Technostress among Technical University Librarians in Kenya

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Abstract

Technostress is the feeling of anxiety or mental pressure caused by working with multiple and rapidly changing computer systems, and mediating between these systems and the demands of one's organisation, staff, customers, and personal life. This study investigated the nature and extent of technostress among technical university librarians in Kenya; the factors causing technostress among the librarians; the effect of technostress on their professional and social lives; as well as how the technical university librarians in Kenya are coping with technostress. Primary data was collected from all professional librarians at the Technical University of Kenya and Technical University of Mombasa using semi-structured online questionnaires. Additional data was collected from secondary sources using documentary analysis. The data was analysed and presented using descriptive statistics. The findings reveal that technostress is widespread amongst technical university librarians in Kenya since all the respondents confirmed that they have experienced technostress; technical university librarians have experienced physical, cognitive, affective and behavioural forms of technostress; technostress is largely caused by technological dynamism and rapid change in their work environment; and that the effect of technostress on the personal and professional lives of the librarians is serious. These findings may be used by technical universities to develop strategies and policies which facilitate librarians to avoid, adapt to, or mitigate technostress.

Keywords: *Technostress, information overload, librarians, technical university, technical university library, Kenya*

1 Introduction

Technical universities are best understood in the context of technical education which is aimed at empowering the learners to acquire the practical skills, knowhow and understanding necessary for employment in a particular occupation, trade or group of occupations (Atchoarena and Delluc, 2001). According to Nyerere (2009), technical education has arisen from globalisation, technological change, and increased competition due to liberalisation of economies. Consequently, he argues that technical education is the "master key" to the alleviation of poverty, promotion of peace, conservation of the environment, and overall improvement of the quality of life. Technical education is the vehicle for socioeconomic and technological transformation. Waterhouse (2002) explains that technical education is not simply practical but is about particular types of actions taken to make and manipulate physical things for the benefit of society.

The role of technical education in facilitating industrialisation and development has been identified by many governments. This has led to the growth in the number of institutions offering technical education, diversity of technical curricula, and the number of students enrolled in the technical training programmes. Nyerere (2009) explains that in Europe, at least 50% of the students in upper secondary education pursue some form of technical or vocational training. He adds that in China, India and Southeast Asia, 35-40% are engaged in technical training while in Africa, it is less than 20%. Nyerere (2009) further reports that Rwanda has the highest enrolment in technical education at the post-secondary school level in sub-Saharan Africa at 35%. It is followed by Tanzania (13%) and South Africa (5.8%). This indicates a wide gap between sub-Saharan Africa and other regions. This situation prevails in spite of the fact that sub-Saharan Africa needs more technical skilled manpower to realise their visions to become middle-income and industrialised countries in the next twenty or so years.

According to Kwanya, Hongo and Kiplang'at (2017), technical universities offer technical training in engineering, applied sciences and technology with the aim of imparting practical skills so as to prepare their graduates for the job market. Graduates of technical universities require less training when employed. According to the report of a committee on the conversion of polytechnics to technical universities in Ghana released in 2014 (Government of Ghana, 2014), there are certain unique characteristics which technical universities exhibit. The report avers that technical universities 1) provide education and training for the world of work as the students are trained to acquire high-level employable skills for wages or self-employment; 2) have strong links with the industry and the business sector; 3) support the existing and emerging productive sectors of the economy with technical expertise and research for development; 4) are focused on practical research activities, including industry and market-driven joint research projects; 5) offer programmes that are vocationally-oriented or career-focused; 6) provide skills training at all levels – certificate, diploma, degree, and postgraduate degree levels; 7) offer courses and programmes covering a wide range of economic activities; 8) place emphasis on innovation and application of new technologies, including ICTs; 9) provide skills training from the middle level to the highest level possible; 10) have practice-oriented with smaller classes to enhance teacher-learner interaction; and 11) recruit teaching staff with professional and industrial experience over and above the ordinary academic qualifications.

The report (Government of Ghana, 2014) further adds that the fact that technical universities emphasise a close engagement with the world of work does not mean disengagement from the basic academic orientation of higher

education institutions. Engagement with the industry means bringing the world of work into the classroom and placing practical knowledge and research results at the disposal of the industry. Blending academic pursuits with practical goals of promoting societal and economic wellbeing of the population is one of the hallmarks of universities of applied sciences. While the focus is on applied research, technical universities may contribute their expertise at any point along the product development chain from basic research to commercialisation in collaboration with traditional (research) universities.

