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Kevin Brewer

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Orsett Psychological Services
PO Box 179
Grays
Essex
RM16 3EW
UK

orsettpsychologicalservices@phonecoop.coop

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Kevin Brewer BSocSc, MSc

An independent academic psychologist, based in England, who has written extensively on different areas of psychology with an emphasis on the critical stance towards traditional ideas.

A complete listing of his writings at http://kmbpsychology.jottit.com.

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1. A BRIEF PERCEPTION OF TIME

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1.1. INTRODUCTION

"Timing and time perception are fundamental to survival and goal reaching in humans and other animals" (Buhusi and Meck 2005 p755). Circadian rhythms, like sleep and wakefulness, and metabolic processes, operate over 24 hours, while interval timing involves seconds to minutes (eg: decision making, conscious time estimation), and millisecond timing relates to behaviours like motor control and speech generation (Buhusi and Meck 2005).

The traditional view to explain how interval time is perceived, represented and estimated has been a pacemaker-accumulation model (eg: Treisman 1963) [1]. This is the idea that time is measured by the number of "beats" of a "pacemaker" (eg: time involved in a biological process like a synapse equals one "beat").

Other recent research suggests two timing mechanisms. One that relates to milliseconds involving the cerebellum (an automatic timing system), and an attention-based system for longer periods of time (ie: seconds and minutes) involving the basal ganglia and related areas of the cortex (eg: prefrontal cortex) (Buhusi and Meck 2005).

Both timing mechanisms can be disrupted by sickness or injury. The attention-based system is tested by asking individuals to estimate the passing of a set period of time, or to compare two durations of time as similar or different. Individuals with Parkinson's disease, for example, are poor at these tests [2], while individuals with damage to the cerebellum are not. The latter, however, are impaired in tests that require random movements (involving millisecond timing) (Buhusi and Meck 2005).

[1] Circadian rhythms are primarily controlled by the suprachiasmatic nucleus (SCN) of the hypothalamus, and responds to light coming through the eyes.

[2] Parkinson's disease involves changes in the neurotransmitter, dopamine, and its action in the synapse could be a "beat" (Buhusi and Meck 2005).

1.2. DURATION OF TIME

Illusions of the duration of events, of the order of events, and of the simultaneity of two events together have shown that "temporal introspection can often be a poor guide to the timing of physical events in the world" (Eagleman 2008).

An illusion in the duration of short intervals is the "stopped clock illusion". The second hand of a clock appears to stop momentarily at each point before moving. When looking at the clock, there are eyes movements and blinking (saccades), which the individual does not perceive because the brain fills the time gap retrospectively after the eyes have landed on the next target (Yarrow et al 2001).

The length of perceived time is also influenced by properties of the stimuli. For example, larger, brighter, and numerically more dots flashed on a computer screen are perceived as having a longer duration than smaller, duller, and less numerical ones (Xuan et al 2007). It may be that the amount of neural energy used to deal with a stimulus (eg: more for brighter objects) correlates with the perceived duration of time (Parlyadath and Eagleman 2007).

A subjective "expansion of time" has been produced in experiments by use of a repeated stimulus (eg: the same image shown for the same period of time with the same intervals). The first appearance is judged as longer duration than subsequent presentations, and the inclusion of a different image ("oddball") in the middle of the sequence is perceived as longer (Eagleman 2008). This can again be explained by reference to neural activity. The firing rate of neurons in areas of the cortex is suppressed after repeated presentations of a stimulus (repetition suppression) (Parlyadath and Eagleman 2007).

This perception of the first stimulus as longer also occurs with predictable stimuli. For example, when the numbers, 1-2-3-4-5 are presented in order, the perceived duration of "1" is longer (Parlyadath and Eagleman 2007).

The perception of time when more than one sensory mode is involved also shows an illusion. In one experiment individuals press a button (motor act) and a light flashes (vision). After a few pairings, the nervous system has adapted to the time between pressing the button and the light flashing (say 100 ms). If the light flashes faster after the button pressed, it is perceived as happening before the button was pressed (Stetson et al 2006).

Heron et al (2011) showed participants a number of images or sounds for a set period before asking them to estimate the length of a test image or sound (which was

always 320 ms in duration). The image used was a luminous blob on a grey screen, and the sound was white noise. The length of the stimulus in the adaptive phase was either 160 or 640 ms (and a control group with no adaptive phase). How long would the test stimulus be perceived? When the adaptive stimulus were shorter (ie: 160 ms), the test stimulus was perceived as longer than that, and shorter when the adaptive stimulus was longer (table 1.1).

	TEST IMAGE	TEST SOUND
Adaptive Image: • 160 ms • 640 ms • None	 289 360 330	/
Adaptive Sound: • 160 ms • 640 ms • None	/	 274 361 306

Table 1.1 - Median length (ms) of estimate of 320-ms test stimulus after adaptation.

