Main Articles

Managing Technostress in UK Libraries: A Realistic Guide

Stephen Harper has a look at the changing face of stress in the library environment.

Defining Stress

"Stress" has become the defining malaise of modernity. Until around twenty years ago, the term was used exclusively to refer to the "fight or flight" mechanism in a specific medical context. Today, however, the word has undergone radical semantic widening. Like "nerves" in the nineteenth century, "stress" is now used by individuals to explain a huge number of maladies and by journalists, advertisers and cultural pundits as a convenient hook upon which to hang any number of social ills. In short, the enemy is everywhere. The social ubiquity of stress is reflected in our everyday parlance: "stress" is now commonly used as a verb as well as a noun, as in the popular injunction: "don't stress."

Yet the proliferation of discussions of stress in the popular culture of today often hinders, rather than helps, serious discussion of the phenomenon. In Angela Patmore's view (1998-99), the popular wresting of "stress" from its original medical meaning has allowed a cynical stress management industry to exploit a "culture of helplessness" for financial gain. Patmore's is a salutary and in many ways insightful analysis: unscrupulous "stress managers" doubtless exist; and their definitions of stress may not always withstand close scrutiny (in particular, the "causes" and "symptoms" of stress are often inadequately distinguished). Nevertheless, there is nothing radical about denying the existence of problems that are commonly experienced by workers in library and information services. Responsible managers must develop an awareness of the specific medical and legal consequences of a rapidly changing working environment, whether or not these are regarded as manifestations of stress.

In view of the semantic problems raised above, two points must be made clear before stress – or indeed technostress - can be discussed without confusion. First, stress in the most general sense can be a force for good or ill. While most commentators make a distinction between adaptive and maladaptive stress, some appear to confuse the two. Having correctly recognised the positive, as well as the negative, potential of stress, Atherley (1996: 20) goes on to describe "anticipatory interview nerves" as a negative form of stress. In fact, stress in such situations may have a useful, galvanising effect; for the purposes of this article, however, stress is taken to mean unproductive stress.

Second, it is important to distinguish stress from pressure. The former is subjective, the latter objective; and there is not necessary a causal relationship between the two. Many busy employees do not suffer stress; others become stressed apparently without reason; individual circumstances must therefore be considered. Nevertheless, common sense says that stress, in many employees, increases in relation to pressure, whether from variations in workload, physical environment, or even from travelling to work.

In conclusion, stress is not an illness in itself, but rather the term given to a maladaptive response to pressure. Thus the word stress may be used as an umbrella term covering all of an employee's physical and emotional problems. Despite their steadfastly conservative image, there is no reason to suppose that librarians are less susceptible to such problems than other professionals. Of course all librarians and information workers suffer temporary frustrations at work; in order to take stress - or technostress - seriously, therefore, these problems must have been encountered over a period of time.

Technostress: a Brod definition

Like the term "stress", "technostress" has been defined in so many ways – sometimes by the same authors - that its utility as a concept is in doubt (Fisher 1996). The original and still popular definition is that of Craig Brod, who describes technostress as "a modern disease of adaptation caused by an inability to cope with new technologies in a healthy manner" (Brod 1984:16). Brod's definition certainly requires closer scrutiny than it has often received. While it may be spurious to call technostress a disease, the second clause provides a working definition: "technostress" covers that range of chronic human psychological and physiological problems that may result from the use of automation. This sounds a broad enough definition; yet an even wider definition is possible if we understand "techne" in its original Greek sense of "skill". While Brod talks of "new technologies" (the phrase already sounds dated), what of a librarian struggling to adopt the procedures involved, for example, in the use of a library circulation system that uses cards and tickets, such as the Browne system? For such an employee, even a manual issuing system might be a new technology – new, that is, to the employee.