The establishment of the technical universities is expected to lead to a more diversified higher education landscape with clear mission differentiations. Technical education is designed and structured towards the empowerment of students to become entrepreneurs, industrialists and leaders in the practical future. The technical university is therefore differentiated from the research university whose mandate is to teach, train and carry out research for theoretical purposes. A technical university is expected to provide technical and vocational education and training. Also, it strives to embrace originality and innovation in all areas of technical operations. A technical university is concerned with technological transformation in research and innovation activities. Its main objectives are to find solutions of national and international problems and issues in practical ways for research and development. A technical university also engages in technical knowledge and skills transfer. It does this through mentorship of lower technical institutions and technology transfer from motivation centres to the society to acquire practical experience. Table 1 presents a comparison between technical and research universities:

Table 1: Comparison between technical and research universities

Technical University	Research University
Focus on training	Focus on education
Practice-oriented	Theory and research oriented
Applied or strategic research with focus on solving practical problems and providing technology solutions that make production systems more efficient	Scientific research with a greater focus on the development on theory and formulation of policies for the sake scholarship
Skills-driven or acquisition of employable skills	Knowledge-driven or quest for new knowledge
Focus on technology development, innovation and technology transfer	Focus on fundamental research and cutting-edge technology development
Emphasis on what must be learnt to respond to industry needs and learner interests	Emphasis mainly on disciplinary approach to learning and promotion of scholarship

Source: Adapted from Government of Ghana (2014)

According to the Commission on University Education (CUE) (2014), a technical university should exhibit these characteristics: 1) at least two thirds (2/3) of the programmes on offer in a technical university are in the applied/ technological sciences; 2) at least two thirds (2/3) of the students enrolled in a technical university are in applied/ technological sciences; 3) not more than one third (1/3) of the programmes in a technical university are in other disciplines; 4) at least seventy percent (70%) of the programmes and students enrolled in applied/technological sciences in a technical university are in technological areas that lead to the production of technologist graduates.

From the foregoing, technical universities can be perceived as academic institutions which offer practical-oriented training in engineering, technology and applied sciences. Most of the technical universities were formerly established as vocational training institutions. In fact, Heita (2005) contends that most technical universities have emerged from an upgrading of polytechnics to become degree-awarding institutions. One of the world's first technical universities with tertiary-level education was a mining school founded in Banská Akadémia, Slovakia in 1735 to train specialists of silver and gold mining as well as metallurgy. Other prominent technical universities include Istanbul Technical University and Technical University of Berlin. Many others were established in different parts of the world to address technical knowledge gaps specific to their contexts. In East Africa, Makerere University, the first institution of higher education, was established as a technical college in 1922 to offer training in carpentry, mechanics and building construction. In Kenya, the University of Nairobi was originally established in 1956 as a royal technical training college. When these two institutions grew to become the first universities in the region, the role of providing technical education fell on the Kenya Polytechnic and Mombasa Polytechnic in Kenya. The Kenya Polytechnic was originally established as the Kenya Technical College in 1956 to offer technical training in architecture, engineering and sciences. It became The Technical University of Kenya when it was chartered as a public university in 2013. On its part, Mombasa Polytechnic was originally established in the late 1940s as Mombasa Institute of Muslim Education and transitioned over the years through Mombasa Technical Institute and in 2013 became the Technical University of Mombasa. These are the two official technical universities in Kenya.

2 Technical university libraries and librarians

Technical university libraries are found within their parent institutions which are technical universities. Just like the other academic libraries, they are established to meet the information needs of the institutional publics. They cater for the information needs of their users. Nonetheless, unlike typical academic libraries which are established to support teaching, learning, and research programmes to promote scholarship in the university, technical university libraries are

established to promote research as well as the transfer of practical skills and knowledge in technical disciplines so as to facilitate innovation, research and development. Thus, technical university libraries should provide information promptly to their users to keep up with emerging trends as well as acquaint them with technical job-related knowledge and skills to solve societal challenges practically. Technical university libraries can be classified as special academic libraries. They are academic libraries because they serve academic institutions; they are special because they serve not just any academic institutions but specifically technical universities.