Another illusion relates to the belief that "time seems to have slowed down" during a life-threatening situation. Individuals falling backwards for three seconds from a 50-metre high tower into a net below reported afterwards that the duration of the fall seemed longer as compared to lower height falls. This seems to be an illusion of memory because when Stetson et al (2007) asked participants to look at a flickering watch when falling (which is too fast to perceive normally), they still could not see what the watch said (appendix 1A). So, time did not actually slow down during the frightening event. One suggestion is that the brain counts time based on the amount of information processed, and during life-threatening events more information is processed which produces the illusion of more time having passed (Eagleman 2008).

1.3. FUTURE TIME

The conscious perception of time, particularly in relation to the future, is a subjective process which can be altered by what is happening. For example, the forthcoming hour will be perceived as different depending of what has to be done in that time.

Biases in perception exist for visual perception, for example, and so it seems for the perception of the near future (Herbert 2011). For example, the deadline for

complex tasks that require more time and effort to complete are perceived as farther off than for simple tasks. Jiga-Boy et al (2010) asked students to imagine unspecified points in the future when certain tasks should be completed. Of the 28 tasks, some were straightforward (eg: buying tickets for an event) and others were complex and demanding (eg: planning a wedding).

But when Jiga-Boy et al asked the students to think about the tasks with specific deadlines imposed (two or eight months away), the complex task deadlines were now perceived as closer in time than the simple task ones (appendix 1B).

1.4. APPENDIX 1A - STETSON ET AL (2007)

The "perceptual chronometer" was set to show two digits every 30-50 ms (which was chosen as faster than can be normally perceived when participants were tested beforehand). Perception of the digits was scored as 100% (both digits correct), 50% (one digit correct), or 0% (neither).

Twenty participants were recruited at the Suspended Catch Air Device (SCAD) diving tower at the Zero Gravity amusement park in Dallas, Texas, USA. This is a tower 46 metres high with a fall of 31 metres into a safety net lasting 2.49 seconds (figure 1.1).

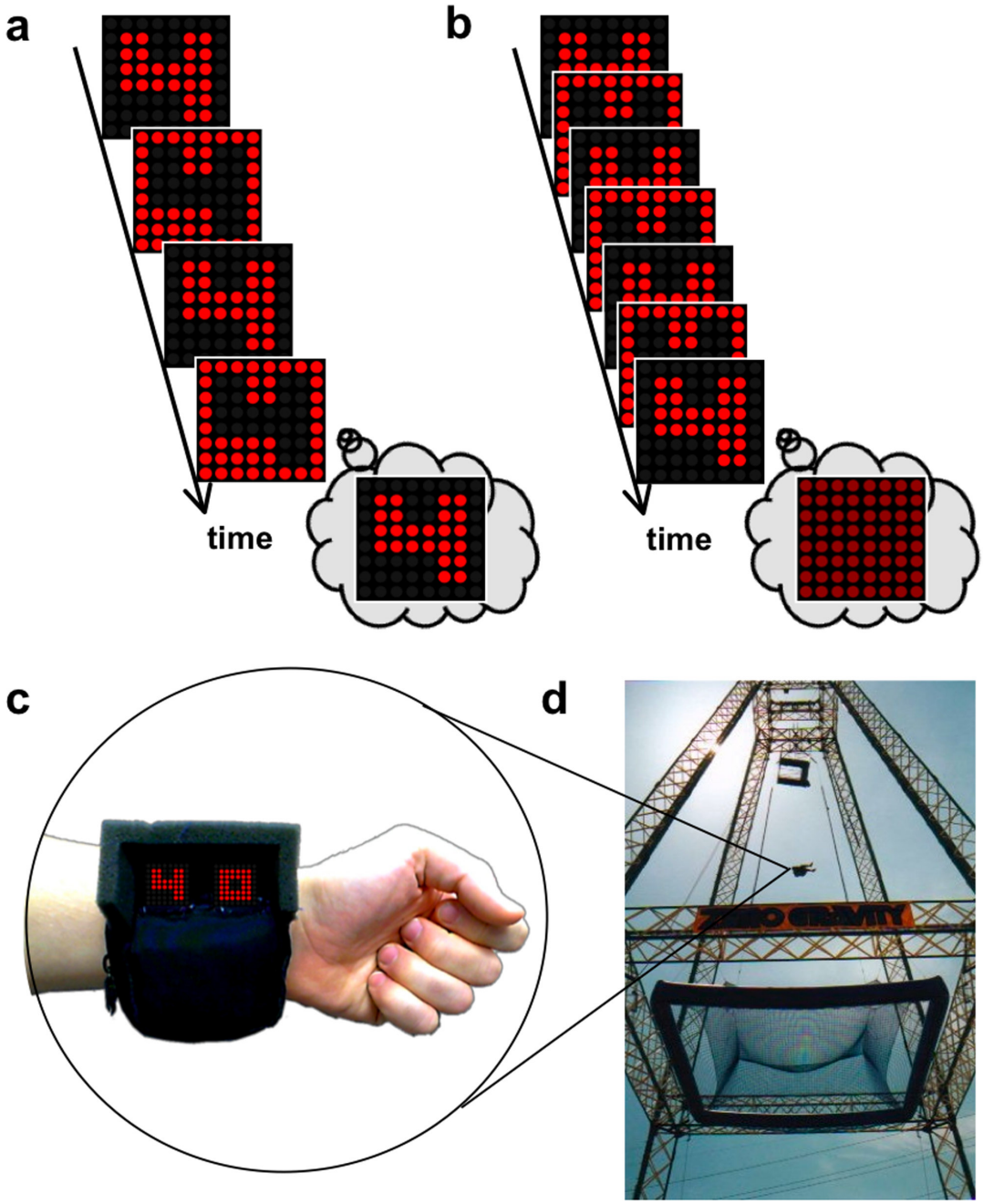
Estimates of the length of the fall increased by 36% from a pre-fall guess to post-fall recall (2.17 to 2.96 seconds mean).

