Bias, Misinformation and Disinformation: Mental Health, Employment and Human Computer Interaction

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Abstract

This paper explores the design and application of information communication technologies and human computer interaction for people recovering from severe mental illness wishing to gain employment. It is argued bias, misinformation and disinformation limit opportunities for people recovering from mental illness who are seeking employment. Issues of bias are explored in relation to systems design as well as dominant socially constructed paradigms of 'mental health' and 'mental illness' and employment. Misinformation is discussed according to the contemporary dominant paradigm of 'recovery' as well as web resources, discrimination and employment. Disinformation is considered in terms of media myths and stereotypes and vocational rehabilitation. Multidisciplinary collaboration is required to meet the ICT needs of this diverse group.

Keywords: bias, misinformation, disinformation, mental health, employment

Introduction

Increased use of information technologies in most aspects of everyday life necessitates careful and thoughtful consideration of human computer interaction (HCI). This is particularly so in relation to functional design features yet also in terms of access and equity. Whilst system's design teams are creating state of the art technology with a target user in mind; defining who actually uses these systems needs to be considered, as well as who has been forgotten or perhaps left behind in the system design process. This is a familiar dilemma that raises questions of possible bias misinformation and disinformation in relation to systems that employ information and communication technologies (ICT). This chapter commences with a brief overview of how we define HCI and issues of inevitable bias in computer system's design, in particular for the mental health community. This is followed by a detailed discussion on the difficulties for accessibility to information for people within the mental health system who may be hoping to find employment. Next, we show the existing dominant paradigms as the context for continued bias towards mental health issues. Our section on misinformation relates to aspects of recovery, discrimination and employment prospects. The final section is about the myths and stereotypes that form the basis for disinformation that affects the

currently available vocational rehabilitation programs.

HCI, Bias, Misinformation and Disinformation

Designing an information system is a complicated process. From commencement of the design process, the initial creation discussions involve various system stakeholders talking about what the system should look like. Instead of keeping on track, they often deviate and talk about the plethora of information system's components: target users, Web browsers, ICTs, project task responsibilities and budget restrictions (Powazek, 2002). Unless this propensity to wander is carefully managed, such a large contingent of opinions can result in diversions. Herein lies the dilemma of how to manage the competing nature of personal bias towards the task at hand. For the purpose of this chapter bias is defined as the personal inclination or preference to favor a particular viewpoint with failure to fully inform a direct consequence of bias (Cohen, 2005). 'Misinforming systems refers to informing systems that give wrong or distorted information without intending to do so whilst disinforming systems are designed to knowingly issue false information' (Cohen, 2005).

We all have personal preferences for what we like and don't like and what we believe is suitable for ourselves and others. In this sense we are all biased. These personal inclinations are a part of being human and without them life would undoubtedly be quite problematic and in deed dull. However it is when these personal preferences and inclinations are used, often with the best of intentions, to develop ICT for others that discrepancies often arise. At times personal 'bias' is made explicit and people will openly state their preferences to others. At other times it is only recognized in interactions with others. Bias can become quite complex as an ingrained personality feature with a person not always able to explain or account for their preferences beyond responses such as, 'I have always done it like this' or "This is how I like it'. Bias is influenced by level of familiarity and comfort, learned and actual experience as well as personal values. When accused of being biased a person may deny this as it has become a subconscious processes.

Whether or not a person is demonstrating intentional bias perceptions of bias must be taken seriously. If perceptions of bias are not adequately addressed conflict and mistrust are likely to develop (Boulle 2005). Furthermore, a person may be aware of a particular bias they have, yet endeavor to suppress it for professional or other reasons. For instance an employer may believe that a person recovering from mental illness is unpredictable and possibly violent. Whilst this bias may not be openly disclosed it will necessarily impact negatively upon employment practices of people recovering from mental illness. The suppression of such biases can lead to negative attitudes and behaviors that necessarily limit people's life opportunities.

Bias and System Design

It is virtually impossible not to demonstrate some sort of bias in systems design. Bias is evident in preferred strategies and processes developed by members of HCI project teams. Bias 'creep' can occur when members of the design team start designing according to their own preferences rather than according to the main requirements of the intended users (Hourihan, 2002, p3). Reflecting upon and acknowledging personal bias is the first step in appropriate design (Martin & McKay, 2006).

There is no doubt that ICTs have become an effective conduit for knowledge distribution. These technological tools spring to life very quickly without involving any mechanism for content validation. It is concerning that we may be unable to discern whether we are dealing with 'misinformation' that has come about through the rapid sequence of events, which prevented evaluation of the source; or whether the misinformation was a deliberate ploy to gloss over the real situation. In explaining the power of misinformation we can refer to the rise of e-mail communications. This

form of knowledge sharing has enormous benefits. However the converse can be seen when the facts are distorted and passed from person to person at an alarming pace, making validation awkward if not impossible. In isolated communities this dilemma has immediate effects. In the emerging communities of learning, ICTs can be employed to pass information around the membership quickly. Moreover, the corporate sector recognizes the importance of the nexus between the human-dimension of human-computer interaction (HCI) and the power of the ICT to transmit knowledge. This type of information spread has utilized the immediacy of knowing to strengthen the importance of communities of practice (Wenger, 2001).

On the other hand we can turn to a more deliberately negative outcome from ill founded HCI impacting on society surrounding the implementation of ICT into sections of the community when 'disinformation' creates a deceptive context that is particularly harmful. Some examples of where the persuasion by the media has become a well practiced art can be seen in the methods employed by marketing/advertising material. There are seven techniques identified by Howard Gardner that can be employed to change people's minds (Gardner, 2004), including: REASON - facts given in a logical sequence, RESEARCH - relevant data shown, RESONANCE – draw on your likeability and emotional appeal to win support for your view REDESCRIPTIONS - represent simple concepts, in multiple media to explain the same point, RESOURCES and REWARDS - entice a target audience with offers that seem too good to refuse, REAL WORLD EVENTS – use events from society at large to make your point and RESISTANCE – knowledge of the factors that cause people to reject your points of view.

