IDENTIFICATION OF DEMAND AND RESOURCE TYPOLOGIES WITHIN A SYSTEMS FRAMEWORK

Michelle Turner1 and Helen Lingard

School of Property, Construction and Project Management, RMIT University, Melbourne, Victoria, Australia

Work-life fit occurs when people have the resources required to meet demands such that role performance (both at work and in non-work life domains) is effective. Models of work-life fit emphasise the interactive nature of demands and resources, however previous research has treated these as entirely independent of one another. This research makes a new conceptual contribution to an area in which theory is under-developed, by adopting a systems approach to understanding the dynamic interactions between demands and resources. Interviews were conducted with 59 construction workers based in Melbourne, Australia to explore how demands and resources were experienced by workers. Using a systems framework, data were analysed using thematic analysis. Results identified two demand typologies associated with demand-to-demand interaction, which challenges previous research claiming that resources are exclusively required to meet demands. Demands operating as ‘influencers’ have a major impact on the conditions of the interdependent demand, while demands operating as ‘creators’ generate a new demand and shape the conditions of that demand. One resource typology related to resource-demand interaction was identified. ‘Enabling resources’ enable an individual to manage multiple demands across multiple domains, and may also enable an individual to manage multiple demands within a single domain. Findings suggest that treating demands and resources as unrelated is not helpful. A lack of fit is damaging for the individual, therefore it is useful to know that demands and resources are interdependent and these interdependencies will vary according to individuals. Using a systems approach to understanding demands and resources will be helpful to organizations seeking to support workers to achieve optimal work-life fit.

Keywords: demands, systems framework, resources, wellbeing, work-life fit.

INTRODUCTION

Work–life fit occurs when an individual perceives that they have the resources required to meet demands such that role performance in both work and non-work roles is effective (Voydanoff, 2007). Work–life fit is important for satisfactory well-being (Edwards and Rothbard, 2006; Voydanoff, 2007). The application of a systems approach to work-life fit supports Kanter’s (1977) critical research on work and family, where she referred to the myth between the separate worlds of work and family life. That is, one domain does not exist independently of the other domain. Rather, the domains are fundamentally linked. The recognition of the interdependence between domains has led researchers to recognize the dynamic rather than static nature of these relationships. The dynamic nature of the interactions between work and non-work life highlights a critical point in that theory development must consider the whole and the interrelation between the parts.

1 michelle.turner@rmit.edu.au

Recent research in the construction industry investigated the interaction between demands and resources and explored the different configurations constituting work-life fit for workers (Turner, 2012). The research was conducted over three interdependent stages. The first stage entailed identifying and defining a complete and validated set of demands and resources applicable to workers in the Australian construction industry (Turner and Lingard, 2014). The second stage used the set of demands and resources to quantitatively measure and map the demand and resource configurations of workers and explore what constitutes work-life fit for different groups of workers (Turner, 2012). The third stage comprised of interviews with participants to provide context around their configuration of work-life fit. This paper reports on stage three of the research.

AIM

The research seeks to explore how demands and resources actually interact within a dynamic system for workers of the Australian construction industry. The findings of this research contribute to conceptual models of work-life fit by demonstrating how demands and resources can interact within and across domains, such that the conditions and meanings of demands are influenced, altered or minimised.

LITERATURE REVIEW

Work-life fit

Work-life fit occurs when the individual perceives that they have the resources required to meet demands such that role performance is effective (Voydanoff, 2007). Models identified by Teng and Pitman (1996), DeBord et al. (2000), and Brennan et al. (2007) emphasise the interactive nature of demands and resources within a work-life fit framework. Demands and resources originate from multiple domains, including work, family and community. Misfit occurs when demands exceed resources, and this is damaging for the individual as lack of fit can result in strain and illness (Edwards and Rothbard, 2006; Voydanoff, 2007).

The ecological systems framework (Bronfenbrenner, 1979) has been applied to the work-life fit model. This model considers each of the domains as a microsystem which is inter-connected with other domains (microsystems). The experience of a demand in one microsystem can be influenced and shaped by the experience of a demand or resource in another microsystem. In considering the experience of demands, it is imperative that the complex nature of interactions between microsystems is considered (Pocock et al., 2012; Voydanoff, 2007). Various conceptual models of work-life fit have acknowledged the dynamic process in which individual’s demands and resources will change in response to changes in work, home and community demands and resources (Barnett, 1998; DeBord et al., 2000; Teng and Pittman, 1996; Voydanoff, 2007).

Demands

A consistent definition of demands has not been applied within the work-life literature. Definitions often reflect role overload, which is based on having a negative response to work pressures (Boyar et al., 2008), do not consider demands arising from other domains such as family or community, and assume that demands are exclusively negative experiences (Boyar et al., 2007). Furthermore, the work role is often treated as a required and negative demand, whereas the family role (though family is a
required demand) is often considered to be the preferred context in which people want to focus their energy (Grawitch, et al., 2010).

