

DEMANDS AND RESOURCES OF WORKERS IN THE AUSTRALIAN CONSTRUCTION INDUSTRY: IDENTIFICATION AND EXPLORATION USING Q METHODOLOGY

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Workers of the Australian construction industry experience demands, such as long working hours, irregular work schedules and geographically isolated work locations. Research has indicated a clear relationship between excessive work demands and work-life conflict, which has negative impacts for workers' health and wellbeing. Coupled with work demands, workers also experience demands originating from their family and community domains, which are often driven by life stage and individual preferences of workers. In order to fulfil work, family and community demands, workers often call on resources such as supervisor support, flexibility of work schedule, and childcare. However, it is not clear how workers experience demands and resources, and what configuration is required so that workers can function effectively in multiple roles. Research is underway to: (i) identify the demands and resources relevant to workers of the Australian construction industry; and (ii) identify the demand-resource profiles of different worker groups within a diverse construction workforce. An innovative Q-sort method will be used to explore workers' experience of demands and resources, and profiles of different worker groups will be identified. The innovative q-sort methodology using demands and resources unique to an Australian construction workforce is discussed.

Keywords: demands, human resources management, Q methodology, resources, work-life fit.

INTRODUCTION

Integrating the demands of employment and family life is a challenge experienced by many workers. In order to respond to these demands, workers often call on various resources to enable integration between domains. The work-life fit model contends that when workers have sufficient resources to meet their demands they will experience 'fit' (Moen *et al.*, 2008). In contrast, stress occurs when there is an absence of perceived fit between demands and the resources with which to meet them. In taking a life-course approach to work-life fit, it is expected that demands and resources that workers experience will vary according to life stage and personal choices (Moen *et al.*, 2008).

Workers in the construction industry experience a range of demands including long working hours, overtime and weekend work. These demands have been linked to

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work-family conflict (Lingard *et al.*, 2010a) whereby “role pressures from the work and non-work domains are mutually incompatible in some respect” (Greenhaus and Beutell, 1985: 77). While schedule demands have been identified in the literature, it is largely unknown what other demands are experienced by workers of the Australian construction industry, and to what extent workers experience these demands. Similarly, workers in the construction industry also experience a range of resources such as supervisor support, flexibility and work schedule control (Lingard *et al.*, 2010a; Lingard *et al.*, 2010b), however it is not clear what other resources workers call on to meet their demands.

AIM OF THIS PAPER

This paper will outline: (i) the method used to identify the demands and resources experienced by workers in the Australian construction industry; (ii) the Q-methodology that will be used to explore demand-resource profiles for different worker groups of the Australian construction industry; and (iii) initial findings of demands rated as 'high' and the associated resources required to meet these demands for site-based workers in direct construction activity, workers who work mostly in the site office, and workers in the head office of a medium-sized construction organization. This research is being undertaken as part of a doctoral thesis.

AUSTRALIAN CONSTRUCTION INDUSTRY

The construction industry is one of the largest employing industries in Australia. As at May in 2009, the construction industry represented 9.1% of the total workforce, and was the fourth largest employing industry in Australia (Australian Bureau of Statistics, 2010). Two groups of workers exist within the construction industry, operating in distinct labour markets. Managerial, professional, administrative and supervisory workers (e.g. foremen) are salaried, meaning that they are paid a fixed annual salary irrespective of the hours they work each week. In contrast, skilled and unskilled tradespeople and labourers (site-based, blue collar workers) are paid an hourly wage. This is based upon an hourly rate up to a standard work week, above which penalty rates are paid for overtime. Lingard and Francis (2004) found that the average number of hours worked each week is 63 among site-based workers in direct construction activity, 56 hours for workers who worked mostly in site office, and 49 hours for workers in the head office of construction companies and also report a significant relationship between work hours, work-to-family conflict and burnout (Lingard and Francis 2005). Construction workers are also expected to work non-standard work schedules, including regular weekend work. Researchers report weekend work and irregular shifts to be associated with higher work-to-family conflict among Australian men (Hosking and Western, 2008).