Accuracy of reporting the digits was no better during the fall than in a control condition on the ground (either before or after the fall) (approximately 30% correct) (figure 1.2).

1.5. APPENDIX 1B - JIGA-BOY ET AL (2010)

Jiga-Boy et al (2010) were interested in the perceived temporal distance of a future event deadline, and the role of effort (complexity of activities) in the intervening period to that deadline. This relationship is seen as parallel to the perception of spatial distance based on the energy required to reach a destination and the energy the individual has. In other words, individuals who feel low on energy perceive spatial distances as further than individuals full of energy (eg: Proffitt et al 2003).

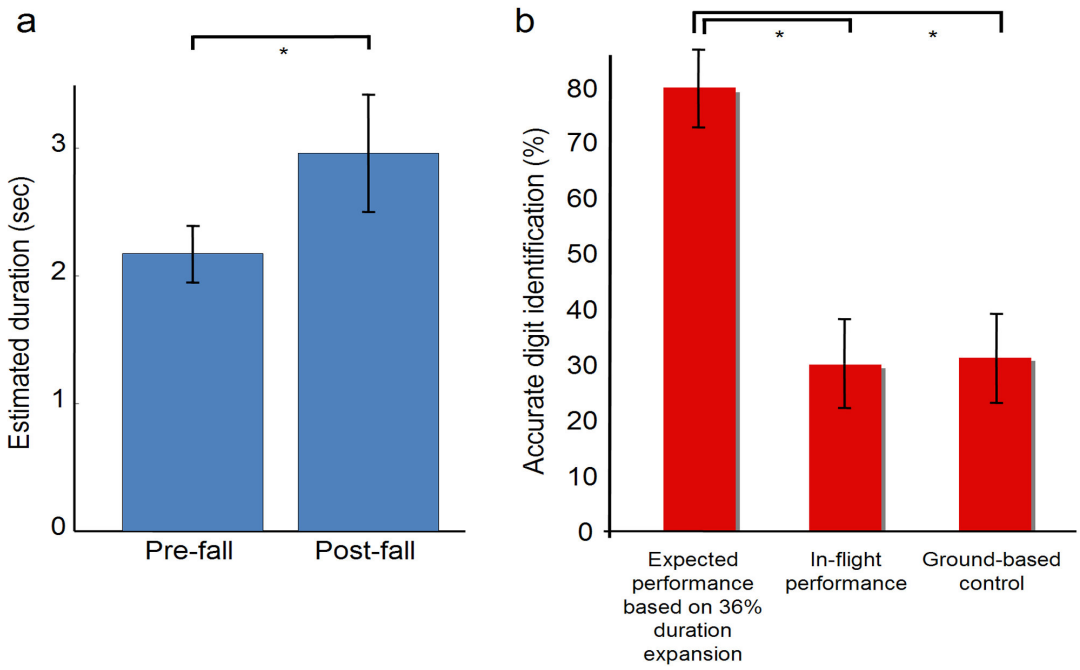
Jiga-Boy et al performed five experiments to test perceived temporal distance.



(a) When a digit is alternated slowly with its negative image, it is easy to identify.
(b) As the rate of alternation speeds, the patterns fuse into a uniform field, indistinguishable from any other digit and its negative.
(c) The perceptual chronometer is engineered to display digits defined by rapidly alternating LED lights on two 8×8 arrays. The internal microprocessor randomizes the digits and can display them adjustably from 1–166 Hz.
(d) The Suspended Catch Air Device (SCAD) diving tower at the Zero Gravity amusement park in Dallas, Texas (www.gojump.com). Participants are released from the apex of the tower and fall backward for 31 m before landing safely in a net below.

(Source: doi:10.1371/journal.pone.0001295.g001)

Figure 1.1 - Measuring temporal resolution during a fearful event.