Some researchers have acknowledged the breadth of demands and have developed definitions which cover the various facets of demands. Edwards and Rothbard (1999, p.88) position demands within a person-environment fit framework, defined as “qualitative and quantitative requirements faced by the person and include objective demands (e.g., commute time, length of work week) and socially constructed norms and role expectations”. Poelmans, et al's (2003) definition of demands is similar to definitions applied by Bakker et al. (2005) and Edwards and Rothbard (1999) as it identifies the multiple components of demands. Poelmans et al. (2003, p.277) contend that “demands can require the expenditure of time and exertion of effort, but they can also require that the individual experiences some condition or situation that does not in itself require time expenditure or effort, but represents a ‘psychological’ demand”. Bakker, et al. (2005, p.170) refer to work demands as “physical, social, or organizational aspects of the job that require sustained physical or mental effort and are therefore associated with certain physiological and psychological costs”. While Bakker et al. (2005) focus their attention on work demands, this definition is transferrable to other domains such as family and community

Resources

Like demands, the resources concept lacks a common definition from which to progress and extend theory. Some studies refer to resources but do not explicitly provide a definition (for example, Pitt-Catsouphes, et al., 2007). Other studies refer to interventions, strategies and initiatives which are types of resources, however they are not explicitly referred to as resources. In recognising the substantial scope of resources, more comprehensive definitions have been developed. Poelmans et al. (2003, p.277) refer to resources as being “both internal/psychological and external/situational to the individual. An internal resource might be an internal locus of control that drives a person to cope with a work or family stressor, whereas an external resource could be a grandparent willing to baby-sit during the day”. Greenhaus and Powell (2006) frame resources within a positive work-family spillover construct, defined as “an asset that may be drawn on when needed to solve a problem or cope with a challenging situation” (p.80). Dolcos and Daley (2009, p. 294) outline a comprehensive definition of work resources, as “physical, psychological, social, or organizational aspects of the job that”: (a) reduce job demands and the associated physiological and psychological costs; (b) are functional in achieving work goals; and (c) stimulate personal growth, learning, and development. While Dolcos and Daley (2009) focus their attention on work resources, this definition is transferrable to other domains, such as family and community, and provides a sound basis for identifying a wide range of resources across domains. Furthermore, the definition explicitly states that resources are a means of meeting demands, which is relevant to the work-lift fit framework embedded within a demands-resources framework.

Construction industry

Workers of the Australian construction industry experience a range of demands including long working hours, overtime hours, and weekend work (Turner, 2012). These demands have been linked to work-family conflict (Lingard, Francis and Turner, 2010a). The experience of work-family conflict by Australian construction workers is of concern as conflict is associated with negative outcomes 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 organizational 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 Viswewvaran, 2006). Workers in the construction industry also experience a range of resources such as supervisor support, flexibility and work schedule control (Lingard, Francis and Turner, 2010b; Turner, 2012). It is not well understood, however, how these demands and resources interact to support workers' work-life fit.

**METHODOLOGY**

The data collection phases preceding the interviews are briefly explained so as to provide context for the findings reported in this paper. Initially, participants were asked to score demands according to the extent they were experienced, from (1) no extent at all, to (7) very large extent. A total of 43 demands were considered by participants consisting of 18 work demands, 12 family demands, nine community demands, and four personal demands. An example of a work demand is 'work overload', described 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'. Following the scoring of demands, participants were asked to indicate which resources would be most important in helping them to meet their demands scored as (5) considerable extent, (6) large extent, and (7) very large extent. A total of 69 resources were considered by participants, consisting of 25 work resources, 24 family resources, 18 community resources, and two personal resources. An example of a family resource is 'partner emotional support', described as 'the concern, care, trust and empathy from your partner to help you respond to your demands'. Demands and resources were derived from the literature, and are reported in Turner and Lingard (2014).

Interviews were conducted with participants to explore their work-life fit configuration, reflected by their experience of demand and resource requirements from the work, family and community domains. Firstly, participants were asked questions about their experience of demands which had been given especially high or low rankings, and what implications those demands had in the context of their overall experience. Secondly, participants were asked how resources could assist them to meet the demands they experience. Thirdly, participants were invited to make additional comments about demands and resources. Thematic analysis was applied to interview transcripts.

**RESULTS**

**Sample**

Interviews were conducted with fifty-nine participants of the Australian construction workforce. Participants were recruited from two participating organisations that were both medium sized contract-based construction organizations based in Australia. The head office of the two organizations was located in the city of Melbourne, and both large-scale commercial and residential projects were undertaken across the country. Given that the research sought to explore workers’ experience of demands and resources in the Australian construction industry, the data from organization one and two were combined in order to broaden the sample. Furthermore, the unit of analysis was at the individual level rather than at the organizational level, therefore combining
Identification of demand and resource typologies

the data sets was warranted. The demographic characteristics of the sample are summarised in Table 1.

