Civil Engineers and Work-family Conflict: The Role of Workplace Support on their Work and Non-work Satisfaction and Well-being

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Abstract

Many of the job and organisational factors found to be negatively associated with family functioning are pertinent to civil engineers. Research suggests that work-family balance practices can enhance organisational efficiency through increased morale, higher productivity, greater company citizenship and lower absenteeism and turnover. However it has also been shown that factors embedded in the organisational culture can undermine these policies rendering them ineffective. This quantitative study examined the relationship between a supportive work culture and the work and life experiences of Australian civil engineers. Data were gathered from a sample of 1000 male and female civil engineers in a wide variety of work and family situations. The research investigated the prevalence of organisational values supportive of work-life balance and the level of work-family conflict perceived by civil engineers. In addition the relationship between the supportive work culture perceptions to other variables, such organisational commitment, work and non-work satisfaction and well-being was investigated. This paper reports initial results of the study. These indicate that civil engineers who perceive their organisation's values to support both their work and personal life reported greater organisational commitment and job satisfaction as well as lower intentions to quit. In addition these engineers also reported higher levels of life satisfaction and lower levels of work-family conflict. The implications of the findings for organisations employing civil engineers are also discussed.

Keywords

Organisational culture, civil engineers, work-family conflict, job satisfaction and life satisfaction.

1. Introduction

Many job and organisational factors found to impact negatively on family and non-work life are pertinent to civil engineers. These include long and irregular work hours, schedule inflexibility, high job demands, job insecurity and frequent relocation (Greenhaus and Beutell, 1985; Williams and Alliger, 1994, Parasuraman, Purohit, Godshalk and Beutell, 1996). This paper reports on the initial findings of a recent research project investigating the work and non-work experiences of civil engineers. The rationale for the research, along with a discussion on organisational culture and its effect on the work-family interface are presented, with details of the research method adopted and initial key findings. In particular, the impact of an organisational culture perceived to be supportive of a work-family balance on work and life satisfaction; work-family conflict; as well as organisational commitment, turnover intent and well-being were examined.

2. Background

Substantial changes, not only in the demographic composition of the Australian workforce, but also in the roles and expectations of men and women have led to organisational and employee attempts to reconcile work and non-work demands. Arguments for providing a workplace that is supportive of employees' lives outside work are numerous, but can be broken down into two main categories: legal requirements and organisational performance. Legislation that stems from a social justice base, presents a strong motive for companies to address the concerns of their employees with family responsibilities. In 1990, Australia ratified International Labor Organisation (ILO) Convention 156,

dealing with workers with family responsibilities, consequently legislative and industrial reforms have flowed through, prohibiting dismissal on the basis of family responsibility as well as improving working conditions (Bourke, 2000). Grover and Crooker (1995) found that employees in companies with family-supportive benefits had higher levels of affective commitment (emotional attachment) to the organisation and expressed lower turnover intentions, regardless of whether the employee individually benefited from the policy. They postulated that work-family benefits had a positive influence on employees' attachment to the organisation because they signified corporate concerns for employee well-being. In addition, affective commitment has been associated with higher productivity and a more positive work attitude (Allen and Meyer, 1996). Organisational variables such as schedule flexibility, supervisor support and time overload (Thomas and Ganster, 1995; Parasuraman *et al*., 1996), and family-related variables such as parenting overload, spousal and familial support, and family distress (Parasuraman *et al*., 1996; Frone, Yardley and Markel, 1997) have been found to directly influence family relationships, work-family conflict and intent to leave the workplace (Crouter, Bumpus, Head and McHale, 2001; Rothausen, 1994). Support from supervisor, spouse and family, have been shown to reduce work-family conflict through their impact on role overload and work distress (Frone *et al*, 1997). However, research has shown even when family-friendly policies have been established, factors embedded in the organisational culture undermine these policies, rendering them ineffective (Lewis, 2001).

Denison defined organisational culture as "the deep structure of organisations, which is rooted in values, beliefs, and assumptions held by organisational members." (Denison, 1996, p624). Bailyn (1997) outlined three characteristics identifiable in a family-friendly work culture: flexible work scheduling, flexible work processes and an understanding by organisational leadership that family needs are important. Thompson, Beauvais and Lyness (1999, p394) expanded the understanding of work-family culture to include the "shared assumptions, beliefs, and values regarding the extent to which an organisation supports the values and integration of employees' work and family lives." They consider a *negative* work-family culture to have at least three components; organisational time demands or expectations that employees prioritise work over family, negative career consequences associated with utilising work-family benefits, and lack of managerial support and sensitivity to employees' family responsibilities. Research has shown that supervisors play a key role in the effectiveness of both the implementation and utilisation of work-family policies and that employees' whose supervisor supported their efforts to balance work and family were less likely to experience work-family conflict (Thomas and Ganster, 1995).