Although the word itself is a neologism, "technostress" is hardly a new concept. On the contrary, the belief that Westerners are subject to a psychologically devastating rate of technological change may have its origins nineteenth-century responses to the Industrial Revolution (for a survey of these see Rosen 1968). But how does technostress affect modern librarians and information workers? The increasing body of literature on the subject certainly presents no firm evidence of an "epidemic" of librarian technostress. As Fisher, in one of the best articles on the subject, writes: "there are sufficient problems with Brod's original definition of the term as to render it unreliable… Most commentators within the library and information field have built unwisely upon these unsteady foundations and asserted rather than proved the existence of technostress" (1996:13-14). Nevertheless, common sense and a growing body of anecdotal evidence suggest that the explosion of automation in libraries poses some particular problems for librarians – these, for our purposes, may be said to fall under the rubric of technostress. While various in nature, these problems – physical, psychological and organisational - are a little easier to identify than the those caused by stress generally.

Physical Forms of Technostress

Heavy use of computer technology, in particular, may result in eyestrain, headaches and backaches as well as:

- Repetitive Strain Injuries

Carpal Tunnel Syndrome, whose symptoms include pain, tingling and numbness in the hand, wrist and arm, can be caused by continuous rapid use of the fingers, and is common among those whose use keyboards frequently.

- Overexposure to Visual Display Units (VDUs)

Headaches and muscular dysfunctions may result from overexposure computer terminals, while electromagnetic radiation produced by VDUs has been linked to miscarriages and to serious medical conditions including cancer (Coghill 1990: 123-40). The heat and static electricity produced by terminals may also lead to fatigue and general debility (Graham and Bennett 1974:89). Older VDUs are likely to radiate more than newer ones.

Psychological Forms of Technostress

Psychological forms of technostress – which may have physical consequences – are rather more complex in nature. Technostress may be environmental in origin: poor ergonomics at computer workstations, for example, may leave staff feeling drained. Employees may also struggle to cope with the skills demanded by new technology, as in the case of many rural public libraries which are only now becoming automated; on the other hand, many staff overidentify with technology. Other factors include:

- "Information Overload"

In large libraries, the introduction of automated circulation, networked catalogue systems, online and CD-ROM information retrieval systems and telecommunications technologies (e-mail, telefaxing, teleconferencing and interactive television) can lead to a situation where employees feel overwhelmed by information (Bartlett 1995).

- Underwork and Routine Jobs

Many staff become frustrated when underemployed or when the work they are doing involves only routine operations; this can happen when employees spend long hours with automated systems. While a certain amount of routine work is to be expected by librarians, managers must be aware of the proportion of time employees spend performing a single task.

- Job Insecurity and Demotivation

Recent massive investments in automation in the UK ILS sector may contribute to a fear that computers are usurping human roles. Job insecurity may be compounded by jealousy among co-workers when levels of technological competency differ. Over a prolonged period, this may lead to loss of motivation and team spirit. More specifically, it may also lead to an erosion of trust among staff, as more "technologically aware" employees become reluctant to share their skills and knowledge, in the paranoid belief that by so doing they are making themselves more indispensable than technical novices. This kind of "skills hoarding" prevents effective communication within an organisation.

- Uncertainty about Job Role

Where automation is introduced to replace other technologies, the job roles of employees may be unaffected. Sometimes, however, staff may find that they are spending increasing time working with new technology; this may lead to uncertainty about job role. A librarian working more and more with computer technology, for example, may soon find herself doing the job of a systems librarian.

Consequences for Organisations

Workplace technostress may have consequences for organisations as well as individuals. Certainly, organisations failing to tackle the problems of technostress can expect to experience high levels of absenteeism and staff turnover. Managers who suggest that employees must simply cope or leave the organisation may not realise the potential costs of retraining new staff in the technology skills required. At the same time, far-sighted UK library managers must look to the United States, where employees have increasingly been litigating against organisations on the grounds of work-related stress (Goss 1994:134-35). At the same time, European Union law is increasingly affecting UK managers' demands on staff; a recent example is the EU Directive on maximum working hours, whose introduction may have a bearing on work-related stress litigation.

Bartlett (1995:229) suggests that increased use of automation has led to a flattening out of the pyramidal organisational structure "allowing people to self-manage in smaller groups". Certainly, library managers must accept that employees typically favour participatory management style in the implementation of automation, as Winstead (1997:19) has shown in her study of three academic libraries in the US. Managers may find that top-down communications are less well received, if not less effective, when automation is being introduced.