The experience of work-family conflict by Australian construction workers is of concern as conflict is associated with negative impacts for the worker and the organization. Conflict between work and family life has been associated with lower levels of life satisfaction (Lambert *et al.*, 2006), job satisfaction (Kinnunen *et al.*, 2004) and organisational commitment (Thompson *et al.*, 1999) as well as higher levels of turnover intention (Karatepe and Kilic, 2007) and job withdrawal behaviours, such as absenteeism and tardiness (Mesmer-Magnus and Viswewaran 2006).

Given the differences in the employment arrangements of white and blue collared worker groups, it would be expected that these groups would experience demands differently. For example, it has been suggested that blue collar workers opt to work

longer hours in order to enjoy the associated benefits (e.g., increased income) while white collar workers prefer to work less overtime hours as this is largely unpaid work (Tucker and Rutherford, 2005). Furthermore, the Australian construction industry is a male dominated industry and it is not well understood how the demand-resource experiences of males and females differ. Similarly, the demand-resource experiences of workers in different life stages is not well understood. Further investigation of the work-life experiences of a diverse workforce employed in the construction industry will assist the development of practical initiatives which will assist in decreasing work-family conflict and facilitate work-life fit.

WORK-LIFE FIT

Within the work-life literature, researchers have proposed a model of fit which captures the systemic nature of the work, family domains and community. The work-life fit approach views work, family and community as interconnected systems, where connections between these systems are considered as the 'fit' between work, family and community demands, and the resources needed to meet these demands. The fit model assumes that the work-family-community domains are dynamic and that fit will vary according to a person's choices, decisions and life stage. Pittman (1994) first introduced the notion of fit and its application to the work-family arena, and various researchers have sought to progress this paradigm (see, for example, Barnett *et al.*, 1999; DeBord *et al.*, 2000; Edwards and Rothbard, 1999, 2005; Voydanoff, 2005). While some progress has been made on developing a model of work-life fit, Grzywacz and Bass (2003: 248) contend that "historically, fit has not been well defined in the theoretical and empirical literature". Furthermore, a number of gaps are evident in the work-life fit literature, and this research will seek to address some of the gaps as outlined below:

1. The community domain has not been routinely included in work-life fit research, however the few studies which have included community have identified that workers experience community demands, and utilise community resources to assist in attaining work-life fit;
2. Some demands and resources have been defined in the literature, however there is a serious lack of consensus between definitions. Furthermore, some demands and resources have been identified but no clear definition has been offered for these;
3. It is not clear which demands and resources are most relevant to the Australian construction industry: and
4. Demand-resource configurations constituting 'fit' have yet to be developed for sub-groups of the workforce, nor have they been developed for specific industries.

Work, Family and Community

Brennan *et al.*, (2007) argued that individual level outcomes of fit must consider multiple domains beyond work and family. For example, fit may extend to the domains of care giving, including childcare, elderly care, schools, transportation and medical care. Various researchers (DeBord *et al.*, 2000; Morris and Masden, 2007; Pocock *et al.*, 2009; Voydanoff 2005, 2007) have argued for the inclusion of community in the work-life fit model, however little progress of this model has occurred. One of the aims of this research, therefore, is to progress a work-life fit model which explores community demands and resources in conjunction with work and family demands and resources.

In this research, work, family and community domains are defined as follows:

- Work is defined as paid employment (Bardoel *et al.*, 2008; Eby *et al.*, 2005). Work may include unpaid overtime, but does not include unpaid domestic and voluntary work (Pocock *et al.*, 2009). Unpaid domestic work and voluntary work are included in the family and community domains.
- Family is defined as significant people and relationships in a person's private life. Based on this definition, family may extend beyond blood relatives and include close friends (adapted from Pocock *et al.*, 2009).
- Community is defined as relationships of support and/or interaction between people that might be based on place, shared interest or identity (adapted from Pocock *et al.*, 2009).