However attitudes still exist in many work places that promote the image of the "ideal" worker as a person who is able and willing to put their work first. The traditional model of work, which remains the basis of many management practices, and thus deeply embedded in many organisational cultures, assumes that an employees' work domain is totally isolated from their family domain. This ethos has been challenged in some industries. However, as this process of change has typically been driven by female employees and their managers (Bourke, 2000), it would perhaps be not surprising that reform within the engineering profession is not as evident, given the low numbers of women employed (Yates, Agnew, Kryger and Palmer, 2001). Fielden, Davidson, Gale and Davey (2000) suggested that in the construction industry, a lack of compliance with cultural norms, such as refusing to undertake long hours, could adversely affect the promotion prospects of employees and even their job security. Consequently, this research has two main aims. Firstly, the research will determine the prevalence of supportive organisational values and the level of work-family conflict perceived by civil engineers. Secondly, the research will examine the relationship between organisational values perceived to be supportive of work-family balance and work and life satisfaction, work-family conflict and mental health.

3. Method

3.1 Sample

The sample was recruited with the help of an Australian professional organisation for engineers. Data were collected using a self administered questionnaire sent to 500 male and 500 female civil engineers aged between 25 to 55 years. Questionnaires were completed anonymously and returned in a reply paid envelope. Of these, 204 participants returned completed questionnaires, with an additional 30 labeled return to sender resulting in a return rate of 21.0%. Upon analysis, three participants were

excluded as they had either failed to complete the majority of the questionnaire, or wrote that they did not identify themselves as civil engineers. The final sample consisted of 201 civil engineers, 76% who were partnered and 55% who had children. The sample consisted of 110 females and 91 males that had an average age of 36.8 years, and an average working week of 45.2 hours ($\underline{SD}$ = 10.0). Further information on the sample can be found in Table 1.

Table 1: Demographic characteristics of the sample

	N	**%**		**N**	**%**
Gender			**No of employees in organisation**		
Male	91	45.3	1 - 19	30	15.2
Female	110	54.7	20 - 49	25	12.6
			50 -199	22	11.1
Age			200 - 999	55	27.8
26 - 30 years	55	27.6	1000 or more	66	33.3
31 - 35 years	46	23.1			
36 - 40 years	34	17.1	**Family Structure**		
41 - 45 years	26	13.1	Couple with dependent children	86	43.2
46 - 50 years	28	14.1	Couple with non-dependent children	15	7.5
51 - 55 years	10	5.0	Single parent	9	4.5
			Couple without children	50	25.1
Work hours per week			Single person	37	18.6
20 hours or less	5	2.5	other	2	1.0
21 - 35 hours	15	7.5			
36 - 45 hours	97	48.7	**No of Children**		
46 - 55 hours	64	32.2	1	23	21.7
56 hours or more	18	9.0	2	55	51.9
			3 or more	28	26.4

3.2 Measures

The survey consisted of questions concerning demographic, organisational, professional and familial factors. All measures have been used in previous studies and were adopted because of their known high levels of internal consistency.

Work-family culture was measured via a 20-item scale (Thompson *et al*, 1999) that investigated three main areas: managerial support, negative career consequences, and organisational time demands. The co-efficient alpha reliability for each sub-construct was .86, .82 and .80 respectively. Respondents were asked to decide to what extent the statements characterised their current organisation using a scale ranging from strongly disagree (1) to strongly agree (7). It included items such as "In the event of a conflict, managers are understanding when employees have to put their family first". *Inter-role conflict* was measured via a ten-item, 7-point scale ranging from 1 (for strongly disagree) to 7 (for strongly agree), developed by Netemeyer, Boles and McMurrian, 1996 with the sub-constructs of work to family conflict, and family to work conflict. The co-efficient alpha reliability was .91 and .85 respectively. Items for each subscale were summed and high scores indicated a higher level of conflict. A sample item was "The demands of my work interfere with my home and family life". *Organisational commitment* was measured using a six-item scale, ranging from 1 (for strongly disagree) to 7 (for strongly agree), adapted from the original 18 item scale of Meyer, Allen and Smith (1993). Two items (with the highest loading) from each of three sub-constructs of affective, continuance and normative commitment were selected. This is in accordance with previous studies that have required shorter scales due to time restrictions. Due to the small number of items in each sub-construct mean inter-item correlations were calculated (as recommended by Briggs and Cheek, 1986) and found to average .45. A sample item was "This organisation has a great deal of personal meaning for me". Organisational commitment was calculated using the mean value of all sub-constructs. *Job satisfaction* was measured via a 14-item scale developed by Hackman and Oldham (1975). The scale tapped into specific facets of their employment such as their satisfaction with their pay, job security, social, supervisory and growth. Respondents were asked how satisfied or dissatisfied they were with different aspects of their job (1 for extremely dissatisfied to 7 for extremely satisfied). A sample item was "The amount of independent thought and action I can exercise in my job". The alpha reliability for each sub-construct was above .8, except for social which

was .6. Overall job satisfaction was calculated using the mean value of all sub-scales. *Colleague support* was measured in a similar manner to other facets of job satisfaction but using a single item to determine their satisfaction with the level of support they receive from their colleagues. *Work load* was measured using a 3-item scale adopted in a study by House, McMichael, Wells, Kaplan and Landerman (1979) which had been used in previous studies. Respondents were asked how frequently they felt, from never (0) to very often (5), certain conditions within their job relating to speed, difficulty and time restraints. A higher score is indicative of a higher work load. The alpha reliability for the sample was .84. *Turnover intent* were measured via the two items on a scale ranging from 1 (for strongly disagree) to 7 (for strongly agree). A higher score reflected a higher likelihood of a person leaving their job. The alpha reliability for the sample was .79. *Work flexibility* was measured using a three-item 5 point Likert scale adapted from Hill, Hawkins, Ferris, and Weitzman (2001) which focused on how much flexibility they had in deciding where and when their work was done, as well as how and what work was to be undertaken. Complete flexibility was rated 1 with a higher number indicating less flexibility. Mean inter-item correlations were calculated and found to average .38. *Life satisfaction*, which assesses an individual's perception of their quality of life in general, was measured using a five-item scale ranging from 1 (for strongly disagree) to 7 (for strongly agree) developed by Diener, Emmons, Larsen, & Griffin (1985). A sample item from this scale is "I am satisfied with my life." The scales's alpha reliability for the sample was .89. *Well-being* or mental health was measured using the General Health Questionnaire (GHQ-12) that was developed to detect minor psychiatric illnesses in the community (Goldberg, 1972). The general scoring method was deemed most appropriate for the sample being studied so scores of 0 to 3 were assigned to item responses, then summed to give a final score (ranging from 0 to 36) - a higher score being indicative of lower mental health. The alpha reliability was .86.

4. Results

Data were analysed using SPSS for Windows (version 11) and the results are presented in Tables 1, 2 and 3. A three-factor work-family culture was found to be sustainable under confirmatory factor analyses, however five of the twenty items loaded more heavily on a different factor than that found by Thompson *et al* (1999) when developing the scale. This original study results did provide strong evidence that some sub-constructs were measuring part of the same underlying dimension and this was confirmed in this study. It was therefore decided to use the same items for the factors as used by Thompson and her colleagues. The alpha co-efficients for each was found to be greater than .8 indicating a good level of internal consistency of items used within the sub-constructs. The results (Table 2) indicate that civil engineers perceive their organisations to be only very slightly supportive of employees with family needs with a mean item value of 4.5 (neutral was 4,slightly agree was 5).

Table 2: Work-Family Culture

	No of items	Possible Range	Mean value (scale)	Std deviation (scale)	Mean value (item)
Work-family culture (overall)	20	20 - 140	89.49	19.28	4.5
Managerial support	11	11 - 77	51.14	10.40	4.6
Career consequences	5	5 - 35	21.77	5.86	4.4
Organisational time demands	4	4 - 28	16.69	5.53	4.2

Work-family conflict (WFC) had a mean value of 22.04 (Table 3) that represents a mean item value of 4.41. This indicates that, in general, civil engineers feel they have a moderate level of work-family conflict with the mean score for WFC being above the mid point mark.

Table 3 presents the correlations between the measures of work family culture and measures of inter-role conflict, and specific organisational and life experiences. Civil engineers reporting organisational values which were supportive of their work and family also reported lower work-family conflict, higher levels of organisational commitment, great levels of job satisfaction and lower intentions to leave their organisations. In addition engineers who reported a more supportive culture also reported higher life satisfaction and higher levels of mental health or well-being.

As expected there is also statistically significant correlations with satisfaction with supervisor and colleagues as well as work flexibility – indicative of a supportive workplace. It should be noted that

many of the measures of organisational experiences, satisfactions and well-being are themselves correlated (i.e. life satisfaction and mental health, life satisfaction and job satisfaction, etc.).

Table 3: Correlations of Work Family Culture and other variables

	Mean	Std. Deviation	Work Family Culture		
			Managerial Support	*Career Consequences*	*Organisational Time Demands*
Work-Family Conflict	22.04	6.70	-.388(**)	-.321(**)	-.510(**)
Family-Work Conflict	15.05	6.01	-.069	-.262(**)	-.130
Organisational Experiences					
Hours worked	45.19	9.96	-.182(*)	-.125	-.310(**)
Organisational Commitment	4.04	1.10	.318(**)	.196(**)	.266(**)
Overall Job Satisfaction	5.22	.87	.384(**)	.348(**)	.249(**)
Pay Satisfaction	4.51	1.53	.382(**)	.279(**)	.322(**)
Security Satisfaction	5.40	1.33	.234(**)	.249(**)	.229(**)
Social Satisfaction	5.37	.93	.300(**)	.265(**)	.142(*)
Supervisory Satisfaction	5.20	1.26	.228(**)	.229(**)	.163(*)
Growth Satisfaction	5.38	1.09	.270(**)	.245(**)	.107
Colleague Support	5.30	1.30	.303(**)	.326(**)	.259(**)
Work Load	8.56	2.09	-.143(*)	-.146(*)	-.319(**)
Intention to Turnover	3.46	1.84	-.331(**)	-.261(**)	-.345(**)
Work Flexibility	3.17	.95	-.278(**)	-.218(**)	-.170(*)
Life satisfaction and well being					
Satisfaction with Life	22.46	6.62	.317(**)	.293(**)	.360(**)
Mental Health	12.34	5.37	-.221(**)	-.263(**)	-.333(**)

* Correlation is significant at the 0.05 level (2-tailed), ** Correlation is significant at the 0.01 level (2-tailed).

5. Discussion and Conclusions

The purpose of this paper was to explore the prevalence of work-family conflict and supportive organisational values experienced by civil engineers. The research found that civil engineers do experience moderate levels of work-family conflict and in general work in organisations that they perceive to be not very supportive of employee need to balance work and family demands. The profession appears to suffer a "cultural lag" with traditional values being considered the norm and consequently the ones rewarded (e.g. long work hours, full-time working). Ninety per cent of the sample worked 36 hour per week or more and the remaining ten per cent being predominantly female (over forty per cent of the sample worked over 46 hrs/week). This has occurred despite the fact that men are reporting an increased preference for more part-time work and less working hours (Russell and Bowman, 2000). The paper also examined the relationship of between perceptions of a supportive culture and organisational commitment, job satisfaction, work load, turnover intent as well as life satisfaction and mental health. The data indicates strong correlations between a supportive work culture with higher levels of both organisational commitment and job satisfaction, as well as lower intentions to quit. At a personal level those reporting a supportive culture also reported higher levels of life satisfaction and higher levels of mental health.

From an occupational health perspective as well as from a organisational performance viewpoint the data provide evidence of the benefits of a supportive work culture. While the importance of implementing work family policies such as part-time work options, flexible work arrangements (work locations, work times etc), as well as dependant care support schemes is clear, it is also important to recognise that these policies will have very little worth unless their value is strongly embedded in the culture of the organisation. For instance as Russell *et al* (2000) point out if the underlying cultural assumption is that an employee's presence at work is a seen as an indicator of their commitment and contribution, employees put their careers at risk in terms of poor performance evaluations or promotions, if they participate in work-family programs that make them less visible at work (e.g. working from home). For organisations to succeed they must be cognisant of the needs of workers with family responsibilities and indeed changes in legislation as well as the need to recruit, and retain, committed and satisfied employees provide some very strong motives. However the change needed in engineering may not come easily. Indeed however accepting of change they may be at the start of their career, male entrants inadvertently reinforce current attitudes and practices by emulating the behaviour of the managers who influenced their own career development (Dainty *et al.*, 2000).

Further analysis of the data will be carried out to investigate the effect of gender and family structure, to develop an understanding of the relationship between various organisational and familial factors.

6. Acknowledgement

7. References

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