Szebenyi-Sogmond (1959) argued that scientific and technical libraries should operate distinctly from the other academic libraries. She asserted that this distinction should be manifested in the operations and collections of these libraries. In keeping with this point of view, the authors reviewed literature on the characteristics of technical university libraries using three parameters: 1) services; 2) collection; and 3) staffing. According to Kent *et al.* (1980), there are three basic services offered by technical university libraries. These are 1) acquisition (selection and collection development); 2) organisation (classification and identification of materials); and 3) dissemination (presentation of library materials to users in diverse forms). Although these services are similar to those offered in other academic libraries, their focus is different in technical universities.

Kwanya, Hongo and Kiplang'at (2017) suggest that technical university libraries should allow the users to borrow more titles and for a longer period because they generally take more courses than their counterparts in traditional research universities. They further suggest that current awareness offered in technical university libraries should be customised to the needs of the users, for instance, by providing profession-specific information and alerts. In Kenya, professional associations such as the Engineers Board of Kenya and the Institute of Engineering Technologists and Technicians, among others, may partner with technical university libraries in this regard. The physical library premise may also be customised into specialised spaces such as studios, laboratories or mini workshops to be useful to students taking technical courses. Technical university library users are generally technically-oriented and rely more on being shown rather than being told. Tenopir and King (2004) argue that engineers, for instance, prefer interpersonal and informal than formal channels of communication. Therefore, they tend to seek information from human sources or machines than from literature. Kwanya, Hongo and Kiplang'at (2017) also explain that technical university library users require complex reprographic services to be able to produce or reproduce large cartographic maps, 3-dimensional prints of prototype parts, industrial drawings, plans and circuits, among others.

Tenopir and King (2004) argue that engineers use internally developed content more than the externally published sources. They conclude that the use of formally published scholarly materials such as journal articles is generally lower among engineers and technologists than professionals drawn from the other disciplines. Therefore, technical university libraries need to carefully select their collections so as to enhance their relevance to their users who are largely drawn from the science, technology and engineering fields. Kurtz (2004) suggests that collections of technical university libraries should be specific and should not consist of general reading resources. This corroborates the suggestion by Cveljo (1985) that technical university library collections should consist of non-traditional literature such as technical reports, government publications, as well as proceedings of conference and symposia. Other materials could include handbooks, charts, encyclopaedia, trade dictionaries, almanacs, how-to-do-it manuals, field guides and directories. Kwanya, Hongo and Kiplang'at (2017) also suggest that given that technical university libraries serve innovators and budding industrialists, the libraries should have information materials relating to patents. This could include information on existing patents as well as the patenting process. The collections should also hold materials which support entrepreneurship and innovation. The collections should also have information materials on engineering specifications and standards; trade catalogues, pamphlets, and manufacturers' literature; information materials from specific industry players such as factories, airlines, railway corporations and research institutions, among others; professional association journals and other publications; as well as non-print materials such as videos, databases and computer software used for specific technical purposes.

Although technical university librarians in Kenya do not possess specialised training, they offer specialised services. Working either as professional, paraprofessional or support staff, these people should create an information universe which is not only information-rich but also exciting to work from. Apart from the technical skills required for their respective positions, technical university librarians need superb personal and interpersonal competencies to serve their users effectively. Some of these personal traits include passion, enthusiasm, good grooming, "spark", resilience, curiosity, self-drive, and open-mindedness. Other attributes include independence, moral integrity, action-orientation, patience, diplomacy, sensitivity, personal commitment and customer-orientation (Myburgh 2003). The skills would be useful for creating a warm, friendly, safe, and healthy physical, social and virtual library environment that encourages the members of the community to use the library.

3 Literature review

The term technostress was introduced by Craig Brod in his book *Technostress: the human cost of the computer revolution* published in 1984 (Brod 1984; Kupersmith 1998). He argued that the computerisation of society can change people's

attitudes and norms via the socialisation process, since the computer is held in high esteem. He emphasised that people should be aware of the impact of machines so that they control the machines rather than the machines socialising them. He described technostress as a modern disease of adaptation caused by an inability to cope with the new computer technologies in a healthy manner. He explained that technostress manifests itself in two distinct and related ways: in the struggle to accept computer technology, and in the more specialised form of over-identification with computer technology. Kupersmith (1998) adds that technostress is part of the price the modern generation pays for living in a time of revolutionary and dramatic change.

Technostress has also been described as a feeling of anxiety or mental pressure from over-exposure or involvement with technology. It is any negative impact on attitudes, thoughts, behaviours, or body physiology that is caused either directly or indirectly by technology. One well-documented form of technostress is the escalating problem of information overload, colloquially called "data smog" (Kupersmith 2003). Technostress can also be associated with technology related performance anxiety (the feeling that one cannot use technology systems effectively or help others to do so), role conflicts (uncertainty about one's role), and disparity between increasing demands and decreasing resources (Kupersmith 1998). Poor user interfaces, lack of standardisation, networking and security issues, hardware and ergonomic problems may also cause technostress (Kupersmith 2003). Technostress is people's reaction to technology and its impact on them. It is becoming more prevalent with the increasing ubiquity of technology. Its impact permeates all spheres of life. Prabhakaran and Mishra (2012) also explain that technostress results from poor technological change management. They explain that technostress is manifested by multitasking madness (inability to multitask efficiently), burnout, fatigue, frustration, withdrawal, and information overload.

Several scholars have studied technostress in libraries. Ennis (1997) studied technostress in the reference environment of college and research libraries in the United States of America and concluded that the majority (51 percent) of reference librarians experienced technostress. A study by Kupersmith (2003) also revealed that 59 percent of librarians had experienced increased levels of technostress in the past five years prior to 2003. The study also found that 65 percent of those who had experienced increased technostress considered it a serious problem. Respondents to Kupersmith's (2003) study also identified information overload, networking problems, security issues, computer hardware and ergonomics, and vendor-produced databases as some of the causes of technostress in their lives. Other causes of technostress were identified as new things to learn or monitor constantly; irrational patron expectations of technology; dealing with other people's technostress; managing electronic subscription access; high volumes of spam; un-described, unannounced, uncontrolled changes; working around limitations in library catalogue systems; and migrating to a new library system. Bichteler (1986) explains that some librarians have reported a personality change as a result of being too technology-oriented. As a consequence, they have reported being more irritable and impatient when dealing with unorganised or illogical people. The librarians have also reported that they have increasingly lost their conversational capacity as a result of being more exposed to technology than human beings.

Prabhakaran and Mishra (2012) further explained that librarians have indeed experienced physical and emotional stress in their efforts to adapt to the emerging technologies resulting in higher levels of absenteeism and turnover. The situation has been exacerbated by the rapid pace of technological change (usually at the whims of vendors), lack of standards, expanding roles of librarians, rising costs of technology against dwindling library budgets, high expectations from users emanating from the belief that information is instantly available through technology, and information overload.

Isaacson (2006) argues that one way of dealing with technostress is by libraries seeking to only meet the needs of users, not their wants. There is contention, however, on who and how to determine library users' needs and wants. Isaacson (2006) justifies his view by explaining that a library should not try to compete with "Barnes & Noble"[1], which is interested in direct profits. He concludes that libraries should not experiment with populist ideologies and technologies but should be brave to tell the users that some questions need to be sifted, refined, checked in multiple sources, and perhaps even reframed before they can be answered adequately. He admits that there are occasions when the librarians may be wrong, but he also emphasises that the users cannot also always be right. He cautions that there is no need for "Wal-Mart greeters"[2] in libraries. Stephens (2006) also suggests that modern librarians should control technostress by not adopting technologies just because it is "cool" to do so.

Kupersmith (2003) explains that moderate stress can be beneficial and stimulating. However, he adds that severe and prolonged stress can have harmful physiological and psychological effects. It is also important to note that technostress is just one form of stress. In fact, it is rarely exhibited alone. It often synergises with other forms of stress to present compounded symptoms and effects. Therefore, managing technostress requires a holistic approach. Prabhakaran and Mishra (2012) assert that technostress management is critical to librarians since most of them are older and are prone and are exposed to more stress factors and psychological disorders.

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1   An online bookstore

2   Workers stationed at the door of stores welcoming customers with warm greetings

4 Rationale and methodology of study

From the foregoing, it is clear that technostress is real. It is also clear that it affects the personal and professional lives of librarians. Only one study on librarians in Kenya exists. Kwanya, Stilwell and Underwood (2012) investigated how academic librarians in Kenya and South Africa cope with the impact of technostress and technolust. In this study, they found that more than three quarters of librarians in the two countries experience technostress with more than half of them stating that it was increasing. This study considered all academic librarians. It does not mention technical university librarians because no technical university had been chartered in Kenya at the time of the study. As stated earlier, technical university librarians operate in unique environments created by unique users, collections and services. Given the higher use of technologies in their contexts, technical university librarians are more vulnerable to technostress than their counterparts in other library typologies. There is need to understand the prevalence and effect of technostress on technical university librarians in Kenya as a means of proactively managing it by sensitising the interested parties about it. The objectives of the current study were to investigate the nature and extent of technostress among technical university librarians in Kenya; the factors causing technostress among the librarians; the effect of technostress on their professional and social lives; as well as how the technical university librarians in Kenya are coping with technostress. The authors also recommend strategies which technical university librarians can use to prevent or adapt to technostress.

