

Aberrant Behaviour

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ABSTRACT

Numerous papers, including those presented to the NACCQ, have discussed the issue of women in computing. The facts are obvious, only 20% of undergraduate IT students are female. What is not so obvious are the reasons for this discrepancy. Other authors (e.g. Bernstein) have identified the stereotypical computing student: nerdy, unwashed, and working incredibly long hours, pausing occasionally to drink coke and order a pizza. It is not surprising, they say that this puts off potential women students. Well, it puts us off too, it is not healthy and we are not sure we want to be producing graduates who feel that the only way to succeed in the IT industry is to follow this path. The purpose of this paper is to examine the basis for this stereotype, its relation to students, both male and female, and what might be done about it: the fact, the fiction or both.



1. INTRODUCTION

There exists a substantial body of information regarding the topical issue of computer and Internet addiction. Many researchers have put forward interesting case studies (Young, 1996; Murray, 1996; Anderson, 1999;) with a few have offering somewhat questionable statistics (Anderson 1999; Black 1999; Young, 1996; Young and Rodgers, 1998; Young Pistner, O'Mara and Buchanan, 1999; Brenner 1996; Thompson 1996). Unfortunately most of this research is purely anecdotal, extrapolative or of a case-study nature. It is hard to discover reliable statistics regarding this relatively new, and to some, disturbing phenomena. It appears that all the research to date has been conducted via advertisement to the Internet population and by self-selection, providing biased results. For example statistics provided from learning institutions (Morhan-Martin, 1997; Scherer, 1997, Anderson 1999; Kandell 1998) are biased due to computer use now being an integral part of most courses of study. Thus subjects come from a relatively high-use environment.

There is no doubt that the phenomena of computer or Internet addiction, compulsive use, dependency or obsession do exist. The questions under discussion here are, why is a proportion of the computer using population becoming obsessively involved. Who are they these individuals, and should their activities be a cause of concern? What is it about computers and the associated technology that commands the attention of a statistically significant larger number of males (Shotton, 1989; Strok, 1992; Margolis, Fisher, and Miller, 1998; Furger 1998; Cottrell, 1992; Frenkel, 1990; Lanius, 1999; Anderson 1999, Utz 2000) and in particular the obsessive interest of a small percentage of this population? (Brenner, 1996;

Egger and Rauterberg, 1996; Griffiths, 1996,1997; Loystsker & Aiello, 1997; Morahan-Martin, 1997; Scherer, 1997; Young, 1996a; 1996b; 1997a; 1997b; 1998; Shotton, 1989; 1991; Weizenbaum, 1976, 1984).

2. COMPUTER ACTIVITY AND GENDER STATISTICS: THE INTERNET

The phenomenal growth of the Internet has seen 275.5 million people worldwide online, 136.86 million of these in the United States (Nua Ltd, 2000).

Males have been found to make up two thirds of users and account for 77% of on-line time (CommerceNet/Nielsen, 1997). Males tend to go on-line more frequently than females (Graphics, Visualization and Usability Center, 1997) and feel more confident using the technology than women (Burton, 1987; Busch 1995; Pearl, Pollock, Riskin, Thomas, Wolf and Wu, 1990; Simons 1985; Dowell 1994, Margolis and Fisher 1998a,b, c; Gattiker, U, 1994).

Even when a newsgroup is set up to cater specifically for women, male participation is higher. Gladys We studied the users of three female oriented Usenet newsgroups, and found that almost 70% of respondents were male (We 1993). It appears that "In almost any 'open' network, men monopolize the talk" (Kramarae and Taylor, 1992).

Internet usage demographics continue to change. However men still continue to outnumber women. Morahan-Martin (1998) and Nua (1998) suggested that men outnumbered women by 20:1 in 199. The proportion more recently is asserted to be closer to 2:1. The reason argued for this low female turnout is that masculine attitudes towards technology and computers in general are transferred to the Internet (Morahan-Martin, 1998; Scheibe and Erwin 1980; Shotton 1989; Turkle 1994; Turkle 1985).