Solutions for Technostress

- The Employee Responsibility

Before considering senior management solutions for technostress, it should be emphasised that employees have a responsibility for managing their own reaction to technological change. Employees must remember that it is not necessary to "know it all": few librarians can be expected to be familiar with every feature of the ever increasing number of databases or computer applications. Nevertheless, responsible librarians must attempt to adapt to new technologies. In doing so they fulfil a duty both to the library and to themselves, since technological skills are an important part of most library and information jobs today.

There is undoubtedly a two-way relationship between employees' attitudes towards technology and physical or psychological damage technology is said to cause. Thus Staufer's study of older first-time technology users found that those who regarded technology as a threat, rather than a challenge, showed "the highest amount of health-related complaints" such as visual strain, headaches, and lack of concentration (Staufer 1992:49).

- The Management Responsibility

It will be important for UK managers to come up to speed on the problems that can accompany the introduction of new technology in libraries. Osif and Harwood's review of the literature on the subject (1996) is a useful starting point.

To reduce employee technostress, library managers must lead by example, showing an enthusiastic commitment to learning new technologies, as well as giving adequate warning to staff about planned technological changes: involving employees at the planning stage is always a good idea. In the short term, it may be necessary simply to increase management presence where appropriate. It will also be necessary to emphasise the importance of technological adaptability to job candidates at the recruitment stage (Clark and Kalin 1996:31).

The speed with which automation programmes are implemented is also crucial; Bartlett (1996:228) describes how her school library introduces new technology at a slow enough rate to allow mastery of each element as it is introduced. It is also the job of managers in networked libraries to ensure that there is a sufficient number of employees and competent staff to install, manage, troubleshoot and repair equipment (Clark and Kalin 1996:32). All of this must be included in comprehensive policies for the implementation of technology.

- Managing Technology

To protect employees, managers should be aware of the hazards of VDUs, especially older models, and consider employee safety when ordering new equipment. Many suppliers produce low-radiation screens which use a high refresh rate; amongst others benefits, this may help to keep extra low frequencies (ELFs) from interfering with brain functions (Coghill 1990:134-35). Older VDUs might be made safer by any of the anti-radiation devices now on the market. VDU operators, meanwhile, should be given practical advice on ways of minimising their exposure to EMRs, such as positioning themselves at safe distances from computer terminals.

Some UK library managers might dismiss staff fears about the safety of automation as excessive or hypochondriacal. This would be both unfortunate and foolhardy, since employers are obliged to follow the EU Directive incorporated as amendments into the Health and Safety at Work Act 1974. This includes responsibilities to analyse such things as workstations and keyboard designs and remedy any health and safety problems discovered, to ensure that employees working with VDUs receive adequate rest and a varied role and even to provide employees with regular eye and eyesight tests (Graham and Bennett 1974:320).

On the other hand, managers who concentrate only on the ruinous effects of technology may overlook the advantages of new technologies to increase the wellbeing of employees. While technostress may be*caused* by the introduction of computer technology, it may be *reduced* by further technological developments. Many libraries, even in the cash-starved public sector, are beginning to introduce self-issue terminals. Clearly, the major advantage of introducing self-issue terminals is to reduce the amount of time staff need to devote to the routine task of issuing books and other materials; but a side benefit is the reduced risk of repetitive strain injuries among staff.

- Redesigning Jobs and Organisational Structure

Staff who are spending an increasing amount of time working with new technology may feel that the nature of their work is changing. An important point for management to establish is whether job roles have been altered significantly by automation; if so, there will be need to draw up new job descriptions and possibly to review salaries and wages.

Where staff experience serious difficulties in adapting to new technology, there may be a reason to redesign jobs. Organisational restructuring at the Western Kentucky University's Helms-Cravens Library resulted in the centralisation of several service points into one Reference Centre (Etkin 1995-96). This led to "information overload" among many reference librarians, who may be the most prone of all librarians to technostress (Kupersmith 1992). The solution was to provide a new training programme stressing core knowledge for electronic information services among all reference desk personnel. There may be lessons here for public libraries in the newly formed UK local authorities, as they struggle to provide adequate standardised computer training for their staff.