**Table 1: Demographic characteristics of the sample**

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>%</th>
<th>Parental status</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>44</td>
<td>74.6</td>
<td>Children</td>
<td>30</td>
<td>50.8</td>
</tr>
<tr>
<td>Female</td>
<td>15</td>
<td>25.4</td>
<td>No children</td>
<td>29</td>
<td>49.2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Household Status</th>
<th>N</th>
<th>%</th>
<th>Type of pay</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live alone</td>
<td>8</td>
<td>13.6</td>
<td>Salaried</td>
<td>47</td>
<td>79.7</td>
</tr>
<tr>
<td>Live with partner</td>
<td>9</td>
<td>15.3</td>
<td>Waged</td>
<td>12</td>
<td>20.3</td>
</tr>
<tr>
<td>Live with partner and children</td>
<td>27</td>
<td>45.8</td>
<td>Work location</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Live with parents</td>
<td>8</td>
<td>13.6</td>
<td>On site in direct construction</td>
<td>13</td>
<td>22.0</td>
</tr>
<tr>
<td>Live with friends or housemates</td>
<td>7</td>
<td>11.9</td>
<td>Onsite in site office</td>
<td>28</td>
<td>47.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Head office</td>
<td>18</td>
<td>30.5</td>
</tr>
</tbody>
</table>

The mean age of participants was 35.49 years (SD = 10.18 years). The average weekly work time of participants was 54.27 hours (SD = 8.66 hours), the average weekly travel time was 6.72 hours (SD = 3.64 hours), and the average time spent on household chores was 7.19 hours (SD = 4.45 hours).

**Demand-to-demand interaction**

Two demand typologies emerged from thematic analysis of the interview data. Demands which operate as ‘influencers’ have a major impact on the conditions of the interdependent demand, and it is suggested that if the conditions of the influencing demand change, so too will the conditions of the interdependent demand. In contrast, demands which operate as ‘creators’ generate a new demand and shape the conditions of that demand. It is suggested that if the ‘creator’ is altered or removed, then the resultant demand will also be removed.

A demand-to-demand interaction emerged between project characteristics, work overload, and mental and physical strain. Participants experienced emotional and mental strain at work driven largely by long working hours, tight deadlines, and the unplanned nature of projects. Many participants reported that strain at work was often linked to project characteristics and in particular, the unpredictable nature of projects. A male participant living alone commented that: “project characteristics has an impact on timelines, and things seem to be moving faster now compared to ten years ago”. Another male participant living with his wife and children explained that: “in projects, things change. They can be unpredictable, with lots of unplanned activities”. The unpredictable nature of projects led to time management issues for some participants. Participants reported that they were unable to complete their daily planned activities as unplanned activities often had to take precedence and be dealt with immediately, which added to an already high workload. A female participant living with her parents commented: “work is often reactive, and when an emergency arises it must be dealt with now”. Similarly, a male participant living alone explained that: “crisis rectification and crisis resolution leads to emotional strain…. things change regularly, hourly, daily. My job can be very reactive which is stressful”.

Participants acknowledged that the construction industry was largely project-based and this impacted upon the demands experienced at work. In addition to this,
participants explained that some project tasks required long hours to meet a tight deadline. In these instances pressure was high as there could be a financial penalty for the contracting organisation if the deadline was not met.

Figure 1 shows the interaction between work demands, using a scenario described by participants. In this scenario, work overload is influenced by project characteristics, particularly when factors such as program changes, program acceleration, and unplanned activities occurred. Consequently, work overload creates mental strain and emotional strain for workers. The semi-permeable shape of each demand indicates that one demand interacts with another demand through a permeable boundary. The concept of a permeable boundary is applied to the work-life fit model, which considers that each demand experienced by an individual does not occur in isolation from other demands.

Another demand-to-demand interaction emerged in the work microsystem, whereby the construction industry’s expectation of long and irregular work hours had an influence upon organizational expectations of work hours. Organizational expectations then created a long work hours culture. Long work hours then influenced the likelihood of overtime hours. This interaction is shown in Figure 2. A male participant living with his parents commented: “industry and organizational expectations drive big hours, overtime and weekend work. But this organization is no different to other construction organizations”. Another male participant living with friends explained: “hours and volume of work are associated with this industry. You receive no sympathy from other construction organisations”. Similarly, another male participant living with his wife and children commented: “the norm is six to seven working days per week in this business. It’s deadline driven, that’s the industry norm”.

Figure 1. Example of a demand-to-demand interaction within the work microsystem which results in the creation of strain-based demands. Note that WD refers to work demand. The number (for example, WD1) represents the unique code allocated to each demand and resource, as outlined in Turner and Lingard (2014).