According to the Graphics, Visualization and Usability 3rd World Wide Web User Survey, the typical Web users are not college students. These individuals have an average age of 35 years, are married, have an annual income of \$50 000-\$60 000 per annum and are often women. Interestingly these Internet using women still only make up 15.5% of the online population (Internet Bulletin for CPAs, 1995).

Would the proportion of female users who use the computer obsessively for more task oriented purposes, for instance programming, E-mail and computer mediated communication also seen to be using the computer in a pathological way? It appears the application or purpose

of the computer use sparks consideration of this usage being problematic. It may be the case that the application or purpose of computer use is taken into consideration as much as the actual degree of usage when diagnosing pathological Internet use (Young 1997).

2.1 Academic Institutions

It is well documented that females have a low involvement with computers at all levels of study (Shotton, 1989; Strok, 1992; Margolis, Fisher and Miller, 1998, 1999; Furger, 1998; Cottrell 1992; Frenkel, 1990; Lanius, 1999). If women have a lower involvement rate in the academic environment, one would expect this would be reflected in lower rates of aberrant computer usage at least in academia (Scherer, 1997; Shotton, 1989; Anderson, 1999).

In the New Zealand compulsory sector, male dedication to computers confers very few advantages to their learning. In a Christchurch study of 1265 children from birth to 18, girls excelled in every educational index measured except in intelligence tests. "There is, quite simply, never a point at which boys do better than girls" (Ferguson, 1997).

The National Education Monitoring Project reported that girls out-performed boys at most tasks in a national test of writing skills, physical agility and relationship issues (ODT, 1999).

Men buy most of the computer magazines in New Zealand. PC World's 1998 survey returned a gender imbalance of 93% in favour of men (PC World, March 1998). Game Pro magazine and Electronic Arts are both purchased in similar ratios. The removal of males from computing classes and the provision of adequate role models combined with excellent facilities as at Westlake Girls' High School, do not necessarily flush out closeted female geeks (PC World, March 1998).

2.2 Internet and Computer Dependent Students

Alfred University Provost Richard Ott (New York) looked into the reasons for the dismissal of students with low SAT scores. He found that 43% of these students were using the Internet excessively (Kennedy-Souza, 1998). It appears Internet addiction among students is, a problem (Anderson 1999; Scherer, 1997; Kennedy-Souza, 1998; Murray, 1996; Kandell 1998). But once again the scope of the problem is difficult to deduce due to the methodology weaknesses inherent in these studies.

Scherer (1997) found that 72% of the 13% of college respondents who fitted the criteria for Internet dependency were male. Welsh (1999) similarly found that 8% of 1000 college students questioned were dependent on the Internet, and most of these were males. Shotton (1989) found that out of 23 Secondary schools in Leicestershire (UK), 26 boys and only one girl were considered computer dependent by their teachers (Shotton 1989).

3. WHY THE GENDER DISCREPANCY: MAN AND THE MACHINE

3.1 Men and a Tendency to Tinker

There exists an array of anecdotal evidence to suggest that men are more apt to have high levels of interest in tinkering with machines and various types of technical equipment, possibly to an addictive level (Griffiths, 1995). This phenomena is addressed “boys and their toys”, and could be described as an innate drive to “uncover” the inner workings of the “gadget” (Margolis, Fisher and Miller, 1998; Kantrowitz, 1994, Spriggs). According to John Gray and author of *Mars and Venus Together Forever*, women have a predisposition towards people, where men tend to lean towards machines and inanimate objects. Furthermore says Gray, men tend to have an instinctive drive to solve problems whereas a woman's instinctive drive lends itself towards nurturing activities. In terms of information technologies the feminine perspective on technology has its view focused on the social function of the machine. The masculine view is a focus on the machine as an end to itself (Margolis and Fisher 1997, Shotton, 1989; Lanius and Foertsch, 1998, Furger 1998). Margaret Shotton (1989) writes of the computer dependent subjects in her study: “The manipulation of objects and ideas was central to their lives, and a relationship, however secure, could not fulfil their basic needs” (Shotton 264).

3.2 Computers, a New Way to Tinker?

It could be argued, as Shotton (1989) does in her study of computer addiction that if a male becomes engrossed in computer activities this is merely an extension of their previous hobbies or interests. It follows then that if the ‘average’ male has an innate desire to tinker and gain a full understanding of the technology under consideration, then the development of a dependence on

computer use is just a symptom of this genetic or social programming. Furthermore there will always be a percentage of the population that pursue any activity to a seemingly addictive or obsessive level. If the activity under consideration is computing and males participate to a greater extent, then it follows that the majority of the population exhibiting aberrant behaviour will in fact be male.

3.3 An Interest Becomes an Obsession

Shotton (1989) interviewed five undergraduate students from Loughborough University at the start of her research project into computer addiction. The results gathered indicated that the students’ interest in computers did not occur in isolation, but instead was a “natural” extension of their other hobbies and interests. These students were also the types not to engage in a multitude of hobbies, but instead concentrate studiously on one or two interests. It appears that a “desire for intellectual understanding and control over artefacts had been apparent throughout their lives, with the computer merely acting as the most recent in a series of activities which satisfied those needs” (Shotton, 88). For example the wives of one of the computer dependents provides this insight: “He’s had many obsessive hobbies. He couldn’t keep his hands out of the insides of cars – anything to do with wires, lens, valves – electronics, cameras, etc. and squash, bridge and winemaking. Everything is done to excess, he has to be an expert” (Shotton, 104). One of the dependents said, “I’ve been hooked on things before – it’s just a search for knowledge, to find out something – I would worry about not knowing. It’s a whole new dimension in function and capabilities in a machine, way beyond cameras, cars and motorbikes” (Shotton, 104). Shotton notes that prior experience in electronic, various forms of communication equipment and other ‘high-tech’ gadgets were significantly linked with the dependents’ interest in computing (Shotton, 107).

It is certainly the case that people form emotional bonds with all manner of machines and objects. In 1957 Marion Milner undertook a study of artists’ emotional relationship with their chosen medium. The conclusion she reached was that the subjects considered the medium an extension of the self, and a piece of the world they could work on, “a special kind of transitional object”. These views seem remarkably similar to the views held by so-called computer addicts. In fact perhaps the reason dedication to computer usage may be labelled addiction is because that as computers exhibit intelligent behaviour (as opposed to an artist modelling a lump of clay) this

whole feeling of the computer as an extension of the self becomes heightened and more drastic. Should an individual's passion or relationship with computers be seen as abnormal?

3.4 Should We Call This Addiction?

There are some researchers that find the label computer or Internet addiction to be imprecise in describing the high computer usage phenomena. Shotton (1989) prefers the description "dependence" (Drever, 1952; Orford 1985) or "hooked on computers" arguing that compulsion, obsession, and addiction actually describe very different forms of excessive usage. According to Shotton (1989) and her study on computer dependency the most statistically significant factor in the emergence of computer dependency in the individual was being male. In fact the majority of the respondents describing themselves as computer dependent were male in the ratio of 100:6.

The term addiction implies a psychological dependence (Shotton 1989). In terms of Internet use dependence is characterized by unpleasant feelings when off line, increased resources poured into the activity, increased tolerance to the activity and denial of having a problem (Kandell, 1988; Young 1996; Young and Suler 1998).

An important factor in the development of Internet dependence appears to be mental health issues such as depression (Young and Rogers, 1998) and issues related to social isolation (Leiblum, 1998).