DEMANDS AND RESOURCES

Concept definition

Demands refer to physical, psychological, social or organizational features originating from the work, family or community domains that require physical, mental, or psychological effort that take time and energy (adapted from Bakker *et al.*, 2005). While the literature has primarily focussed on demands as a negative feature, Dolcos and Daley (2009) contend that demands are not necessarily negative. For example, spending time with family may be perceived as a positive experience although it would be defined as a 'demand'.

Resources refer to the physical, psychological, organizational or social aspects of a person's work, family or community role that: (a) reduce life demands and the associated physiological costs (such as fatigue and muscle soreness) and psychological costs (such as emotional exhaustion and stress); (b) are functional in achieving life goals; and (c) stimulate personal growth, learning, and development (Schaufeli and Bakker 2004).

Identification of demands and resources

A review of the work-family literature was conducted to identify demands and resources and their corresponding definitions. The following databases were searched: Emerald, Proquest, Business Source Premier (EBSCOhost), Expanded Academic (Gale), ISI Web of Science, Science Direct (Elsevier), and the Centre for Work + Life. In addition to the databases, a book search of the RMIT University library catalogue was also undertaken. Through the review process, identified demands and resources were recorded as were the corresponding definitions. In cases where two or more definitions were conflicting or inconsistent, the researcher recorded the definition that had been most cited in the literature. In the instances where no definition was offered in the literature, the researcher developed a definition. As the definitions would be used by a diverse range of workers during a later stage of the research, a conscious decision was made to use plain and simple language. This was particularly critical as the demand and resource definitions needed to be accessible to all workers irrespective of level of education and literacy ability.

Verification of demands and resources

Verification of demands and resources occurred through consultation with a panel of nine workers currently engaged in the construction industry. The panel ranged in occupation, age, gender, and parental status. An interview was conducted with each participant at their place of employment during 2010. Each interview took

approximately 60 - 90 minutes and participant responses were manually recorded by the researcher (interviewer). Participants were asked to review all demands and resources and the corresponding definition. In cases where the definition was deemed to be unclear, the participant was asked to suggest an alternate definition. Participants were then asked to identify additional demands and resources which had not been included on the list provided by the researcher. Where an additional demand or resource was identified, the participant was asked to define this demand/resource.

Final set of demands and resources

Forty-three demands were identified through the identification and verification process as outlined above. An example of a work demand is 'work over-load', defined as "not enough time to complete your assigned work duties. You work hard over a period of time to maintain a work load that you consider excessive". An example of a family demand is 'unfairness in household work', defined as "you perceive there is unfairness in household work, whereby you unwillingly carry the majority of the load". An example of a community demand is 'hours and schedule of health, welfare and community services', defined as "the hours of health and welfare community services which you, or the people you care for, require are incompatible with your paid work hours". A full set of demands is available upon request from the author.

Sixty-nine resources were identified through the identification and verification process as outlined above. An example of a work resource is 'practical support from supervisor', defined as "practical support from your supervisor to help you with your day-to-day activities. For example, your supervisor provides you with extra resources to help you get through your allocated tasks". An example of a family resource is 'partner employment', defined as "your partner's employment is arranged so that family demands (such as caring for children) can be met. This could mean that your partner works part time or has flexible work hours". An example of a community resource is 'training and education facilities', defined as "access to formal training and education facilities, such as TAFE and university, which offer training courses, certificates and degrees". A full set of resources is available upon request from the author.