This study was designed as a descriptive study applying a cross-sectional survey research method. According to Fink (2012), a cross-sectional survey provides a snap-shot of the views of the respondents at a specific point in time. Luepker (2004) adds that cross-sectional surveys are useful to unravel associations and causal connections between variables. This study used this method to assess the opinions, thoughts and feelings of the technical university librarians in Kenya about the prevalence of technostress and how it affects their personal and professional lives. It relied on the perceptions of the participants to unravel the prevalence and effect of technostress in technical university settings in Kenya. Primary data was collected from all professional librarians in the two pioneering technical universities in Kenya – the Technical University of Kenya and the Technical University of Mombasa. The data was collected using semi-structured questionnaires. Additional data was collected from secondary sources using documentary analysis. The data was analysed and presented using descriptive statistics.

5 Findings and discussions

A total of 15 professional librarians from both universities participated in the study. Of these eleven (11) were female while four (4) were male. This gender distribution upholds the perception that librarianship is a gendered profession which is dominated by ladies. However, there is need for further research on this before making an appropriate conclusion in this regard. In terms of education, the highest levels attained by the respondents at the time of the study were PhD (1), Master's (5) and Bachelor's (9). According to the guidelines of the Kenya Library Association (KLA), professional librarians need at least a Bachelor's level training. This implies that all the respondents were professional librarians according to KLA's definition. The fact that all the respondents were professional librarians also implies that they were expected to have both the professional and interpersonal competencies to work as librarians. All the librarians had served in their respective current stations for more than three years. Thus, they had the requisite experience to provide opinions on technostress in the context of their libraries. The other findings of the study are presented and discussed hereunder. Because of the low number of technical university librarians in Kenya, the authors were not interested in statistical but descriptive analysis of technostress.

5.1 Extent of technostress

All the respondents confirmed that they have experienced technostress. They were also of the view that technostress is widespread, not just among technical university librarians but among other librarians. These findings indicate that technostress is a prevalent condition which is currently affecting many professional librarians in Kenya. However, a search on Google Scholar of publications on technostress amongst librarians using Harzing's "Publish or Perish" software yielded only eighteen (18) papers. The first paper was published in 1995 while the latest was published in 2016. This implies a dearth of publications on the subject. Nonetheless, the papers generally report a high prevalence of technostress among librarians. Yuvaraj and Singh (2015) investigated technostress among university librarians in Delhi and concluded that there exists a high level of technostress among library professionals engaged in university libraries in Delhi. Ahmad *et al.* (2009) conducted a study on technostress amongst academic librarians in Malaysia and reported high prevalence. Generally similar conclusions were made by Ofua and Pereware (2013), Ahmad *et al.* (2012), as well as Isiakpona and Adebayo (2011).

Yuvaraj and Singh (2015) argue that technostress is rampant among academic librarians because of their drive to excel and meet the dynamic needs of their users. This often leads them to embrace the tools the users embrace. Given the diverse interests and preferences of the users, this inevitably leads to technostress. Bichteler (1987) associates technostress among librarians to widespread automation as a means of meeting the needs of users and enhancing library

processes. She points out that technostress is not only experienced by the librarians but also by the users. She argues that technostress begins with users and then gets transferred to the librarians as a consequence of their efforts to satisfy the needs of the users. Given that the level of technology use in library environments is likely to increase in the future technical universities need to be conscious about technostress. Harper (2000) cautions that technostress has the potential to move beyond the individual employees and spread to all the employees.

These findings of the current research, however, contradict Poole and Emmett (2001) who reported that librarianship was ranked among the 25 least stressful occupations in the 1990s. This reinforced the publicly held image that librarianship is not a technological field. In fact, librarianship was listed alongside teaching and nursing as a comfortable career for ladies who were traditionally also meant to be homemakers. This view partially contributed to the high number of ladies in the profession compared to men. Saunders (1999), however, points out that many librarians are experiencing physical and emotional stress emanating from the struggle of adapting to the emerging information universe which is increasingly dominated by complex technologies.