- Complementary Medicine and Ergonomics

Technostress might be included in management development programmes. As well as training both managers and employees to acknowledge technostress (which is still a relative newcomer in the UK vocabulary), advice might be offered on means of combating it

through meditation or ergonomics. Solutions might include those posited for stress in general, such as the workshops run by organisations such as Mindstore, relaxation techniques, reflexology, aromatherapy, kinesiology, colour and nutrition therapy. Such solutions, which are increasingly discussed in library and information circles, would obviously have to be provided by trained practioners. Even so, the health benefits of some of them have not been demonstrated conclusively and much more scientific research into these areas is required. For these reasons budgets for such solutions must be carefully justified. This might be done by keeping records of stress-related absenteeism.

It might be wiser, one feels, for library managers to concentrate on offering more rational, "targetted" solutions to technostress problems. Specific remedies for technostress would be aimed at reducing the physical discomfort associated with the use of automation. Recent research suggests that Carpal Tunnel Syndrome, for example, may be reduced through the use of a lowered keyboard holder on a preset tilt away from the user. This keeps the operator's wrists in a low-risk, "neutral" position (Lang 1995:10).

- Technology-based Training

Identifying the training needs of employees suffering from the psychological forms of technostress may be difficult, since employees may be embarrassed about their lack of confidence or ability to cope and seek to hide their deficiencies. This will be particularly common where staff have had no contact whatsoever with computer technology, such as those working in the many rural public libraries still not automated. It is therefore important to cultivate an open atmosphere in the workplace, so that staff are willing to discuss their difficulties. Moreover, training should never be made compulsory.

Technology-based training is now common in libraries of all types, with most libraries keeping costs low by using staff members as instructors. A disadvantage of in-house training is that the trainer must reschedule her duties for a given period of time. Moreover, external courses offer the advantages of better technological facilities and the opportunity for staff to learn away from the distractions of the library. Even using outside instructors, however, training may not always be easy to organise. For example, low staffing levels, especially in rural libraries, may reduce employee availability for training (Jones and Sprague 1999:97). In such cases training may have to be "on the job". Nevertheless, training clearly reduces anxiety about technology.

While highly specific IT training may be desirable in some cases, it is not always necessary. UK academic libraries might wish to follow the example of Pennsylvania State University in the United States, which runs a mandatory 12-hour Automation Skills Training course designed to reduce the anxiety of new employees around technology rather than provide training in specific applications. Flexibility is the key. In environments where relationships among employees have suffered as a result of variations in technological competence, it may be important to introduce elements of group work. As well as offering training in those areas central to the organisation, it will be useful to stress the opportunities for personal professional development offered by services such as library discussion groups on the Internet.

Moreland (1993) advocates the use of the psychometric Myers-Briggs Type Indicator to determine the most suitable style of technology training for individuals. Without scientific corroboration, however, not all managers or employees will be willing to accept the Myers-Briggs premise of sixteen possible personality types. What *is* clear from Moreland's article is that managers must be sensitive to different styles of learning: some staff will learn better from formal and traditional instruction, others from a more hands-on or self-starting approach. One-to-one training may be best for those with very little technological confidence or skill. Library managers must consider the most appropriate form of technology training for each of their staff. In all cases, however, adequate time should be allocated for practice and reinforcement of skills (Clark and Kalin 1996:32).

The effectiveness of any training scheme may be assessed through oral feedback, group conversation or questionnaires; managers should also monitor the employees' job behaviour level before and after training.

Conclusion

Rather than worrying excessively about the definition of stress, managers must be aware that UK libraries are undergoing increasingly rapid technological change and that this change will have consequences at every level of an organisation, all of which must be managed. Just as the symptoms of technostress reach beyond the individual and extend to the organisation as a whole, so the solutions managers must adopt will range from addressing technical and health issues to being prepared to review job descriptions and roles.

If the professional literature is any guide, solutions such as stress management may become more common in the treatment of technostress, especially as managers realise the potentially enormous losses to an organisation in terms of lost working hours resulting from stress-related absenteeism. Specific remedies for technostress are now being developed, however, which seem to offer more quantifiable results. Technology-based training, for example, is still probably the most useful way of making employees more comfortable with new technology and more aware of its dangers.

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