Sources of occupational stress in technical university academics

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Abstract: - This study identified the sources of occupational stress in technical university academics. There were specified some new stressors distinctive for modern university. Ninety separable sources of pressure were identified; among those approximately half were crucial in changing academic environment. According theoretical frame and by applying the Critical Incident Technique a classification of the sources of occupational stress in technical university academics was composed.

Key-Words: - stressors; stress; occupational stress; sources of occupational stress in university

1 Introduction

University teaching has traditionally been regarded as a low stress occupation. In historical point of view it could be true, but it is not so at modern universities. Surprisingly Blix and his colleagues [5] found that 74.1% of the university teaching staff was moderately stressed, and 10.4% severely stressed; Abouserie [1] found that 66% of the university academics reported experiencing stress at work for at least 50% of the time. Among technical university academics the occupational stress is even higher, where 53% of polytechnic teachers reported experiencing stress often or almost always at work [14].

Drawing on a considerable body of empirical evidence, it is argued that during the past decades stress among university academics has tendency to increase in all continents [18, 19, 9, 23, 8, 4, 3]. It is generally agreed that one of the most common determinants of increase the occupational stress associated with continuous rise of demands at universities [5, 6, 25, 22, 4]. For example, in relation to occupational stress at British universities Gillespie and his colleagues [12, 11] recognized a rapidly risen demands on academics over the last ten years.

In occupational stress literature with the focus of the sources of occupational stress in university there are not many comprehensive studies, but most of these are well documented by majority of the literature sources. The frequently mentioned sources of occupational stress in university include the heavy teaching loads or teaching work overload [1, 17, 11, 16, 8, 5, 4, 22]; funding cuts and less resources [26, 4, 22]; organizational change [11, 16, 6, 4, 22]; poor management practice [11, 4]; job insecurity [11, 8]. Only few of the pre-millennium literature sources mentioned organizational change or funding cuts, which means, the situation is changing rapidly in the academic world during the past ten years.

With some notable exceptions sources of occupational stress in technical university academics have received undeservedly little empirical attention. Hardie-Boys [14] concluded that institutional climate and morale, workload, interruptions to work, and poor management were among the major stressors for polytechnic teachers. Brewer and McMan-landers [7] report industrial and technical teacher educators perceived stressors related to lack of organizational support as more severe than stressors related to the job itself. Ramage [21] surveyed teaching staff at a polytechnic and identified the organizational structure and climate, role conflict and relationships as the stressors at work.

2 Problem formulation

In order to put much of recent research into its proper theoretical perspective, it is important to notice, that the stressors and strain approach is at the core of majority of recent research into occupational stress of academic staff in university. These studies
have concentrated on identifying the occupational and organizational sources of stress that are related to various indices of strain (e.g. job dissatisfaction, psychological stress, burnout, sickness absence).

Turning to the concept of stressors, this is an emotionally laden concept that reflects the attributions employees make about the source of occupational stress. Stressors can refer to a wide variety of environmental conditions or situations that affect the well-being of employees [15]. Researchers have classified stressors in numerous ways. More classic approach offered by West and West [24] classified stressors into “location” categories ranging from the environment to the organization to the environment internal to one's self, Cooper and Marshall [10] suggested six major categories of work stressors. These include factors intrinsic to the job, role in the organization, career development, relationships at work, organizational structure and climate, and extra-organizational sources of stress.

From theoretical perspective, for several reasons, we predict that our understanding of sources of occupational stress in technical university academics has not progressed that far over the past decade.

First, there has been very little examination of the possibilities offered by qualitative research for indentifying sources of occupational stress in changing environment at modern university. Almost all studies were conducted by questionnaires with fixed questions (e.g. quantitative method). If some source of occupational stress is not expected by researchers and is not itemized in questionnaire the respondent can’t identify it. Specially in changing academic environment this could play an important role for identification the new sources of occupational stress in modern university.

Second, the identification of the sources of occupational stress or stressors often did not follow the theoretical framework suggested by occupational stress literature. The majority of research have not been fully integrated into an appropriate theoretical framework that enables to understand in which areas the university have to modify its organization and work for better cope with occupational stress.

Third, as noted above, little empirical attention has paid to sources of occupational stress in polytechnics specially. Concerning the polytechnic universities there has been particularly few research published with somehow controversial empirical findings.

3 Problem solution

The aim of present study is to get more detailed comprehension about sources of pressure in technical university academics. The data reported here are part from the research project “Occupational stress study and web-based occupational stress prevention system for academic staff of Estonian universities” supported by Primus grant nr 3-8.2/23 from the European Social Fund.

3.1 Method

The data were collected from the sample obtained from academics in Tallinn University of Technology (six faculties of engineering and science). The sample consisted of 117 (73 male and 44 female; with average age 43.76) academics; sample includes 21 professors, 18 associate professors, 67 lecturers and 11 researchers from Tallinn University of Technology (TUT).