5.2 Nature of technostress

The librarians indicated that they have experienced physical, cognitive, affective and behavioural forms of technostress. They said that they have experienced physical technostress symptomized by dry mouth and throat, physical exhaustion, tired eyes, headaches, and muscular tensions. Cognitive technostress has been evidenced by an inability to concentrate and mental fatigue while the symptoms of affective technostress were identified as anxiety, irritability, depression, nightmares and psychological fatigue. Behavioural technostress has occurred in the form of avoidance or withdrawal, impulsiveness, insomnia and lack of appetite. Other studies on technostress among librarians have also generated similar results and found that technostress is indicated by symptoms such as feelings of fear, headaches, mental fatigue, panic, intimidation, exhaustion, and frustration (Champion, 1988; Kupersmith, 1992; Van Fleet and Wallace, 2003). Roose (1986) averred that librarians using technology often complained of problems associated to eyes, head, back, neck, shoulders and wrists, especially eye strain, back pain and headaches. The findings of the current and cited studies demonstrate that technostress affects all the faculties of the person. Essentially, it affects the whole being. Thus, it has the potential of taking control of one's life and dictating thoughts and actions. Therefore, it should be taken seriously. Otherwise, academic librarians stand the risk of losing themselves in the midst of the rat race to catch up with technology. Librarians need to accept the fact that they cannot possibly meet the technological needs of all the users at all times. They also need to recognise that technologies however helpful are only tools supporting their professional work. They should not feel helpless or inadequate without technology. Similarly, they need to identify and strategically use only technology which augments their capacity to meet the needs of their uses and not just any technology in the marketplace.

5.3 Factors causing technostress

According to the respondents, technostress among them is mainly caused by technological dynamism and rapid change in their work environment. Thus, they are constantly playing catch-up as new technologies to monitor or use emerge daily. Other causes of technostress include feeling of inadequacy to handle technology (performance anxiety); inadequate ICT systems; feeling of insecurity in cyberspace due to unforeseen risks and threats; information overload; lack of standardisation of technologies; poor user interfaces; pressure from users to adopt technology (irrational expectations from users); and growing volumes of spam. These findings concur with Yuvaraj and Singh (2015) who posit that technostress is techno-centric. Ahmad *et al.* (2012) also point out that although technostress has historically been a part of libraries, the situation is now worse than ever before due to a growing ubiquity of current technologies exemplified by the Internet. Similar views are shared by Tiemo and Ofua (2010), Ennis (2005), and Harper (2000). Ahmad *et al.* (2012) posit that technostress is caused by techno-overload; techno-invasion; techno-uncertainty; techno-complexity and techno-insecurity.

The respondents also pointed out that another cause of technostress is poor ergonomics leading to physical fatigue thereby compounding the ICT-related challenges. Bichteler (1987) argued that poor ergonomics in the library work spaces may cause visual and musculoskeletal problems. Roose (1986) asserted that most of technostress problems are associated with the work space design which required librarians to remain in the same position for many hours. Bichteler (1987) recommends that library work spaces should accommodate a great variety of individual shapes and sizes. She also suggests that the workstation must be flexible and must take into account the integration of chair, terminal and work surface.

5.4 Effect of technostress

The librarians stated that technostress has affected their personal and professional lives by causing or aggravating burnout, demotivation, fatigue, indifference, personality change (irritable, illogical, impatient), poor decision making, poor performance, and social isolation. All except one of the respondents said that these effects are either very serious or serious. The other one respondent reported minimal effect of technostress on personal and professional life. These

findings demonstrate that technostress has a negative effect on the personal and professional lives of technical university librarians in Kenya. Kwanya, Kibe and Owiti (2016) conducted a study on the image of academic librarians in Kenya. They concluded that in the public psyche, a librarian is a person with either a timorous or an austere disposition; loves silence, likes books, and suffers people; does not laugh or is crotchety, withdrawn and fearsomely protective. The authors of the current study are of the view that technostress is one of the factors which contributes to and sustains the poor image of librarians. Yuvaraj and Singh (2015) concur and stress that technostress affects librarians' capacity to make right decisions and work. Harper (2000) avers that technostress causes absenteeism and staff turnover, higher cost for retaining new staff and an increase in litigation costs related to workplace stress.