(a) Participants' estimates of the duration of the free-fall were expanded by 36%. The actual duration of the fall was 2.49 secs.
(b) If a duration expansion of 36% caused a corresponding increase in temporal resolution, a 79% accuracy in digit identification during the fall would be predicted (left bar, see text). However, participants' accuracy in-flight was significantly less than expected based on this theory (middle bar, $p<2\times10^{-6}$). In-flight performance was no better than ground-based controls (right bar, $p = 0.86$), in which the experimental sequence was identical except that the participants did not perform the free fall. The performance scores are averaged over participants, each of whom performed the experiment only once and had a potential performance of 100% (correctly reported both digits), 50%, or 0%. Note that participants did show better-than-chance performance on both the in-flight experiment and ground-based control (chance = 10% accuracy) even though the alternation period had been set to 6 ms below their threshold. This performance gain might be attributable to perceptual learning; it may also be because movement of the chronometer makes it slightly easier to read due to separation of successive frames, and participants sometimes moved the device involuntarily as they hit the net. To ensure parity between the comparisons, we applied a small jerk to control participants' wrists to mimic how the device moved when free-fall participants hit the net. Asterisks represent $p<0.05$.

(Source: doi:10.1371/journal.pone.0001295.g002)

Figure 1.2 - No evidence for fear-induced increase in temporal resolution.

Study 1a

Thirty-eight Dutch participants were asked to visualise 28 events (eg: moving house) and assess how much effort would be involved to achieve it. The study took place in May 2007, and participants were given a deadline of 22 July 2007 (two months away) or 22 January 2008 (eight months away) for the event. The participants were asked, "How far away does the day of [the event] feel?", and scored from 1 (very close) TO 7 (very far) for perceived temporal distance (PTD). The more effortful an event, the PTD score was significantly lower (ie: perceived as temporally closer).

Study 1b

This variation of the previous experiment used nine events (three low-effort, three medium-effort, and three high-effort) with 36 more Dutch participants. The high-effort events were perceived as significantly temporally closer than the less effortful ones. In both studies, this did not vary with the time until the deadline (2 or 8 months).

Study 2

This experiment was the same as the previous ones, but did not include fixed deadlines. The 25 participants were asked to imagine each of the 28 events as happening "at a certain point in the future". In this case, more effortful events were perceived as further away (ie: higher PTD score).

Study 3

This experiment used one effortful event with a short deadline - "organise a weekend in Rome for themselves and their friends" in three months time. Prior to this task, the sixty-four participants completed an apparently unrelated test to unscramble thirty 8-word sentences. The sentences read as either high or low effort events (eg: "The jury reached the verdict after countless debates" vs "The jury reached the verdict after few debates"). This was the independent variable, and it was the priming of amount of effort.

The participants who had unscrambled high effort-reading sentences rated the weekend in Rome as significantly temporally closer than the low effort-reading sentences (mean: 3.25 vs 4.00, out of 7).

Study 4

This final experiment used a specific real-life event among 38 participants who were told they were part of "a health psychology study on eating habits". The event was to keep a food diary and report the details after one month. The participants were given instructions based on two randomly assigned independent conditions.

In the low-effort condition, participants would choose any two days in the month to observe their food intake, and provide the information in a half-page report. In the high-effort condition, food intake was to be recorded for two weeks and detailed in a ten-page report. After the instructions, participants were asked how far away the day of submitting the health report

felt.

Participants in the high-effort condition rated the deadline as feeling temporally closer than the low-effort condition (mean: 4.00 vs 5.41, out of 7).

Table 1.2 summarises the findings of the different experiments by Jiga-Boy et al (2010).

STUDY	FINDINGS
1a	The deadline of events is perceived as closer based on effort involved in the task.
1b	The deadline of more effortful events is perceived as closer than low effortful events.
2	More effortful events are perceived as further away than low effortful ones when there is no fixed deadline.
3	For the same effortful event deadline, individuals primed about high effort perceived it as closer than individuals primed for low effort.
4	A one-month deadline is perceived as closer when a more effortful task has to be performed than a low effortful one.

Table 1.2 - Findings of experiments by Jiga-Boy et al (2010).

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2. CHILD PORNOGRAPHY VIEWERS DIFFERENT TO CONTACT SEX OFFENDERS?

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2.1. INTRODUCTION

Durkin (1997) described three ways that child sex offenders could use the Internet:

- To distribute images;
- To construct social networks with other interested individuals;
- To contact children [3].

Child pornography [4] can be defined as "visual depictions of children with their genital or anal areas uncovered or of children in sexual situations" (Seto and Eke 2005 p202). While the Canadian Criminal Code refers to a visual representation that shows a "person who is or is depicted as being under the age of eighteen years and is engaged in or is depicted as engaged in explicit sexual activity" (quoted in Seto and Eke 2005).

Taylor and Quayle (2003) devised a taxonomy for different kinds of child pornography (table 2.1).

[3] For example, a researcher with the BBC programme, "Panorama" ("One Click from Danger"; 7/1/08) set up a virtual identity as a 14 year-old called "Jane Brown" on three social networking sites. Over 20 days, the "teen" received varying degrees of propositions from moving to instant messaging (private communication) to unsolicited pictures of male genitalia, and an offer of money to appear in a video having sex with an older man. While the ITV programme in the UK, "Tonight: To Catch a Predator" (7/1/08) gave details of the "Anti-Grooming Engine" (developed by Crisp Thinking) which aims to identify Internet users who are trying to groom children and adolescents in chatrooms. It looks for differences in conversational patterns, typing speed, use of grammar and punctuation, and aggressive/bullying language.

[4] "There has also been much debate as to the appropriateness of the term 'child pornography'. Many professionals within the field argue that the term trivialises the material and lends credence and legitimacy to the meaning that offenders bring to the phrase, while also drawing unwarranted comparison to adult pornography and thus minimizing the material's inherently abusive nature... Tate (1992) suggests that images of an abusive nature are 'not pornography in any real sense, simply the evidence of serious sexual assaults on young children' (p203)" (Beech et al 2008 p218).

- 01 Indicative - Non-erotic and non-sexualised pictures showing children in their underwear, swimming costumes. From either commercial sources or family albums, pictures of children playing in normal settings, in which the context or organisation of pictures by the collector indicates inappropriateness.

- 02 Nudist - Pictures of naked or semi-naked children in appropriate nudist settings, and from legitimate sources.

- 03 Erotica - Surreptitiously taken photographs of children in play areas or other safe environments showing either underwear or varying degrees of nudity.

- 04 Posing - Deliberately posed pictures of fully clothed, partially clothed or naked children (where the amount, context and organisation suggest sexual interest).

- 05 Erotic posing - Deliberately posed pictures of fully clothed, partially clothed or naked children in sexualised or provocative poses.

- 06 Explicit erotic posing - Emphasising genital areas where the child is either naked, partially clothed or fully clothed.

- 07 Explicit sexual activity - Involves touching, mutual and self-masturbation, oral sex and intercourse by the child, not involving an adult.

- 08 Assault - Pictures of children being subject to a sexual assault, involving digital touching, involving an adult.

- 09 Gross assault - Grossly obscene pictures of sexual assault, involving penetrative sex, masturbation or oral sex involving an adult.

- 10 Sadistic/bestiality - (a) Pictures showing a child being tied, bound, beaten, whipped or otherwise subject to something that implies pain. (b) Pictures where an animal is involved in some form of sexual behaviour with a child.

(Source: Frei et al 2005 table 2 p490)

Table 2.1 - Taylor and Quayle's (2003) taxonomy of different kinds of child pornography [5].

2.2. CHILD PORNOGRAPHY VIEWERS

Nielssen et al (2011) began their article: "Little is known about child pornography offenders and in particular the extent of any association between the use of child pornography and offending that involves direct physical contact with children. The growth of the Internet and access to it has allowed those with an interest in child pornography to view and disseminate this material without interpersonal contact. The

[5] Frei et al (2005) (see below) found that the majority of images owned by their case studies were levels 9 and 10 (categories in table 2.1) (45% and 27% of offenders respectively).

electronic record left by Internet traffic, however, also provides the means to track and apprehend child pornography offenders by tracing credit card use, chat room communications and downloaded material" (p216).

While Taylor and Quayle (2006) observed:

> Some people who possess abuse images are either involved in contact offences, or may become involved as a result of access to abuse images; certainly all producers of abuse images are necessarily involved in contact offences. But there seems to be an unknown, but probably large, group of people who limit their expression of sexual interest in children to possession of images, and furthermore, for some this may be part of a broader array of activities on the margins of Internet life that has little if anything directly to do with sexual interest in children, and may perhaps relate more to other broader sexual interests.

Using data from individuals apprehended, researchers have attempted to develop a profile of child pornography offenders (CPOs). Are these individuals who had no previous interest in child pornography but were attracted to it by the apparent anonymity and availability of material on the Internet [6]?

In trying to understand CPOs, Taylor and Quayle (2006) suggested focusing upon the crime/behaviour rather than the sexual element: "perhaps our understanding of these kinds of offences and offenders may be improved if we turn attention away from the sexual qualities of these offences, and focus more on the processes whereby offending takes place and the particular behaviours involved. This is not to deny the obvious sexual elements to these crimes". So CPO should be viewed within the "broader context of problematic Internet behaviour". Bourke and Hernandez (2009) contradicted this position: "we strongly recommend against the formation of new (and sometimes tautological) psychological constructs to explain this phenomenon (eg: 'cyberpictophilia'). Along similar lines, we urge professionals to use restraint and avoid attributing the pathogenesis of certain problematic sexual behaviour involving the Internet, such as cybersex 'addiction'... or online compulsive sexual behaviour... to child pornography offences. These constructs, while descriptive of certain problematic sexual behaviour involving the Internet, do not, we believe, fully capture the psychological or behavioural complexities of child

[6] Many convicted child sexual offenders report using child pornography - eg: 55% of 39 treatment outpatients had downloaded images, 64% had participated in sexually explicit chat-rooms, and 34% had attempted to meet a child via the Internet (Galbreath et al 2002).

pornography offending" (p190).