Q METHODOLOGY

Q methodology is a useful technique for exploring attitudes, perceptions and beliefs about a phenomenon (Anandarajan *et al.*, 2006; Brown, 1986). This is of particular significance given that individuals' experience of work-life interaction is considered a subjective cognitive appraisal (Moen *et al.*, 2008). Furthermore, Q methodology is considered a sound method for conducting exploratory research and investigating underlying perceptions (Anandarajan *et al.*, 2006). Q methodology typically focuses on a small sample (referred to as the P-set), using many questions or statements (referred to as the Q-sample), which are ranked (for example, from "agree" to "disagree"). The ranking is referred to as "Q sorting." As far as the authors are aware, this is the first time that Q methodology has been used to identify demand-resource profiles in a construction setting.

METHOD

P-set (participants)

The P-set, or participants, of this research are workers engaged in the Australian construction industry. In order to explore demand-resource profiles for subgroups of

the workforce, it is anticipated that a sample of workers from the following categories will participate in the research: salaried employees, waged workers, dual earner with dependent-aged children, sole earner with dependent-aged children, dual earner with non-dependent aged children, sole earner with non-dependent aged children, females and males. Of note is that the sample size for Q methodology is based on statements rather than persons, as outlined in more detail below.

Q-sample (statements)

The Q-sample, or set of statements that will be used in this research, will be the demands that have been identified and verified in the previous stage (as outlined above).

Q-sort

Each participant will be provided with a full set of (43) demands (the Q-sample). Participants will be asked rank each demand along a continuum ranging from no extent at all (1) to a very large extent (7) in response to the question: "to what extent do you currently experience this demand in your life?"

Importance-sort of resources

After the Q-sort of demands has been completed, participants will be asked to consider the demands ranked highly (5-considerable extent, 6-large extent, 7-very large extent). Using the set of resources, participants will be asked to review each resource and answer the question: "in your current role, doing what you are doing now, which resources would be most important in helping you to meet your demands rated 5, 6 and 7". Each resource will be categorised as either 'important' or 'not important'.

Interviews

After the Q-sort of demands and importance-sort of resources has been completed, participants will be asked to provide additional qualitative explanatory data about: (i) the demands they ranked low (no extent at all) and high (very large extent); (ii) the resources they categorised as important; and (iii) the benefits of having their preferred demand-resource configuration in place.

Analysis

Demand-resource configurations of worker groups will be identified by combining the data obtained from the Q-sorts of demands, the importance-sort of resources, and the qualitative interview data. In the first instance, Q factor analysis will be conducted using the demands data. Factor analysis is a statistical technique that simplifies complicated data into overarching patterns. By reducing a larger number of variables into a smaller number of 'factors', it uncovers the latent structure of a dataset. Q factor analysis differs from the method used in R factor analysis. Brown (1980; 28) clarifies that "in R methodology, samples are defined in terms of populations of persons; in Q, samples are in terms of statements or other stimuli drawn from some parent population". Statements of the Q sample typically range in number from 40 to 60 (Brown, 1986: 59). In Q factor analysis, correlations between persons as opposed to variables are factored. Q factor analysis determines whether a set of people cluster together rather than a set of variables (Brown, 1980). In the case of the demands data, the Q factor analysis will identify whether construction workers who are of the same gender, of a similar age or in a similar family situation or life stage experience constitute distinct 'clusters' in terms of the demands that they experience at work,

home and in the community. Once the clusters have been identified, the resources data will be linked to the Q-sort data to identify the demand-resource configurations that constitute a good work-life fit for the different worker groups identified in the Q-factor analysis. Data obtained from interviews will be analysed to explain the work-life fit configurations identified in the analysis.

INITIAL FINDINGS

To date, 34 participants have completed a Q-sort of demands, importance-sort of resources and an interview. All participants work for a medium-sized Australian construction organization and data was collected from workers based in Melbourne, Australia. Of the 34 participants, eight were engaged in direct construction activity, 11 were based in the site office, and 15 were based in head office. Data collection is yet to be completed, therefore some initial findings are briefly presented below.

