Developmental Psychologists: parents unable to detect whether children are lying / telling truth
- Many studies show that general public are no better than chance, e.g. detecting fake smiles
- Ekman studied 'expert detectors' (polygraph operators, police, judges, psychiatrists)
- Stereotypical cues that people traditionally look for (avert gaze, nervous hands, shifty) = inaccurate

# Style or content?

Wiseman 2007, 'the real cues to deceit are in the words people use, not the body language'

- newspaper = 53%
- radio = 73%
- TV = 64%

1. communication content

2. non-verbal cues / communication style

# 1. Communication content

Cognitive Psychologists:

- discrepancies in information + logical fallacies
- Liars tend to say less + provide fewer details than truth tellers 'tell the truth, then you have nothing to remember'
- conversely, if recall of long-term memory give too much detail (well-rehearsed)
- Liars psychologically distance themselves from lies so include fewer references to themselves or their emotions
- Cognitive load – tested using 'backwards recall' (Vrij, 07)

## 2. Non-verbal cues and channels

Social Psychologists:

<u>Visual</u>	<u>Audio</u>
- f-to-f	- vocal + verbal
- blink more - increase in self-grooming - fleeting <i>changes</i> (micro-expressions) - arms close to body	- hesitation - shorter responses - pause more - speech errors - higher voice pitch

# Deception in online media

Burgoon et al, 2003, 'deception occurrence is inversely related to communication media bandwidth ...the rate at which data can be transmitted between people'

- ppl more inclined to deceive the more remote and less familiar they are to their 'deceivees'

Text e.g. SMS, MSN, Blogs

Audio e.g. recordings and voicemails

Visual e.g. Home Pages, MySpace profiles

# Limited psychological research on detecting identity deception

- Miller (1995), *“The implicit information that does leak through is paralinguistic... a matter of style, structure and vocabulary”*
- Ravia (2004): text in games ‘false identities can be detected by linguistic quirks of the masquerader’
- Herring (1997) identified correctly deceivers’ gender / status from linguistic cues
- Zhou & Zhang (2004): an exploratory investigation of deception using instant messaging
- Hancock, et al (2005). An automated linguistic analysis of deceptive and truthful computer-mediated communication

# **Future Research / Summary**



## Future Research (with Dr C Mair, Southampton)

- study online discussions to evaluate identity deception
- manipulate deception in a social network type scenario
- observations of naturally occurring deception in social networks

Qualitative analysis software to analyse content

Independent raters to specify cues

Networking participants to rate perceived deception

**Future: psychology and technology working together to detect identity deception**

**Rowe (2005) recommends data fusion, combining the psychological and computing data**

# Summary

## **Psychological Issues in Identity**

- Reviewed academic literature from Psychology to help understand identity within an internet environment - classifications useful in understanding concept of dynamic identities and showed the links between f-to-f and online representation

## **Deception and E-Identity**

- five levels of e-identity deception - even if we had 100% accuracy in detection, still have a problem of differences of perception: what is a deception to one person is not necessarily a deception to another

## **Role of Psychology in Detecting Identity Deception**

- Psychological analysis of content and style of language to identify cues for detection. Little on identity deception, most on communication

## **Future Research**

- using qualitative analysis to produce a guide to key indicators of identity deception in online text in social nets
- Fusion: Psychology combined with technological techniques

# Technology

Software to automatically recognise

- criminal aliases
- e-mail addresses from free ISPs
- differences in posting and billing addresses
- IP + billing addresses geographically inconsistent

Use of reputation management systems (E-bay, Amazon)

Check links to other sites are reputable

Signatures and certificates

Computer forensics (collate records of person from different communities/networks, identify patterns of criminal activity)

Content analysis software to identify content in fraud-related e-mails