Marshall (2000) felt, after a review of the literature, that there was no simple causal link between viewing pornography and contact offences, but pornography "conveys messages that create pro-offending attitudes" and "enhance the cognitive distortions of sexual offenders" (eg: the child chooses to participate or the child admires the offender; Beech et al 2008). The quantity of material available can also give the impression that abuse is common practice. Itzin (2002), thus, saw the link as "instrumentally causal" (ie: indirectly causing).

Hartman et al (1984) identified four types of "collectors" of child pornography:

- Closet - secretive about collection; no contact offences.
- Isolated - collection linked to contact abuse (ie: images of victim).
- Cottage - share collection with others (as with hobbyists).
- Commercial - make money from collection.

Sullivan and Beech (2004) preferred to describe three types of CPOs:

i) Child pornography goes with already existing contact offending.

ii) Child pornography is part of a growing sexual interest in children which may migrate later into contact offences.

iii) Child pornography viewed "out of curiosity" with no contact behaviour (now or later).

2.3. EXAMPLES OF RESEARCH STUDIES

Frei et al (2005) found that only one of 33 men, identified by a Swiss police operation to shut down an Internet provider of child pornography [7], had a previous conviction for a sexual offence (and the majority had no

[7] The US provider "Landscape Production Inc" was closed, and the Swiss police set up "Genesis" in 2001 with 1300 arrests of users in Switzerland. Frei et al (2005) studied the files of 33 men in the canton of Lucerne.

previous convictions of any type). Most of the men were from higher socio-economic groups [8]: 33% academic or supervisor, 39% employee, 12% self-employed, 12% blue-collar, and 3% unemployed. About one-third were unmarried with no partner, while about a quarter were married and another quarter were in common-law marriages. The motives reported for looking at child pornography included curiosity (51%), investigation (15%), boredom (9%) and coincidence (9%) [9].

From 58 men charged or presented for treatment in Australia in the mid-1990s, O'Dea et al (2008) distinguished two groups:

- Older, higher functioning men with fewer previous convictions, who had large quantities of electronic images;

- Younger men with psychiatric disorders, who had been charged with another offence Previously (usually sexual). They had less quantities of images, and were more likely to report a history of being sexually abused themselves.

The first group would appear to be a limited risk in terms of actual sexual offences (contact offences). Seto et al (2006) found that CPOs were more sexually aroused by such images as compared to child contact offenders (appendix 2A). "They concluded that most people found in possession of child pornography could be assumed to have a disorder of abnormal sexual interest, such as paedophilia" (Nielssen et al 2011). The vast amount of material found in some cases (eg: over 10 000 images and over 100 hours of video) could suggest compulsive collecting (Quayle and Taylor 2003) [10].

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[8] Traditionally convicted contact child sexual offenders have below average intelligence, and lower professional status and income than average (Frei et al 2005).

[9] Individuals use a number of "motivations" to justify their behaviour. "For example, following their apprehension, some child pornography offenders attempt to persuade law enforcement officials, treatment providers, and members of the judiciary that they discovered child pornography sites inadvertently. They deny they ever sought deviant material, and instead claim that strangers emailed them child abuse images, unsolicited. Despite their claims of unintentional involvement, these offenders are unable to convincingly articulate a reason why someone would distribute illegal material to unknown persons, an act we equate to someone mailing bags of cocaine to random addresses, just in case the recipient might be interested, and while ignoring the possibility that the addressee may be a law enforcement officer. Other offenders claim they unwittingly followed links that mysteriously appeared in 'pop-up' windows. They may further assert that after they followed the metaphoric White Rabbit down this rabbit-hole, they found themselves suddenly and inexplicably afflicted with a previously non-existent desire for this type of highly deviant, illegal, and morally repugnant material. They claim they became 'caught up' and subsequently 'addicted' to these images. Still others assert that their behaviour is attributable to an underlying mood or anxiety disorder (eg: Bipolar Disorder, Obsessive Compulsive Disorder), a misguided attempt to 'work through' their own childhood victimisation, or online investigative vigilantism" (Bourke and Hernandez 2009 p184).

[10] Re-offending, however, does not seem to be high despite this abnormal sexual interest. For example,

Other research contradicts this distinction. For example, Bourke and Hernandez (2009) found, in a study of 155 CPOs in a residential treatment programme in North Carolina, USA, that the majority admitted to a contact offence with a child (of which most were not convicted or even reported to authorities). At sentencing, 115 had no documented contact offences and 40 had know histories of abusing a child. By the end of the treatment, 24 CPOs denied contact offences, and 131 admitted to abuse [11].