Demands ranked as 'high' (5-considerable extent, 6-large extent, 7-very large extent) differed between location of participants, although 'time in paid work' was rated by all groups as the highest demand. Participants engaged in direct construction activity rated 'time in paid work' most highly (mean=5.38) followed by 'commuting time' (mean=5.25). Participants based in the site office rated 'time in paid work' most highly (mean=5.82) followed by 'industry expectations' (mean=5.00). Participants in the head office also rated 'time in paid work' most highly (mean=5.67).

Many resources considered 'most important' to meet demands rated five and above were consistent across participants, irrespective of work location. Some of these included 'skill utilization at work', 'autonomy at work', 'time for yourself', and 'pride in your work'. There were some differences, however, between worker groups. 'Flexible work hours' was rated as less important for participants based onsite in direct construction activity compared to participants in head office and in the site office. 'In-house help with household work and chores' and 'work-related training and education' were considered more important for participants based onsite in direct construction activity and less important for participants in head office and in the site office.

Participants indicated both work-based and home-based benefits if they had their preferred demand-resource configuration in place. For participants based onsite in direct construction activity, the benefits primarily related to spending more time with family. For participants based in head office and in the site office, benefits were related to spending time with family as well as feeling less stress and strain at work and being able to focus on the job at hand.

Initial findings from the Q-sort of demands and importance-sort of resources suggest that community demands and resources currently have little impact upon participants. For example, the mean score for 'time allocated to volunteering' was 1.63 for workers in direct construction activity, 1.45 for participants based in the site office, and 2.33 for participants based in head office. During the post-sort interview, however, some participants indicated that the score allocated to community demands and resources did not reflect the way in which they perceived their community. These participants indicated that they were not currently engaged in the community due to long working hours and subsequent lack of time, however suggested that their preference was to be more involved. Other participants indicated they had done work for the community prior to having children, however "it is hard now to do community work with children. When the kids are old enough will get back into it". One participant commented: "I feel guilty that I don't do anything in the community".

The initial findings suggest that demand-resource profiles for worker groups may be emerging. After data collection has concluded, analysis will seek to explore whether clear demand-resource profiles emerge according to gender, work location, occupation, parental status and life stage.

CONCLUSION

It is expected that this research will contribute to the construction and work-life domains by contributing to the development of theory relating to work-life fit by identifying the demands and resources underlying the construct. The research will investigate the work, family and community demands and resources in both the work and non work domains which relate to fit for workers of the construction industry. To date, little is known about how workers experience these demands and resources, and how these configurations shape individuals' subjective judgements of work-life fit. Furthermore, it is not clear whether the demands-resources configuration associated with perceptions of fit vary for workers of different life stage, gender and employment arrangements.

The practical implications of this research for the construction industry are two-fold. Firstly, a better understanding by organisations of demand-resource profiles that constitute fit for different worker groups will enable organisations to better respond to the needs of their workforce. By cultivating an environment in which workers have the ability to integrate their work and non work domains, organisations will attract and retain skilled workers who are committed to the organisation. Secondly, by enabling workers to integrate their work and non work domains, it would be expected that a greater diversity of worker cohorts would be supported within the construction industry. It may be the case that females would be more ably supported to enter and remain meaningfully employed in the construction industry irrespective of their family structure, parental status or life stage.

An understanding of work-life fit configurations will also help individual workers to evaluate their own fit. Such an understanding may enable individuals to reconfigure their demand-resource profile in cases where mis-fit is perceived.

Further, the use of the Q-methodology is novel in the work-life domain in which self-report survey methods are most frequently utilised. In a review of work-life research in Australia, Bardeol *et al.*, (2008: 329) state that there is a "dominance of survey-based research". Likewise, Casper *et al.*, (2007) have criticised the research methods used in work-family research for its reliance on self-report survey data. Therefore, this research seeks to extend research methods utilised in the work-life and the construction management research domains by implementing and evaluating an innovative Q-methodological approach.

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