Figure 2. Example of a demand-to-demand interaction within the work microsystem.
Resource-to-demand interaction

One resource typology related to resource-to-demand interaction emerged through thematic analysis. Enabling resources are defined as those resources which ‘enable’ an individual to manage multiple demands across multiple domains.

A resource-to-demand interaction emerged between work and family demands and resources as shown in Figure 3. In this Figure, partner practical support enables individuals to participate in long work hours and overtime hours. Furthermore, partner practical support enables these workers to manage their child-based demands. Participants with dependent-aged children indicated that they were not the primary care giver, and relied heavily on their partner for assuming child care responsibilities. A male participant living with his wife and children explained that: “my partner is able to look after the house, child and pets”. Another male participant living with his wife and children commented: “my spouse has flexibility with her job with start and finish times, plus works part time. This allows my home based demands to be met. If there was a combination of two roles like mine, I couldn’t meet my demands”. Similarly, another male participant living with his wife and three young children explained: “my wife is a great support. She used to work part time, at the moment she doesn’t work. She looks after the kids”.

Many participants also indicated that their partner took the lead on household chores. One male participant living with his wife and child commented: “my partner does the washing throughout the week so it doesn’t build up”. Another male participant living with his wife and children commented that: “my wife does all house work”.

DISCUSSION

The research adopted a systems approach to understanding the dynamic interactions between demands and resources experienced by workers of the Australian construction industry. Findings support the notion that theory development must consider the whole and the interrelation between the parts of the work, family, and community system. In seeking to explore and define the range of demands that operate within and between each microsystem, it is imperative to consider which demands have an interdependent relationship with other demands, as well as considering the impact that resources have on meeting demands. Pocock et al. (2012) developed a conceptual model which contends that the work, family and community domains, as well as the domain intersections, create demands and resources. Findings of this
research extend the work of Pocock et al. (2012) by identifying some of the demand-to-demand interactions demonstrated within the Australian construction industry. Within a microsystem, some demands may act as ‘influencers’ and some may act as ‘creators’. This means that a demand should not be considered in isolation. Instead, the demand should be considered as one part of a dynamic and interactive system.

The research extends the work-life fit model which applies a demand-resource approach by challenging the notion that resources are exclusively required to meet demands such that role performance is effective. By applying a systems approach, it is possible that a demand can be managed in a number of different ways. Firstly, a resource may be utilised to assist in managing a demand (resource-to-demand interaction). Alternatively, the conditions of a demand may be altered, so that the interdependent demand is perceived as manageable (demand-to-demand interaction). The complex nature in which demands function within a system adds to the body of knowledge and progresses the work-life fit concept.

Findings of this research suggest that one demand can interact with another demand through a permeable boundary. By applying boundary theory (Ashforth, et al., 2000) to the findings, it is probable that when the boundaries between the work and non-work microsystems are sufficiently permeable and flexible, processes occur through which aspects of the various domains influence each other. The concept of a permeable boundary is applied to the work-life fit model, which considers that each demand experienced by an individual does not occur in isolation from other demands and/or resources. Within a system, demands are inherently connected. This connection results in an interaction, in which the conditions of one or both of the demands are altered due to their interdependent relationship.

An understanding of the work domain as a dynamic and interactive microsystem is an important consideration for construction organizations seeking to create a productive and positive work environment for their workers. In this context, an understanding of the interdependent nature of demands within the work domain is important so as to manage demands and support workers. Organizations which seek to minimise or remove demands perceived as damaging should focus on modifying those demands (such as work overload), which are creating the damaging demands (such as emotional and mental strain). Through the application of a systems approach, organizations have the capacity to treat the cause of damaging demands, thereby alleviating the symptoms, rather than merely treating the symptoms which are likely to re-emerge and cause harm to workers.

**CONCLUSIONS**

The research has important implications for progressing the work-life fit model using a demands and resources approach. The findings identified the interactive nature of demands and resources within and across microsystems. The research also has important implications for construction organizations seeking to support the work-life fit of their workers. In particular, focusing on those demands perceived as harmful and understanding the interdependent nature of these demands. A limitation of the research is the sample used. Participants came from two medium-sized construction organizations based in Melbourne, Australia. Therefore, the results cannot be generalised to other cities within Australia, nor other countries. Furthermore, the construction industry is comprised of large, medium and small construction organisations. Given that the participants of the research worked for medium-sized construction organizations, results cannot be generalised to small and large
construction organizations. Additionally, the construction industry is made up of both commercial and domestic sectors. Within the commercial sector, work is differentiated between building and civil engineering projects. This research investigated workers experience within the commercial building sector, therefore results cannot be generalised to other industry sectors. Additional research is required to explore demand-resource interactions in organizations of different sizes, locations, and sectors.

REFERENCES