The original plan was to collect the data of sources of pressure in technical university, as letting the academics to “speak for themselves” and to hear “the people’ voice”. The qualitative research method was adapted for the reason to clarify the new and specific sources of pressure in technical university academics with the help of the “public voice”. Open-answers unstructured interview as a conversation between two people e.g. the interviewer and the interviewee (member of academic staff in technical university) on particular topic (sources of strain or pressure or occupational stress) was adopted. There were no designate specific questions asked by interviewer. Obtained information from the interviewee was transcribed into the report according to the interview manual. All interviewers were doctoral students or psychologists specially trained for the purpose of current study and type of interview. Each face-to-face interview extended 20 - 35 minutes.

In order to build up a categories of the sources of pressure in technical university, we analyzed the reports written by interviewers and extracted the common elements from the reports. The Critical Incident Technique [13] was adopted for enabling the extraction of elements common to the sources of occupational stress. Four researchers separately coded and split data and thereafter formulate categories. Rare sources of occupational stress were omitted, such that only stressors that occurred on more than 5% of all occasions were shown. This procedure resulted in a data-based categorization of 90 separable sources of occupational stress.
described or named at least once by academic staff. On the base of generated categories we repeated the inter-coding procedure and composed the classification the sources of occupational stress in technical university academics. An inter-coder reliability measure suggested by Miles and Huberman [20] was used to calculate agreement between the four researchers. The reliability was calculated by a number of agreements divided by total number of agreements plus disagreements, and it was 76.5% in current study. It is widely suggested [20, 2] that inter-coder reliability 70% or higher is acceptable.

2.2 Results
Participants named during the interview 9.95±4.53 sources of occupational stress; the sum of named sources of pressure was 1164. As noted above we identified 90 separable sources of pressure in technical university academics, among those were 43 occupational stressors that occurred on more than 5% of all occasions.

According theoretical frame the sources of pressure were divided into the three main category, namely, individual sources of pressure as work-home imbalance, the sources of occupational stress in organization and work, and the last category was an additional – the sources of pressure outside the university e.g. in academic community (Fig. 1).

![Academic community](image)

Fig.1 Sources of occupational stress in technical university academics

The main individual source of pressure was work-home imbalance (3 different stressors): need to work at home (23 responds, i.e. 19.6% from total sample), need to work late in the evening or in weekends (30 responds, 25.6%), time-based work interference with family (18 responds, 15.4%). For example, the academics claimed: “When I get home from work I am often too frazzled to participate in family activities or responsibilities” or “Due to all the pressures at work, sometimes when I come home I am too stressed and tired to do the things I enjoy”.

Organization and work was represented with five subcategories, namely, intrinsic to the job (incorporates 16 different stressors), occupational roles (incorporates 5 different stressors), relationships at work (incorporates 7 different stressors), organizational structure and climate (incorporates 3 different stressors), and extra-organizational sources of stress (incorporates 5 different stressors). We failed to find the sources of occupational stress associated with academic career development.

The sources of occupational stress in the area of intrinsic to the job (Table 1) include both, work environment and workload.

Table 1 Sources of occupational stress in the area of intrinsic to the job

<table>
<thead>
<tr>
<th></th>
<th>Work environment</th>
<th>Workload</th>
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<tr>
<td>Total N=117</td>
<td></td>
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</tr>
<tr>
<td>Teaching environment</td>
<td>24.8%</td>
<td>Work overload</td>
</tr>
<tr>
<td>Study materials for students</td>
<td>12%</td>
<td>Inconstant workload</td>
</tr>
<tr>
<td>Absence of silent room for working</td>
<td>27.3%</td>
<td>Increasing quantity and quality of work</td>
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<tr>
<td>Work organize problems</td>
<td>29%</td>
<td>Formal quality evaluation</td>
</tr>
<tr>
<td>Science organization</td>
<td>16.2%</td>
<td>Administrative duties</td>
</tr>
<tr>
<td>Equipment and info-logistic systems</td>
<td>19.6%</td>
<td>Increasing bureaucracy</td>
</tr>
<tr>
<td>Large number of students at academic lecture/seminars</td>
<td>12%</td>
<td>Different reports and paperwork</td>
</tr>
<tr>
<td>Ambiguity in work instructions</td>
<td>11.1%</td>
<td>Non-realistic deadlines</td>
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Workload concerns the work demands that the job places on academics, and it can be of two types: quantitative and qualitative. Quantitative workload is the amount of work that person has. A heavy quantitative workload means that a person has too much to do. Qualitative workload is the difficulty of work relative to a person’s capabilities. Qualitative workload means that the academic cannot easily do job tasks because tasks are too difficult for him. Quite often the academics experienced both types of workload as the most influential was increasing quantity and quality of work. Beside the academics’ workload the participants reported work organize...
problems (incl. science organization), and increasing bureaucracy in university, business with different administrative duties, reports and paperwork. Our findings support the contention that work environment is also an important source of occupational stress. Teaching environment (auditoriums, classrooms, laboratories) as well as the absence of silent room for working was highly named sources of pressure for academics in technical university.