For many people, the visual experience of multimedia provides an immediate and holistic view, cutting through the time it takes us to distinguish between fact and fiction. Much is known about how we interpret the information we receive. Riding's work on cognitive styles reveals there are two dimensions of style (Riding & Rayner, 1998). The first defines how people think about the information they receive (verbal/imagery), while the second relates to how we process the information (analytic/holist). People will vary upon their thinking style according to the task at hand; whereas the processing mode is inherent and remains true over time according to Riding and Rayner (1998). More work is needed to investigate the interactive effects of multimedia and cognitive performance (or how people react) in an HCI context.

HCI, Mental Health and Employment

Finding work is never an easy process. Currently job-seekers have to wade through several information sources (newspapers, telephone canvassing, computer listings, internet browsing). The process of job seeking requires people to conceptualize the relationship between the skills needed for a job and the employment environment. This process is even harder for people who are trying to find their way into the working world after an episode of severe mental illness.

Mental illness is generally divided into two groupings, those where no physical cause is found, 'functional mental illnesses' and those with a physical cause, 'organic mental illnesses'. Functional psychoses are not associated with any known physical cause. The main features of a psychotic disorder are the presence of hallucinations, fixed delusions (false beliefs), illogical or disordered thinking (thought disorder), and labile or incongruent emotions (Watkins, 1998). The major functional psychotic disorder diagnosed for people who use mental health services is schizophrenia. Whilst some argue that schizophrenia has a physiological or chemical basis this is yet to be proven. If schizophrenia is found to have a biological cause it will be classified as an 'organic' rather than a 'functional' psychosis. It is estimated that one person in every hundred is affected by schizophrenia (Barry, 2002, p.258).

Symptoms of schizophrenia are classified as 'positive' and 'negative'. These words do not have usual everyday meanings. 'Positive symptoms' relate to psychotic behaviours and negative symp-

toms convey lethargy and difficulty with motivation. Positive symptoms of schizophrenia include hallucinations, delusions and what is referred to as ‘thought disorder’ when a person jumps from one topic to another without any logical connection, with the person’s thoughts and speech disjointed. Negative symptoms of schizophrenia include loss of drive and motivation, blunted expression of emotions and social withdrawal (Hambrecht, 1999, p.115).

Looking for work involves a synthesis of decisions relating to many separate issues including: skills (task analysis), employer requirements (formal and informal behaviours), remuneration (part-time/full-time/voluntary), location (distance to travel from home), and transportation (familiarity and convenience issues). There can be little doubt these decisions require a motivated attitude towards finding work. However, the necessary concentration for bringing together all these disparate decisions is often too much for people recovering from a severe mental illness.

There has been an increase in recent years in initiatives within community mental health settings that integrate both mental health and vocational rehabilitation programs. Rogers asserts that 'work is the key to recovery' from mental illness as it contributes to improved levels of self-esteem (1995, p.17). Kakutani's account of a small business, established and run by four people with psychiatric diagnoses who had previously been long-term unemployed, also indicates improved levels in self-esteem as well as increased motivation (1998, p.3). She concludes; 'For chronically mentally ill clients, employment is the best rehabilitation goal. The process to achieve this takes time and effort, but it is possible' (p.15).

ICT can provide efficient and effective job-seeking tools. Computerized databases can be utilized for the job-matching process. Those seeking work can investigate employers’ vacancy lists published in several different media (newspaper advertisements, and government agencies). Although it would assist the process of looking for work during vocational rehabilitation, there are no customized Web-enabled work searching systems that are designed for people who are recovering from an episode of mental illness. Consequently, this lack of a centralized work-seeking resource limits accessibility to key employment information and associated resources (McKay & Martin, 2002).

There is an emerging international trend for researchers to focus on workforce accessibility (Workforce Investment Act of 2001). Currently among unemployed Australians seeking work 19 per cent have a disability and are therefore disadvantaged in accessing information for gaining employment (Australian Bureau of Statistics, 1998). While there are many types of human functional disability – some of which are the result of the aging process; the focus is mainly towards catering for the more definable functional limitations of work seekers, with only limited research specifically designed to assist those recovering from a severe mental illness which hinders concentration and motivation. Australia is following movement brought about by the Disability Discrimination Act 1992, with some work currently underway towards improving general accessibility to information. Current initiatives include the draft Schools Online Curriculum Content Initiative (SOCCI) accessibility standard; and a review by the W3C to develop enhanced technologies that include specifications, guidelines, software, and tools. The We Accessibility Initiative (WAI), in coordination with organizations around the world is pursuing accessibility of the Web through five primary areas of work: technology, guidelines, tools, education and outreach, and research and development (http://www.w3.org/). However, this collective understanding still mainly addresses the issues surrounding the interactive effect of physical impairment and accessibility to information (McKay, Thomas & Martin, 2004).

Bias and Mental Health: An Overview of Dominant Paradigms

HCI design generally has a user group in mind and features are designed according to user needs. Interestingly when design features are targeted at the general population there is bias toward peo-

ple who are deemed to be mentally well. This is understandable in terms of tailoring HCI to a general target population yet when it comes to specific needs of individual user groups problems arise. Interestingly the World Wide Web Consortium (WC3) Standards for Web design and accessibility do not provide for design standards for people recovering from mental illness (Martin & McKay, 2006, p.10). The bias in these standards is towards the machine dimensions of HCI including browser privacy issues and protocol development for Web access.

Whilst developments in the design and delivery of physical health services have come about primarily through scientific inquiry and discoveries this is not the case in mental health. Definitions of 'mental health' and 'mental illness' have changed over time. in accordance with dominant values and beliefs that determine whether mental health is viewed predominantly as a supernatural, biological, psychological, social or environmental concern. This bias determines the types of services and methods of intervention adopted as well as the terminology used (Mechanic,1989). Competing ideologies raise the question of service delivery and who is best equipped to deal with such problems. Questions such as these have been debated since ancient times with services developed and planned according to the prevailing dominant ideological, moral, social, political and economic influences.

In ancient times mental illness was associated with the biological and the supernatural. The ancient Greeks and Romans assumed that mental illness had a biological cause. In approximately 700 BC, the physician-priest, Alcaeon, argued that mental illness was caused by an illness of the brain (Gallagher, 1987). Hippocrates (460-367 BC) propounded a biological view of mental illness with it arising from an imbalance of the humours of the body. Treatment techniques included purgatives, emetics and bleeding (Rothman, 1970). Plato (429-347 BC) developed a supernatural view delineating four different kinds of madness. Interestingly two of these, prophetic and poetic madness implied possession by good spirits. The other two were erotic and ritual madness. Aristotle (384-320 BC) supported Hippocrate's biological view, yet he claimed that it was the heart that caused mental illness. Asclepidus (100 BC) rejected this biological view emphasising the importance of environmental factors. Over 150 years later Anetaeus (AD 30-90) argued that mental illness was an extension of the normal personality.

During the Middle Ages hysteria and melancholy, or other forms of mental confusion were sometimes taken for witchcraft. Witchcraft was entwined in the major social institutions of the law, medicine and religion. Mental illness during this time was attributed to weakness or infirmity with the mentally ill imprisoned. Regardless of whether they were viewed as mentally ill, as witches or as bewitched, people with mental health problems were subjected to extremely cruel and harsh treatment during this period. In Europe in the eighteenth century the mentally ill were chained and incarcerated in jails. It is uncertain as to whether or not this practice ended due to the efforts of social reformers or by other prisoners outraged at having to live with the mentally ill (Gallagher, 1987).

Biological

The biological view of mental health gained increased support during the nineteenth century with treatment in the hands of physicians. Emil Kraeplin (1855-1926) made the first attempt at organizing mental illness. There was increasing pressure for society to take responsibility for the care of the mentally ill. In the 1840's in the United States Dorothea Dix (1802-1887), advocated for the building of state supported 'psychiatric hospitals' also known as "mental hospitals" or 'asylums'. The mentally ill were segregated from society and placed in public asylums for the 'insane'. Psychiatric hospitals became the main place of treatment for people deemed 'mentally ill' for the next 100 years. For many people the asylum was their home. This was particularly so for those who were assessed as 'treatment resistant' with no hope of recovery. These were the 'forgotten people' (Martin, 2006).

Psychological

In the late nineteenth century the linkage between psychological processes and mental illness was first described by Sigmund Freud (1856-1939). Assisted by Joseph Breuer, Freud studied the unconscious state of the human mind. His work led to the development of psychoanalysis as a theory of personality development as well as a means of treating mental disorders social, environment (Gallagher, 1987). At the beginning of the twentieth century psychological, environmental and cultural processes were included in debates surrounding mental illness. The twentieth century heralded a radical shift in the views and attitudes towards mental illness resulting in major changes in service development and delivery. The late nineteenth and early twentieth centuries witnessed a period of rapid industrial and technical change as well as increased urbanisation and immigration. These changes have been associated with a decreased tolerance and ability of society to contain deviant behaviour. Mental illness was viewed as becoming a more serious problem, occurring more frequently, of greater variety, more chronic and less curable (Grobb, 1966).

Social

Reform movements began to develop in the United States and Britain, advocating improvements in the care and treatment of the mentally ill and for an increase in the number of mental hospitals provided by the state. The emphasis was still very much focused on the institutional care of the mentally ill (Mechanic, 1989). This was the beginning of a period of major reforms, involving both government and voluntary authorities, aimed at improving the quality of care in mental hospitals. Alongside these reforms came the medical discovery and introduction of psychoactive drugs in the mid 1950s.

The introduction of psychoactive medication, combined with growing disenchantment with the psychiatric hospital system, and the increased prevalence of more humanistic ideologies led to the development of community mental health programs and less radical forms of institutional care (Caplan, 1961).

Civil Rights

During the 1960s civil rights movements focused on the rights of full community participation for people who were subject to oppression and discrimination as well as protection of those deemed vulnerable. This saw the rise of a range of activist groups and movements including black and gay activists and the women's movement. In the intellectual disability field a focus was on 'normalisation' for people with disabilities to be able to participate in the community and enjoy the basic rights and civil liberties afforded members of the general population (Wolfensberger, 1972). In mental health the 'anti-psychiatry' movement radicalised the debate on the treatment of the mentally ill. Three key individuals in the anti-psychiatry movement were Erving Goffman and Thomas Szasz in the United States and R. D. Laing in Britain. Whilst the anti-psychiatry movement was vehemently critical of traditional methods of psychiatric hospitals, psychiatrists continued to insist that the profession was scientific, emphasising somatic factors within the dominant medical model. Nonetheless, the social reforms introduced in the field of mental health may not have been so dramatic in the absence of this anti-psychiatry movement.

Community mental health

Community health programs developed within a policy framework of 'deinstitutionalisation' and 'normalisation' similar to the intellectual disability field (Johnson, 1998). From a rights perspective deinstitutionalisation gave people rights and opportunities to full participation in the community. Historically normalisation has two meanings. The first is within a rights discourse and sees deinstitutionalisation as a process whereby people live in the community with the same rights and opportunities as afforded to so-called 'normal' members of society. The second focuses on

change within the person to be able to ‘fit in’ and pass as ‘normal’. This first meaning requires major shifts in community attitudes whereas the second requires individual change and adaptation (Johnson, 1998, p.157). The reality is that both are required. Community living is a process that requires adaptation to social norms and values alongside community education and development activities that influence these. Regardless of the intent the successful application of deinstitutionalisation is dependent upon the transfer of resources from the closure of the institutions to the community to support people in community living. It also requires major shifts in community attitudes towards mental illness. Unfortunately to date neither of these has happened to the extent required.

Mental health was incorporated into the community health programs that were being developed from the 1950s in western industrialised countries (Sax, 1972, 1973). The aim of community health was to provide comprehensive, accessible, non-stigmatising services to people in their own locality. The focus was on the individual and family in the context of their environment. Individuals were viewed as members of families and communities subject to the pressures of everyday life (Henry, 1985). Community health was also more economically viable than costly hospital care. The focus of community mental health was on policies of ‘economic rationalism’ with community care seen as far more cost effective than hospital care. Psychiatric hospitals were seen as providing costly ‘hotel type’ services for people who did not actually require the medical facilities of a hospital.

The growth of community mental health programs led to a decrease in the number of people resident in psychiatric hospitals (Hoult, 1983). This was accompanied, however, by an increase in readmissions resulting in an overall increase in admission rates and came to be known as ‘the revolving door syndrome’ (Stein & Test, 1978). It was suggested that as many as half to three-quarters of readmissions could be avoided if comprehensive programs of continuous care existed in the community (Hoult, 1983). There was also concern about the increased poverty and homelessness of many people with mental health problems who were not receiving adequate treatment (Sherl & Macht, 1979). An extension of the community mental health program was seen as necessary for comprehensive care for the mentally ill in the community. This led to the development of community psychiatric crisis services in the USA in the early 1970s and in Australia in the late 1970s.

The end of the twentieth century witnessed the ‘integration’ of psychiatric services with ‘mainstream’ public general hospital services and the closure of ‘stand alone’ psychiatric hospitals. It was argued that services delivered in mainstream community settings reduced the stigma associated with a mental illness. The result has been major changes for users of mental health services, their families and staff. Whilst some patients have never lived in the community, likewise some staff had never worked in community settings.

Whilst in the past institutions were criticised for not providing adequate standards of care; community treatment has also received harsh criticism predominantly due to the inadequate funding to provide the range and quality of services required in the community. In Australia a 1993 review of Australian mental health services led by Burdekin, found that the inadequacy of existing community services was ‘disgraceful’ (Human Rights and Equal Opportunity Commission, 1993). This has led to more targeted community mental health service development as well as increased focus on accessibility to community services.

Public psychiatric hospitals have now been replaced by a predominantly privatized system. General practitioners now play a central role in the provision of mental heath care and are the first point of contact for people experiencing mental heath difficulties. Residential facilities include a very small number of ‘acute’ psychiatric beds in general hospitals and community based houses that provide ‘continuing care’ and ‘psychosocial rehabilitation’. Specialist in-patient facilities are

provided in the area of psycho-geriatrics and forensic psychiatry. The reality however is that people are now living in the community with greater levels of mental disturbance. Increased pressure is put on family and friends and general community health and welfare services to provide care that was the responsibility of psychiatric services in the past.

Recovery

Since the 1980s a focus has been on 'recovery' from mental illness. The term 'recovery' when applied to mental health evokes different responses in people. It is a term that in the past has been associated with drug and alcohol settings. The mental health literature on recovery originated in the United States in the 1980s with a strong focus on the individual. This concept has been developed further, particularly in New Zealand to include the individual's social, political, economic and cultural context. The New Zealand model of recovery acknowledges diversity and challenges the dominance of the biomedical model of 'mental illness' that is central to recovery literature in the USA (O'Hagan, 2004, p.5). A key feature of the New Zealand model that again does not feature in the recovery literature from the USA, is the importance of user partnerships at all stages in the design and delivery of mental health services with an increased focus on human rights and advocacy.

In advice to consumers of mental health services in New Zealand, The Mental Health Commission of New Zealand defines recovery as follows:

> Recovery means living well in the presence or absence of your mental health problems. It is more than just managing your mental health problem. Recovery also means getting back the things you have lost because of your mental heath problem, such as friends, your home or your job (New Zealand Mental Health Commission, 2002).

Central to recovery is 'hope' and the 'active' role taken by the individual in her or his own recovery. This is a major paradigm shift from institutional care to active community participation.

Misinformation: Recovery, Discrimination and Employment

The term recovery has been criticised for being esoteric and not evidence based. It implies that people will no longer have mental health problems post-recovery. Whilst many people do have a full recovery there are those who do not and who struggle on a daily basis with disturbing symptoms of mental illness. To tell these people they will recover is misinformation. If applied in an individualistic way the person who does not recover is held responsible for his or her supposed lack of effort or progress. For some people mental illness is a one-off experience from which they fully recover; for others however the experience is recurring and they experience ongoing mental health difficulties. The great majority of mental illnesses are treatable if appropriate care and services are provided.

Discrimination

The main obstacle to recovery is discrimination. Whilst policies in mental health in New Zealand reflect a 'recovery oriented' approach to mental health service development and delivery this does not appear to be reflected in mental health legislation. For instance in the New Zealand *Mental Health Act 1969* it is a criminal offence for more than one "mentally disordered" person to live in the same house. Exceptions are made if two or more mentally disordered persons are from the same family or if the residence is under the control of an area health board or hospital board. Aspects of the legislation are paternalistic with provision for 'pocket money' for people in hospital and residential settings.

The more recent New Zealand *Mental Health (Community Assessment and Treatment) Act 1992* makes provision for 'powers to be exercised with proper respect for cultural identity and personal beliefs'(p.15). However this is in the context of the extraordinary powers given to psychiatrists to treat people either in hospital or the community, whether or not they are considered 'mentally disordered'. Psychiatric treatment can occur if it appears the person 'would benefit from psychiatric care and treatment' (p.15). Whilst mental health policies stress rights and ant-discriminatory practices these are not adequately supported in the legislation, making it difficult to implement a recovery oriented approach.

Web Resources: Mental Health and Employment

Misinformation is evident in web based work search systems and related resources with advice given on these sites that is distorted as it does not acknowledge or make allowance for the user needs of people recovering from severe mental illness. This inequity is evident in that there is no Web based work searching system especially designed for people recovering from severe mental illness seeking employment. Numerous studies, including Freud in the 1930s, have reported the benefits of employment for people diagnosed with severe mental illness (Bryson, Lysaker, & Bell, 2002; Hachey, Boyer, & Mercier, 2001; Van Dongen, 1996). Some of these include structure, social interaction and meaningful activity. Despite the focus on rehabilitation programs in the community the majority of people diagnosed with mental illness are not in paid employment (Van Dongen, 1996). This raises the question of what work means to people with severe mental illness and how it impacts upon quality of life.

In the workplace, stress means different things to different people. For some people a busy environment can create a lot of stress while for others a quiet work environment without enough to do can be far more stressful. Some people fear the stress of paid employment will increase symptoms of mental illness. However the opposite is often true with symptoms tending to decrease and improved mental health outcomes. Work can serve as a distraction from worries and persistent psychotic symptoms (Anthony, 1994). This is also the case with the general population as work status is often a strong predictor of life satisfaction as it brings status, income and social opportunities (Bryson, Lysaker, & Bell, 2002).

People with chronic mental illness often have low self-esteem and poor quality of life. Confidence is often low as a result of stigma, long-term unemployment, poverty, disturbing symptoms of mental illness, side effects of medication and hospitalisations. A higher number of hospitalisations are often associated with poor work adjustment and higher unemployment (Anthony 1994). In a study of quality of life and self-esteem in working and non-working persons with mental illness Van Dongen (1996) found positive attitudes towards psychotropic medications by both workers and non-workers who were taking these medications. Past studies have found that side effects of anti-psychotic medications have contributed to non-compliance, and also claim that side effects can impair work capacity (Diamond, 1985; Mulaik, 1992). However Van Dongen's findings suggest that people with mental illness are less concerned with medication side effects than previously thought.

Positive work experiences increase self-esteem and life satisfaction but negative experiences and chronic unemployment contribute to feelings of poor self worth. The meaning of work, including perception of work and the value attached to it, is an important consideration. In a study of roles most valued by people with mental illness, Hachey (2001, p.112) found that the most valued positions were friend, worker and family member even though most participants were not working. Most people in Hachey's study wanted paid employment. It is important that support is provided for people with mental illness to gain and maintain appropriate employment.

Voluntary work is often seen as preparation for paid employment and less demanding. However paid employment is quite different in terms of commitment and performance expectations. Appropriate job matching is required on a number of continuums including qualifications and training, personality type, career aspirations, pay and conditions, location and support. Factors contributing to job satisfaction are no different to anyone else and include predictability, clear expectations, having sufficient time to complete work and social opportunities with co-workers (Van Dongen, 1996, p.40).

Due to the residual effects of severe mental illness finding suitable employment can be a difficult process and many people are forced unnecessarily to rely on welfare payments. An effective web-based work searching system will enhance the ability of people recovering from mental illness to access the job market; reduce their reliance on welfare payments and benefits and fulfil society's moral obligation to assist people with mental illness to fulfil their full potential. A consistent finding of studies on mental health and employment is that employment leads to improvements in mental health outcomes (McKay, Thomas, & Martin, 2002).

There are a number of significant gaps in current standards for Web content accessibility design for people recovering from mental illness. Likewise there are considerable design gaps in current employment and Web-based job seeking databases for people recovering from mental illness. Further development in the use of computer technologies is necessary to fill these gaps and to improve accessibility and systems design focused on return for work for people recovering from mental illness. A computerized system has the potential to be used for commercial purposes by employment agencies as well as government providers of mental health and employment services.

The design of a Web-based resource specifically for people recovering from mental illness, seeking employment incorporating new Web content accessibility standards and systems' design features is needed. This requires the synthesis of information across a range of data bases including Web content accessibility standards, employment, income security and mental health. Gaps in these data bases need to be identified for people recovering from severe mental illness. The identification of these gaps will inform efforts aimed toward building a Web-enabled system with accessibility to information standards and features that are tailored specifically for people recovering from severe mental illness seeking employment that currently do not exist. New software is required to build a tool to search the current databases available on Web, content accessibility standards, employment and mental health. Software also needs to be written to incorporate design features to fill the gaps in Web-enabled databases to make them, more user-friendly and accessible for people recovering from a severe mental illness.

Disinformation: Media Myths and Stereotypes and Vocational Rehabilitation

It is difficult to distinguish between misinformation and disinformation when considering mental health and employment. How can we be sure that someone is 'knowingly' providing false information? It is easier to discern whether or not the information provided is rational or irrational but again, as indicated in the historical overview in the discussion of bias earlier, this comes down to dominant ideologies that vary according to time, context as well as personal and professional values and beliefs. Two main areas have been chosen as the focus of discussion of disinformation. First is, media myths and stereotypes surrounding mental illness and stigma and second is, vocational rehabilitation programs for people diagnosed with severe mental illness.

Myths and Stereotypes

Media stereotypes of people with mental illness, to be feared or scorned or even as the object of amusement, is disinformation arising from dominant social attitudes and beliefs. However there is doubt as to whether or not those who promote these distorted views do so knowingly or whether or not actually believe in them. What is evident however is that those who promote such views are knowingly presenting a biased account. This may be due to many reasons including; not conducting appropriate and balanced research or acceptance of dominant myths surrounding mental illness. The apparent need for sensationalization in journalism and movie production also seems to fuel myths of mental health and dangerousness and could be a basis for continued disinformation in this area. Headlines such as 'Psycho killer' sell more newspapers than stories about the indignities and discrimination faced by those diagnosed with severe mental illness. Frequently media reports of violent acts conclude with 'suspected schizophrenic' without any basis for such a claim. The identification of someone according to their diagnosis results in objectification and further discrimination.

Stigma is the most debilitating aspect of mental illness (Granello & Wheaton, 2001, p.9; SANE Australia, 2003). It is not enough to have to deal with the distressing symptoms of mental illness, but to also have to deal with unfounded fear and discrimination from a misinformed public, is for many, too heavy a burden to bear. The stigma surrounding mental illness and suicide can prevent people from seeking help because they do not want to be seen to be 'crazy'.

Numerous studies have found that negative stereotypes of people with mental illness lead to discrimination in education, employment, housing and social interactions with others (Corrigan, 2000; Elliot & Frank, 1990; Lyons & Ziviani, 1995; SANE Australia, 2003). The general public reacts differently according to a person's diagnosis. People diagnosed with schizophrenia or anti-social personality disorder are stereotyped as unpredictable and prone to violence and are viewed more negatively than those diagnosed with anxiety disorders or eating disorders (Granello & Wheaton, 2001, p.2). It has been found however that negative attitudes often do change after people take the time to get to know people experiencing mental illness (Corrigan, 2000).

Given the long-term nature and severity of many mental illnesses the expectation that people are symptom free prior to gaining employment is unrealistic. People do not need to remove themselves from the community simply because they are experiencing symptoms of mental illness. Yet somehow this is what is expected. Employers may endorse employing people with mental illness yet when faced with the reality of an appropriately qualified candidate for a position, who declares having a mental illness they may not offer them a position. Discrimination and stigma are often covert and can be difficult to deal with because of this. In this instance the employer is not likely to name the person's mental illness as a factor for not offering them the position. Employment opportunities are relative to the discrimination the person may face due to their mental illness. Discrimination may also be occurring due to other factors such as gender and ethnicity, age and sexual preference, not only because of mental illness (Fabian, 1989).

Human service workers in mental health settings have been found to be far more accurate at predicting those who will not be violent as opposed to those will be violent. Interestingly women and violence are often underestimated, with predictions of violence from men and people from ethnic minority groups overestimated (Van Dongen, 1996, p.156). Violence needs to be assessed within its proper social context, with a need to look at issues around provocation rather than focusing solely on one party in the conflict (Estroff & Zimmer, 1994). Of far greater importance in predicting violence are issues around alcohol and other drug misuse (Langan, 2001, p.161). Substance abuse by single, young adult males poses a greater risk of violence than mental illness (Hiday, 1995). The combination of substance abuse, and previous attempts at suicide or para-suicide, pre-

dict the greatest risks. Rather than danger to others the risk is far greater for danger to self yet high suicide rates amongst people diagnosed with severe mental illness continue to go unreported.

Vocational Rehabilitation

People with mental illness experience high rates of unemployment. Many spend lengthy periods, sometimes decades, in pre-vocational training programs. In such instances “pre” has become synonymous with “never” (Fabian, 1989, p.10). Rather than vocational preparation and training the focus is often on recreation with little expectation that program participants will actually gain work – even though the naming of such programs suggests an employment focus. This is considered disinformation as people are knowingly being enrolled in such programs with the expectation of vocational rehabilitation and training yet the providers of such programs tend to focus on social activities and recreation. This is not to deny the importance of such activities and the connections between socialisation and return to work and overall quality of life. However it is the failure to deliver on the vocational aspects that is of concern.

Work has always had a therapeutic value in the treatment of people with mental illness. In keeping with the therapeutic value of work, the institutionalised mentally ill in the days of the large psychiatric institutions performed several jobs towards the maintenance of these institutions. While women patients were confined to domestic tasks such as kitchen and laundry work, cleaning wards or working in the sewing room, men worked on farms and gardens, participated in building roads, maintaining the hospital grounds and equipment, painting, whitewashing, carpentry, plumbing and blacksmithing (Garton, 1988).

The advent of deinstitutionalisation and the growth of community mental health programs have added a new dimension to the meaning of work for people with mental illness. Work is now regarded as a critical factor in rehabilitation and a means by which people with mental illness can gain a measure of economic independence in the community through participation in employment. This concept of work has led to the development of various vocational rehabilitation (VR**)** programs and approaches, the common goal of which is to prepare people for open community employment. Most of these programs have achieved only limited success so far in achieving their stated goal. Despite this people are actively recruited into these programs with the expectation of employment although only a minority actually progress to this stage. This could be considered as disinformation as people are led to believe that participation in these programs will lead to employment.

The following discussion reviews the different vocational programs and approaches for people with mental illness that have evolved over the last thirty years and the reasons for their poor/limited success. While the earlier approaches were designed to serve the population of mentally ill that had been hospitalised for several years, the more recent ones are intended for people who have spent only brief periods in mental hospitals. Thus these latter approaches make it possible for people with mental illness to live and work in the community and use the hospital only in times of relapse. Four approaches are discussed- the traditional ones include sheltered workshop and half way homes. The more recent ones are work crews and client operated businesses, clubhouse and transitional employment and supported employment.

Sheltered employment and half way houses

The advent of deinstitutionalisation and the growth of community mental health centres fostered an appreciation for work training in preparation for community living. Vocational programs were set up in hospitals, sheltered workshops and half way homes in an attempt to prepare ex-hospitalised patients for life in the community. This 'train and place' model assumed that after being trained in such settings, people with mental illness would be able to make the transition to

open employment and lead productive and self sufficient lives in the community. In sheltered workshops, training and employment was provided by securing sub-contract work from industry. Halfway houses included programs in which the primary site for rehabilitation was a community residence. The Fairweather Lodge in Chicago, United States, is the best known example of the halfway house.

Each lodge consisted of a small group of six to eight individuals with a history of a serious mental illness. They lived together in a house and jointly operated a business. Inpatients from mental hospitals were recruited to participate in the program. While still in the hospital they were moved to a small unit by themselves where they were encouraged to become increasingly autonomous and make plans for their community residence and business. The guiding principle was empowerment of individuals to take responsibility for their lives through participation in a cohesive problem solving group. The businesses operated by the lodges included cleaning and lawn services, house painting, furniture building, shoe repair and catering. A home coordinator was available for supervising the lodge but did not live there. This program was found to be most suited for individuals who had been hospitalised for long periods (Fairweather, et al 1969).

The enthusiasm with which these programs started was however short-lived and there were several reasons for this. Firstly people with mental illness did poorly in sheltered workshops compared to people with other types of disabilities (Ciardiello, 1981). The work was repetitive and insufficiently stimulating to the needs of people with mental illness. The work provided was also inadequate in supply and variety and frequently involved low paying assembly and packaging tasks (Commonwealth of Australia, 1992). Secondly the skills the participants learnt in workshops and halfway houses did not generalise to open employment settings (Bellamy et al., 1986; Lehman, 1995). The staff also lacked the technical expertise necessary to select and train people to take up employment in non sheltered settings (Ford, 1998). Consequently such facilities showed a poor record of placing people in open employment.

From an economic standpoint the failure of these traditional vocational services is most apparent in the wages paid to the participants of these programs. Data reported in Australian census of disability programs (Disability Services Program, 1993) indicate that employees with disabilities in traditional sheltered workshops earned an average weekly wage $49AUS which was disproportionately low compared to the average weekly wage of $523.50AUS paid to non disabled workers in the same census year (Australian Bureau of Statistics, 1993). Thus these programs did not offer the financial benefits associated with community employment and kept people with disabilities isolated from the larger labour force.

The failure of this traditional approach to move people into community employment led to a lull period in vocational programs for people with mental illness. Vocational preparation was considered the responsibility of neither the community mental health centres nor the state hospitals that were decanting institutionalised populations into the community. It was during this period that psychosocial centres were set up, some at the initiative of mental health service users, for the purpose of mutual aid and support. Psychosocial centres such as Fountain House (New York), (Malamud & McCrory, 1988), Thresholds (Chicago) (Dincin, 1975), Horizon House (Philadelphia), (Cnaan et al., 1988), developed model programs such as Transitional Employment and Clubhouse programs. These psychosocial rehabilitation centres have played a significant role in the development of the more recent vocational rehabilitation approaches, Transitional and Supported employment.

Work crews, client operated businesses, enclaves

Work crews are essentially group employment activities used by a rehabilitation program for people with mental illness. People in a work crew may be placed in transitional employment (or

supported employment). Clients in a work crew may also perform sub contracted work in an industry or may operate a business. Enclaves are also work crews. In a typical enclave, clients are placed in real work settings and are trained and supervised among people who do not have disabilities. They may do a definable task in the same location but are segregated from the larger work environment. The advantage of work crews and enclaves is that the peer group can act as a good source of support to the individual worker. According to McCrory, since developing new relationships can be stressful for people with mental illness, the possibility of trying out a job without the added stress of forming new relationships can mitigate the difficulties inherent in learning. The peer group can also act as a stimulus to improved performance through peer pressure and role modeling. The limitation of these cooperative work programs was that skills did not generalise. Also such approaches, besides encouraging segregation, cannot be easily replicated in open employment settings. Earnings were also below competitive employment rates and workers found it difficult to work independently without their group members (McCrory, 1988).

Clubhouse and transitional employment approach

Clubhouses were initially popularised in the 1950's by Fountain House, a psychosocial rehabilitation program that developed out of a self-help group for ex psychiatric patients in New York City. Clubhouses operate outside of the mental health system. They are called clubhouses because they provide a central meeting place for members to socialise. Clients, who are referred to as members, are encouraged to participate in work units at the clubhouse as part of the work ordered day. The traditional types of work units that exist in clubhouse programs are kitchen and cafe, cleaning and housekeeping, clerical work, maintenance and repairs. Clients take the responsibility for running the activities of the clubhouse. This may include housing, recreation, social support and employment. It is hypothesised that members benefit from participation in the clubhouse because they feel needed for its successful functioning (Macais, 2001; Propst, 1992). One drawback of the clubhouse is that people may develop an institutional dependency on the prevocational work programs that the club house provides. Some studies have suggested that clubhouses have difficulty moving a majority of people beyond prevocational activities. Recently clubhouses have popularised the Transitional Employment (TE) approach of vocational rehabilitation.

This model of vocational rehabilitation was initially developed in 1957 at Fountain House as an alternative to the train and place model. It grew out of the belief that clubhouse members, because of their skill limitations, poor work history and their status as former mental patients, would need the opportunity to practice work skills in less demanding practical settings before moving into typical work environments, and that in vivo learning was a ideal way for people with mental illness to acquire good work habits. The principle behind this is the concept of gradualism or transitionalism which suggests that people will improve their work habits and job performance through the process of meeting expectations in successively more demanding work environments, beginning with relatively low demand environments (Dincin, 1975). In recent years this concept of gradualism has been challenged by the findings of studies which show that vocational outcomes are better for clients in accelerated programs that avoid pre employment preparation (Bond, 2000).

Transitional Employment consists essentially of time limited series of placements of the client by the TE agency in entry level competitive jobs which belong to the TE agency. Work is performed by the person with the gradual increase in hours and initial training and support from a job coach from the TE agency. Job coaching gradually decreases as the person gains competence and adjusts to the demands of the job. All TE placements are temporary ranging from three to nine months and are typically part time. Formerly it was not considered important to take into account an individual's vocational interests before the placement because the purpose of TE was to learn about work rather than acquire specific vocational skills. Recently however, this view has been

moderated by advances made in the field of vocational rehabilitation as well as increased awareness of the importance of the individual's choice and values in skill acquisition.

The main limitations of TE are that placements are temporary; the jobs do not belong to the worker but to the TE agency and the jobs made available by employers to TE agencies are entry level jobs requiring low level of skills. While the temporary nature of TE placements and the lack of ownership of the job by the worker can pose as a barrier to the development of significant and long term workplace relationships, the nature of the jobs, as mentioned earlier, may not sustain the interest of workers, especially those who have career aspirations and abilities. Furthermore, these jobs are often the first to go during periods of recession. Despite these limitations, this approach can help workers with mental illness to develop a work habit and work history while also earning award wages in real work settings. This is because workers may spend about six months in a job placement. Recent research suggests that clubhouses have been successful in moving many members into Transitional Employment (Macais, 2001; Pioneer Clubhouse, 2004).

Supported employment (SE)

Supported Employment is the most recent vocational approach for people with mental illness and has gained wide acceptance as the best approach for helping people to gain employment. It evolved in response to the numerous barriers that prevented people with mental illness from entering vocational programs, including, readiness requirements, prolonged assessments, requirements for prevocational training, lack of access and availability of programs and the rigid interfaces between mental health and vocational rehabilitation agencies. Research has shown that the large majority of people with mental illness prefer competitive employment to sheltered work (Bedell, 1998; Bond, 1995) and that assistance with gaining such employment is a major unmet need sometimes unrecognised even by practitioners (Crane-Ross, Ross, & Lauber, 2000). According to Bond (2004), the term 'supported employment' refers to a type of 'employment status' and a type of 'employment program'. As an 'employment status' supported employment refers to competitive work in integrated work settings, consistent with the strengths, resources, concerns, abilities, interests and informed choice of the individuals. As an 'employment program' supported employment refers to programs that help people with disabilities to find and keep these jobs (Bond, 2004). The key principles of SE for people with mental illness are; client choice in the selection of jobs according to their interests and skill level, work in integrated settings at award wages, ownership of the job, integration of rehabilitation and mental health and time unlimited individualised support to sustain the job. SE is increasingly being recognised as an evidence based approach and several recent studies have confirmed its effectiveness compared to traditional approaches (Bond, 2001; Crowther, 2001; Twamley, 2003). However, there are a number of issues about SE that warrant further research and some of these apply to other approaches as well.

Firstly, people with mental illness are a diverse group. It is not currently known which category of clients may be best served by the supported employment model or any other model. Since the characteristics of people who will benefit most from supported employment cannot be predicted in advance, some writers have suggested that it may be better to maintain a zero exclusion criteria. This means that any person with a mental illness who expresses interest to work must be given the chance to participate in vocational rehabilitation interventions. This may help in identifying those who are most suitable for SE (Bybee, 1995). Secondly, although SE has been popularised as an empowering approach because it emphasises client choice and individualised skills development and there is recognition in principle that people can be placed at any level depending on their skills. In reality most supported employment placements currently occur in entry level positions. These usually involve low level skills, have high turnover and are the ones most likely to go during times of economic downturn.

Research indicates that between 41% to 77% percent of clients terminate supported employment positions within six months (Becker, 1996; Fabian, 1992; Gervey, 1995). Taken together this suggests that people with mental illness who finally succeed in gaining open competitive employment are unable to sustain it for long, either due to their adverse effect on their mental health or lack of sufficient financial, social or psychological incentives. Another reason for the limited success of SE and other recent approaches is the failure of professionals to recognise the value of support from the client's primary social network-particularly family and friends and involve them in the VR process. There has been little research so far on the role of the primary social networks in providing vocational support. There is also little research on the long term ongoing support needs of people with mental illness in employment. The major focus of vocational rehabilitation so far, including SE has been is on assessment of the client's skills, placement and job training. As noted by Clear and Green (1993), no strategies have been provided within VR including SE for a comprehensive assessment of the complex and interrelated supports that are currently available in an individual's life and may be brought to bear in the employment process.

Information communication technologies and vocational rehabilitation

ICTs have played a significant role in limiting the success of recent vocational programs by propagating bias, misinformation and disinformation about mental illness and shaping the attitudes of employers, policy makers and mental health professionals. While stories about violence and inappropriate behaviours associated with mental illness are regularly aired or published, little information is available about successful vocational rehabilitation programs, the work capabilities of people with mental illness and the role of VR in helping people to gain employment. Employers are crucial for the success of VR but studies show a continuing reluctance among employers to hire people with mental illness. Even if hired, employers are reluctant to offer them higher than entry level jobs. Studies have shown that people with mental illness are significantly less likely to receive a job placement than a physically disabled or a non-disabled person despite identical job qualifications and work histories (Drehmer, 1985).

Factors contributing to employer reluctance in hiring people with mental illness include concerns about the low productivity of people with mental illness, increased insurance costs, high absenteeism, unpredictable reoccurrence of symptoms and inappropriate behaviours (Cook & Razzano, 2000; Shankar & Collyer, 2003). Other research studies suggest that employer receptivity to hiring workers with mental illness is positively correlated with their level of understanding. Thus well informed employers are more likely to respond positively to placement efforts than individuals who react in response to any stereotypes, fears or misconceptions they have about people with mental illness.

ICTs have also contributed in no small measure to the shaping of disability employment policies that are often paradoxical and inconsistent. For example, the Government, in its zeal to move people with mental illness from welfare to work has funded several private and non government agencies to provide vocational rehabilitation programs based on the Supported Employment approach. In recent years several people with mental illnesses have been actively recruited into these programs with the expectation of work. However, the policy of 'welfare to work' operates in a market based context with its goals of competition, cost efficiency and financial incentives. Since continued funding to organizations is based on cost efficiency and number of outcomes, organizations are forced to compete rather than cooperate with one another for the 'best clients', that is, for those who are more capable, who are predictable, need minimum employment support and tend to achieve 'quick outcomes' through placement in entry level employment. This leaves little room in the system for people with mental illness who may be successful at work but need innovative and challenging approaches to employment support. The handful who make it into

employment often fail to sustain it due to lack of resources for ongoing support. This is typically an example of disinformation where people with mental illness are led to believe by providers and Government that participation in vocational rehabilitation programs will lead to work but in reality many do not even proceed beyond the stage of assessment.

The high drop out rates of people with mental illness from these programs has a strong negative impact. It reinforces public attitudes that people with mental illness are poor candidates for employment. It also leads to self stigmatization (Peterson, et al., 2002) as people begin to perceive themselves as failures in the employment market thereby intensifying feelings of poor self esteem and hopelessness.

On a more positive note ICT's can be effectively used to disseminate information that highlights the achievements of people with mental illness in the areas of employment, education and recovery. With particular reference to vocational rehabilitation programs, ICT's can be used to promote knowledge and research findings about evidence based approaches such as SE, the skills and capabilities of those who participate, the supports that are needed (including policy support) for their success. Participants of VR programs are usually those who want to participate in work but experience various combinations of cognitive, behavioural, emotional and social difficulties which restrict their chances of finding and sustaining employment.

Conclusion

Human computer interaction, mental health and employment are areas of increased importance particularly since the deinstitutionalisation of mental health services. However bias, misinformation and disinformation can lead to policies and practices that hinder rather than assist. ICTs are primarily designed with a commercial focus and for people who are deemed to be in the majority. People with special needs or requirements are often not adequately and this is particularly so for people recovering from a severe mental illness who are seeking employment. There are currently no web based technologies and designs that address the specific needs of this marginalised population. The development of such technology can not only enhance their access to the information about jobs, vocational programs and career opportunities but can decrease their reliance on professionals, promote social interaction, advocate for themselves, lobby for change and support and counter the impact (to some extent) of misinformation and disinformation. Considering that the prevalence of mental illness in the community is high and is likely to increase in the future it may be the right time for researchers, HCI and human service professionals and potential users to collaborate and invest resources for the development of innovative web based designs and technology that can meet/accommodate the needs of this diverse group.

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