Young (1996) studied the Internet addiction phenomena over the course of three years. Young decided that addiction was a suitable term, and modified the Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV, American Psychiatric Association, 1994) criteria for pathological gambling to categorize Internet addicts. Addicts in the sample used the Internet for an average of 38 hrs per week. This usage was for non-work and non-academic purposes and was regarded as being detrimental to their work and academic undertakings. In comparison the non-addicts used the Internet for an average of eight hours a week without any adverse consequences. Young also postulated that Internet addicts were not a homogenous group, but instead a collection of many somewhat dissimilar sub groups (Shotton, 1989).

Shotton's dependent subjects were not only addicted to the Internet but also to programming, playing games, and the process of working on their computers.

These individuals saw the computer as a soothing alternative to a human. These individuals found computers logical, predictable and non-judgmental, but humans illogical, erratic, and critical. In short they simply preferred computers.

These computer addicts seem to have found a safe haven in their relationship with the computer. The computer as a partner shares their logical and detached approach to life. The computer becomes a mirror image of the user in a narcissistic fashion (Shotton, 1989). However it could be said for all human that where one gets to choose a preference eg in terms of friends, cafes, movies etc, that individuals will make choices that reflect their personal values. Can then the choice of a computer as a life partner be considered aberrant behaviour if it is a choice that confirms ones self?

The computer understands these individuals fully, and treats them as a good friend. Like a favourite pet dog its love is unconditional. This friend will try to be an ever-faithful helpmate (Shotton 1989, 167).

People almost instinctively think of computers as other people (Forman and Pufall 1988, 247; Frude 1983). "Extremely short exposures to a relatively simple computer program...induce powerful delusional thinking in quite normal people", wrote Joseph Weizenbaum, having watched people exhibit dramatically changed behaviour when becoming deeply involved with his programs ELIZA and DOCTOR (Weizenbaum 1976, 6-7, 188-191).

Men tend to use the Internet for recreational purposes such as Multiple User Dungeons (MUDs), gambling, relaxation and adult resources (Morahan-Martin and Schumacher, 1997). This ever-faithful friend is male. Subjects in an American study "made a total of 358 pronoun references, variously referring to the computer as "it", "he", "you", "they", (and even "Fred") but never as "she" (Scheibe and Erwin 1980). According to Shotton (1989) each and every one of 75 computer dependent subjects gave the computer a male nickname. In fact one woman in the study went so far as to say "he's the man in my life". A male respondent reported that his computer was male ("my mate Micky"), but, he said, "I always refer to my dual disk-drive as female-she's lovely (Shotton 1989, 194-195). Similarly Time magazine named the personal computer 1982s man of the year.

3.5 Internet Dependency

The Internet has enjoyed phenomenal growth since its inception. This explosion has brought with it a plethora of anecdotal reports of Internet overuse. Several recent

studies have attempted to define what constitutes an Internet or Addict (Anderson, 1999; Turkle, 1994; Young, 1999; Black, 1999; Young and Suler, 1999; Young, 1996; Young, 1997; Young and Rogers, 1998; King, 1996).

There are some case studies and non-scientific reports that suggest the numbers of women becoming addicted to computers, and in particular, Internet chat rooms are increasing (Young, 1996b). There is however a lack of evidence to suggest these women constitute a significant proportion of Internet addicts. Although most the data appears to rest on tenuous methodologies, what research there is points to Internet and computer addicts being male. A German study of MUD users concluded that most of the players were well-educated males. Eighty four percent were males, mean age or 23.5 years, with 83% of these being college or university educated (Utz, 2000). Similarly a study conducted in 1996 by Egger and Rautberg indicated that 16% of respondents to a questionnaire posted on the Web were female, 84% were male. Ten percent of these individuals considered themselves addicted or dependent on the Internet (Egger and Rautberg, 1996). Other studies have estimated the dependent population at 8-13% of the Internet using population (Scherer, 1997; Welsh, 1999).

Research released at a meeting of the American Psychological Association suggests that 6% of all Internet users suffer from some sort of addiction disorder (Plachowski, 1999). This may be a conservative estimation, however no one at present appears to know.

3.6 Is This a Cause for Concern?

Kimberly Young in her 1996 study on Internet addiction as a new clinical disorder alludes to recent reports about “on-line users becoming addicted to the Internet in the same way that others become addicted to drugs, alcohol or gambling, which [led to] academic failure” (Young, pg 1). Subjects for her study were located via national and international newspaper advertising, flyers at colleges and postings on electronic support groups for Internet Addicts. Around 50% of the 396 respondents indicated they had experienced severe impairment of the academic studies, relationships, finances and occupations. Clearly problems do exist for those at the high end of the Internet usage spectrum. However Young herself states there are inherent biases with this method of subject self-section. This admission of bias reflects the inherent problems in most studies and extrapolations the Internet addicted population.

Conversely Shotton (1989), whose subjects were “self” determined to be dependent found that “although

computer dependency did occur for a small proportion of computer users, the effects arising from it were not as dire as suggested in the literature” (Shotton pg 235). She also questioned, “why alarm was expressed for those who used computers intensively when dedication to other activities was often encouraged” (Shotton pg 235). There appears to be more features within individuals themselves that would predispose them towards computer dependency than inherent within the computer itself (Shotton, 1989;

It is difficult to deduce whether this phenomenon of aberrant computer usage is actually detrimental enough to be worrisome (Ferris, 2000). The lack of unbiased data with respect to high usage, and thus ensuing hard data regarding possibly negative outcomes makes firm deduction difficult if not impossible. Anecdotal evidence and case studies about the 44-year-old woman whose Internet usage broke up the family (Young, 1996b; Quittner, 1997), or the student who is failing academically due to an MUD addiction are not scientific and thus insufficient.

In any given activity there is always proportion of individuals that will pursue the object of their interest to such a level that is considered obsessive. A sporting hero who spends vast quantities of time practising, honing their skills and competing is labelled dedicated. A sculptor who spends all of their leisure and work time on their art is considered an enthusiast. Shotton (1989) as part of computer dependency study also interview two sculptors to examine whether their dedication to their work differed from the dependents’ dedication to computing.

The sculptors exhibited “very similar attitudes and dedication to their work and play, as well as similarity in their personalities, social experiences, and family backgrounds (Shotton pg 297). These artist may not have dealt with technology, however their work did involve the manipulation and command of raw materials. This “need for control over their media was just as important to the sculptors as to the dependents and engendered the same feelings of dominance” (Shotton pg 300).

The sculptors’ much like the computer dependents’ did use their activities to escape from relationship problems and the worries of daily life. These results give support to the notion that the computer dependents’ dedication to their activities is not dissimilar to other how other enthusiasts become engrossed in their areas of interest.

However, research into those who spend a large proportion of their spare time undertaking computing pastimes tends to label these persons “computer nerds, junkies or addicts”, “Internet Addicts”, “Hackers”, “cyber addicts”. In fact concerned Internet users can now take

an "Internet Addiction Test" online in the Centre for On-Line Addiction Virtual Clinic (netaddiction.com).

4. CONCLUSION

In terms of addiction there are many types of activities that cause real physical, psychological and legal problems for sufferers. For example in 1998, 27% of males and 20% of females aged 15-24 and, 34% of males and 31% of females aged 25-34 were classed "smokers". Non-smokers are observed to live 14 years longer than their smoking counterparts. In addition in 1990, 11% of female and 22% of male deaths were attributed to cigarette smoking (Ministry of Health, 1999)

These figures are not presented in an attempt to dispute that computer and Internet dependency do indeed exist, instead to bring the size and possible outcomes of the problem into perspective.

Should researchers expend energy on a phenomenon, which may well be a problem for some, in terms of relationships and work/academic success, but does not threaten the life of the sufferer or others?

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