Bourke and Hernandez (2009) pointed out: "The dramatic increase (2,369%) in the number of contact sexual offences acknowledged by the treatment participants challenges the often-repeated assertion that child pornography offenders are 'only' involved with 'pictures'. It appears that these offenders are far from being innocent, sexually 'curious' men who, through naivety or dumb luck, became entangled in the World Wide Web. In fact, of the 24 subjects in our sample who denied they committed a hands-on offence at the end of treatment, nine were polygraphed, and only two 'passed'. In other words, less than 2% of subjects who entered treatment without known hands-on offences were verified to be 'just pictures' cases" (p188). Furthermore, individuals with prior sexual crimes offended at a higher rate [12].

More recently, Nielssen et al (2011) compared 52 men detected by police Internet surveillance and 53 men detected by other means [13] attending assessment or treatment at a specialist unit in a hospital in Sydney, Australia.

The "electronically detected" (ED) group had large quantities of electrical images of child pornography (> 100 images and/or > 10 video clips), but were less likely to have a major psychiatric disorder (eg: schizophrenia, personality disorder, traumatic brain injury [14]) and to be substance abusers, and have no history of being a victim of childhood sexual abuse than the other group (figure 2.1). There was no difference in minor psychiatric disorders (eg: depression, anxiety) between the groups.

Not all the "detected by other means" group were convicted of offences. When only those convicted were

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Seto and Eke (2005) found that only 4% of 201 CPOs committed a contact offence in a two and half-year follow-up, and that these individuals were more likely to have had a prior history of such offences (appendix 2B).

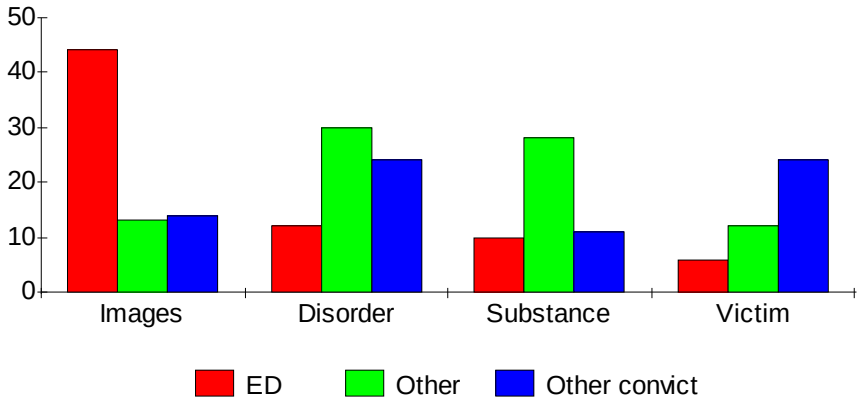
[11] At sentencing, 75 victims were known about, and this became 1777 by the end of treatment.

[12] This study also found considerable "crossover" (ie: abuse of both genders, and different age groups). For example, post-treatment, 40% of offenders admitted to victims of both sexes, and 67% to pre- and post-pubescent victims.

[13] Eg: self-referral to treatment; initially charged with another offence and child pornography found; other people accessing the individual's computer.

[14] All associated with deficits in social judgment and impaired capacity for intimate relationships.

compared to the ED group, large quantities of images and victim of childhood sexual abuse were still significantly different. Thus Nielssen et al (2011) concluded: "we found few significant differences between Internet-detected child pornography offenders and those detected by other means and little evidence to support a stereotype of the otherwise well-adjusted Internet child pornography offender" (p223). However, the ED men were more likely to be diagnosed with paraphilia using DSM-IV-TR criteria (65% vs 47%).



Images = large quantities of images of child pornography
Disorder = major psychiatric disorder diagnosed
Substance = substance use disorder diagnosed
Victim = victim of childhood sexual abuse
ED = electronically detected by police
Other = detected by police by other means
Other convict = "detected by other means" group who convicted

(Source: Nielssen et al 2011 table 1 p219 and table 2 p220)

Figure 2.1 - Percentage of men in each group.

2.4. APPENDIX 2A - SETO ET AL (2006)

Seto et al (2006) studied 685 men at a specialist clinic in Toronto, Canada, who were divided into nine groups based on sexual offence history:

1. CPOs with no contact offences (n = 57)
2. CPOs with contact offences (n = 43)
3. Contact offences against victims aged 14 years or younger - 1 victim (n = 131).
4. Contact offences against victims aged 14 years or younger - 2 victims (n = 36).
5. Contact offences against victims aged 14 years or younger - 3 or more victims (n = 11).
6. Offences against victims aged 17 years and older - 1 victim (n = 101).
7. Offences against victims aged 17 years and older - 2 victims (n = 35).
8. Offences against victims aged 17 years and older - 3 or more victims (n = 80).
9. No convictions (general sexology patients) (n = 191).

Assessment of sexual interest and arousal was made using phallometry. This measures the changes in penile blood volume (ie: degree of erection) in response to nude pictures of adults, pre-pubescent children, and pubescent teenagers of both sexes, and a neutral picture of a landscape. Each participant, thus, had seven phallometric test scores.

The mean phallometric score in response to images of pre-pubescent children was highest among CPOs with contact offences, followed by CPOs with no contact offences, and men who offended against children (table 2.2). The CPOs were thus defined as showing paedophilia (ie: sexual interest in pre-pubescent children).

Group:	Child pictures	Adult pictures
CPOs no contact	5	4
CPOs contact	7	4.5
Offenders against children	4-5	3.5-4
Offenders against adults	3	5-6
Sexology patients	5	6

(Source: Seto et al 2006 figure 2 p613)

Table 2.2 - Mean maximum phallometric responses to pictures.

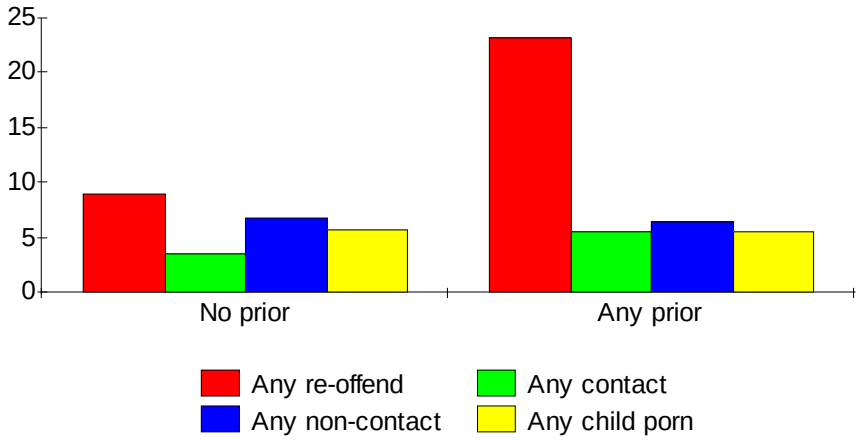
2.5. APPENDIX 2B - SETO AND EKE (2005)

Seto and Eke (2005) investigated the criminal history of 201 male CPOs from the Ontario Sex Offender Registry [15] in Canada as of April 2001, and any recidivism by April 2004 from the Royal Canadian Mounted Police Information Centre.

Many of the CPOs had prior offences (56%), while 24% had prior contact sexual offences, 17% non-contact sexual offences (eg: possession, distribution or production of child pornography), and 15% had prior child pornography offences.

During follow-up, 17% of individuals (34 men) re-offended. Nine men committed a new contact offence (4% of sample) and 11 a new child pornography offence (6%). Individuals with prior convictions to the study were significantly more likely to be re-offenders for any crime (figure 2.2). CPOs only were significantly less likely to re-offend than men with prior contact sexual offences (figure 2.3).

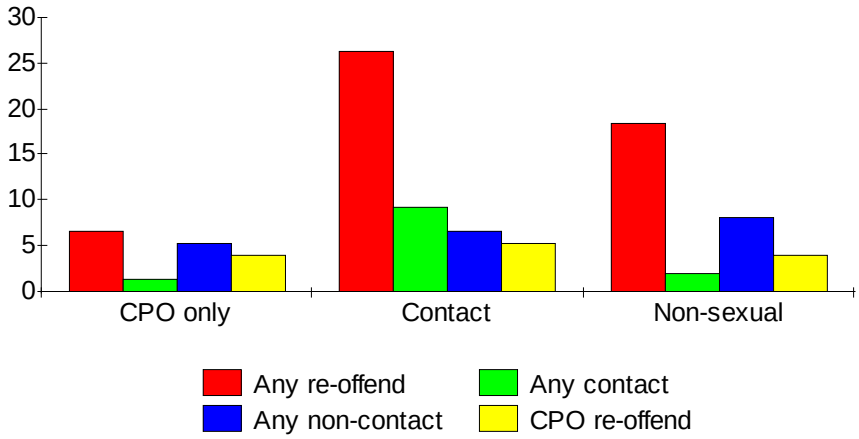
[15] The researchers excluded juvenile offenders (12-17 years old) and one woman on the registry.



(Any re-offend = significantly different between groups)

(Source: Seto and Eke 2005 table II p207)

Figure 2.2 - Percentage of CPOs re-offending based on prior criminal history.



(Any re-offend/any contact = significantly different between groups)

(Source: Seto and Eke 2005 table III p207)

Figure 2.3 - Percentage of CPOs re-offending based on prior or concurrent offences.

This study had three limitations:

i) Only official records were used and there was no opportunity to interview offenders (particularly to understand their motivations).

ii) Only those convicted and/or in contact with the authorities studied.

iii) Only small sub-groups of offenders (eg: 49 in

CPOs with prior non-sexual offending group).

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