5.5 Coping mechanisms

The librarians are coping with the effects of technostress through change management, citizen librarianship (involving users to support ICT in the library), ICT training, improving ICT infrastructure, modesty (moderation), planning for ICTs, reducing dependence on technology, reducing multi-tasking, role clarity, as well as time management and scheduling. These findings generally concur with Yuvaraj and Singh (2015) who suggested that librarians can cope with technostress through adopting user-friendly computer hardware and software; taking frequent breaks; meditation; cognitive or message therapy; equitable load distribution; slow down and concentration; using less addictive devices; breaking the cycle of being a "24x7" technology user; avoiding multi-tasking; blocking distractions; taking stress inoculation training; and establishing a balance between work and social life.

Kwanya, Stilwell and Underwood (2012) suggest that universities can support librarians can to cope with technostress by the libraries moving at the same pace with the development of systems in the market; considering staffing needs while implementing technology projects to ensure smooth deployment; keeping a record of passwords; providing continuous training of librarians to develop skills in the emerging technologies; embracing effective communication; developing and employing effective change management plans; realistic time scheduling to reduce attempts to accomplish different tasks at once; improving technological infrastructure; providing adequate resources to support technology projects in the libraries; providing ample time to learn and implement the new systems; establishing and using communities of practice to facilitate effective sharing of ideas and best practices; encouraging staff to attend only to the most relevant, personally useful and necessary emails and alerts on the various media and technological gadgets; as well as developing and maintaining comprehensive technology standards.

6 Conclusion

From the findings, the authors conclude that technostress is widespread amongst technical university librarians in Kenya since all the respondents confirmed that they have experienced technostress. It also emerged that the librarians have experienced physical, cognitive, affective and behavioural forms of technostress exemplified by dry mouth and throat, physical exhaustion, tired eyes, headaches, and muscular tensions; inability to concentrate; anxiety, irritability, depression, nightmares and psychological fatigue; avoidance or withdrawal, impulsiveness, insomnia and lack of appetite. Technostress among technical university librarians in Kenya is largely caused by technological dynamism and rapid change in their work environment. Nonetheless, poor ergonomics leading to physical fatigue thereby compounding ICT-related challenges can also cause technostress among technical university librarians in Kenya. It is also evident from the findings of the study that technostress has affected the personal and professional lives of technical university librarians by causing or aggravating burnout, demotivation, fatigue, indifference, personality change (irritable, illogical, impatient), poor decision making, poor performance, and social isolation. Given that the effect of technostress on the personal and professional lives of the librarians is serious, technical universities should mitigate them proactively so as to reduce its effect on the smooth running of the libraries.

7 Recommendations

The authors recommend the following strategies to help technical university librarians in Kenya to avoid or mitigate technostress:

1. Technical university libraries should develop comprehensive ICT plans. Such plans should clearly state their technological priorities. They should also put in place policies which discourage ad hoc uptake of technological devices and techniques outside the established plans.

2. Technical university librarians should be encouraged to understand that their profession is not only about technology and that technology is only one of the many tools which they can use to deliver services to their clientele. Although they should be open to using appropriate technology to make services more customisable and accessible, they should be sensitised to appreciate the fact that their profession is not completely dependent on technology. Professional associations as well as library schools can champion this campaign.

3. In the business realm, there is a perception that the customer is always right. In librarianship nothing can be further from the truth as this saying. Customers are only quasi-right. Therefore, librarians should be advised and facilitated to apply their discretion when deciding technologies to use in the libraries and how. Indeed, they are encouraged to solicit and consider user input but they should appraise this input and selectively deploy what is most appropriate. The librarians should be courteous in this process and commit to inform the users when their suggestions are either put aside or amended so as to fit in the overall library strategy and plans.

4. Technical university librarians should avoid peer pressure to keep pace with each other given that libraries are not in direct competition with one another. Consequently, they should not feel obligated to adopt the same technologies adopted by other libraries. Each library serves users with unique attributes in specific contexts. Therefore, librarians should not adopt technologies merely to look "cool" and acceptable. Each technological tool or approach should be assessed on its own merit and justified within the context of each technical university.

5. Technical university libraries should regulate the workloads librarians bear. This can be done through a comprehensive job analysis and evaluation. This way, the librarians will understand their roles relating to technology. Therefore, they will commit time and resources to understanding and applying the specific technology thereby avoiding being overwhelmed or intimidated by emerging or prevalent technologies. Furthermore, this will help the librarians to avoid the overbearing feeling of uncertainty about and fear of emerging technologies.

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