The second subcategory was associated with occupational roles. The role conflict arises from multiple demands on the job. The role incompatibility would be reflected in role conflict. We found two type role conflicts: the conflict between teaching and research responsibilities (32 responds, 27.3%), and conflict between the permanent need for self-improvement and continuing education (20 responds, 17%) in one hand, and inadequate resources (incl. time) for lifelong learning (9 responds, 7.7%) on the other hand. Additional sources of occupational stress associated with occupational roles were academics’ necessity to give delicate or negative feedback for students (7 responds, 6%), and excessive interaction and communication (28 responds, 23.9%).

The third subcategory was relationships at work: conflicts with managers (16 responds, 13.7%), and different problems with students – students’ different preparation for studies at technical university (21 responds, 17.9%), their low study/work motivation (28 responds, 23.9%), low level of preparation in math, physics (26 responds, 22.2%), absenteeism (20 responds, 17%), low level of discipline or inadequate behaviour of students (22 responds, 18.8%), students’ individual needs for feedback and coaching (15 responds, 12.8%).

The fourth subcategory was organizational structure and climate. The main sources of pressure associated with poor management: excessive reorganizing, restructuring e.g. organizational change (22 responds, 18.8%), info-logistics and internal communication in university (22 responds, 18.8%), managers’ insufficient communication skills (22 responds, 18.8%).

The fifth subcategory - extra-organizational sources of stress i.e. stressors that could be specific for particular organization, the new technology and equipment (18 responds, 15.4%), insufficient support from administrative staff (15 responds, 12.8%), inadequate income (37 responds, 31.6%), unfair recognition system (19 responds, 16.2%), and insufficient appreciation for commitment or work performance (23 responds, 19.6%). What is intriguing about the findings regarding the difficulties with new technology and equipment is that TUT recently adopted the web-based studies information system where academics and students have to use their ID-card. Our interviews took place on the period when this system was very new and many technical and software errors occurred.

The last category was sources of pressure outside the university e.g. in academic community (4 different stressors). The educational policies can be considered a stressor in that it leads to strain perceived by academics. The academics highlight the devaluation of education in society (15 responds, 12.8%), inadequate funding of science and higher education (22 responds, 18.8%), unconcern and lack of responsibility for students (13 responds, 11.1%), commercialization of science and education (17 responds, 14.5%).

4 Conclusion
Surprisingly there were many of stressful things in changing academic environment. We found the considerable amount of occupational stressors (90 separable sources of occupational stress) in which approximately half was crucial for academics in technical university. An academic was exposed to number of occupational stressors ranging from 5 to 15 in technical university. Among the sources of occupational stress we specified some new stressors distinctive for modern university. For example, new sources of occupational stress were relationships with students, necessity to give delicate or negative feedback for students, excessive interaction and communication, academics’ work-home imbalance, commercialization of science and education, and devaluation of education in society. Thus, we can conclude that occupational stress in technical university can be caused by a multitude of stressors; also some new sources of occupational stress impinge on academics.

Current study enables to propose a classification the sources of occupational stress in technical university academics. According the theoretical frame and by applying the Critical Incident Technique the sources of pressure were divided into the three main category: (a) individual sources of pressure as work-home imbalance; (b) the sources of occupational stress in organization and work - intrinsic to the job as workload and work environment; occupational roles; relationships at work; organizational structure and climate; extra-organizational sources of stress; (c) the sources of
pressure outside the university e.g. in academic community.

Clearly, technical university was stressful environment for work. The various factors in the organization and work environment were sources of occupational stress in technical university academics. Some were conditions that can occur across most jobs, such as workload or conflicts with managers, such are relevant to employees in most work organizations. Others were more specific to academic occupation, such as students’ low study/work motivation or students’ low level of preparation in math, physics or role conflict between teaching and research as well as role conflict between permanent need for self-improvement and inadequate resources for that. It should be noted that some stressors were distinctive for particular organization in certain period, e.g. new technology and equipment in TUT. Although many different conditions at work environment might serve as occupational stressors e.g. teaching environment or absence of silent room for working. However, majority the sources of occupational stress in technical university academics belong to the area of organization and work. Interestingly, academic career was not an occupational stressor in technical university.

Work–home imbalance was a source of pressure that many academics experience. Mainly the time-based work–home imbalance was a contradiction in which the demands and role pressures from the work and family domains were mutually incompatible.

More importantly, however, academics highlight the developments in academic community as the sources of pressure in university. Inadequate funding of science and higher education, tendency to commercialization of science and education, and devaluation of education were major concerns named as the sources of occupational stress by technical university academics.

Furthermore, our results hint that the number of different sources of occupational stress in technical university could be eliminated or their stressful influence on academics minimized.

References:


