Effort-reward imbalance, over-commitment and work-life conflict: testing an expanded model

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Abstract

Purpose – Although the effort-reward imbalance (ERI) model of job stress has gained support in predicting employee health, it has rarely been examined in the context of the work-home interface. This study aims to test an expanded ERI model in predicting work-life conflict (WLC) in university employees. Three hypotheses relating to the ERI are tested. It is also predicted that lower organisational support for work-life balance, less schedule flexibility and lower levels of separation between work and home life will lead to increased work-life conflict.

Design/methodology/approach – In this cross-sectional study, 1,108 employees working in UK universities completed questionnaires assessing ERI, WLC, schedule flexibility, employer support and work-life separation/integration.

Findings – Strong main effects of job-related efforts, rewards and over-commitment on WLC are found. A significant two-way interaction (effort × reward) and some evidence for a three-way interaction effort × reward × over-commitment) are observed. Perceived schedule flexibility and work-life integration also make significant contributions to the variance in WLC. The final model explains 66 per cent of criterion variance.

Research limitations/implications – As the study is cross-sectional, causal relationships cannot be established.

Practical implications – This study extends knowledge of the ERI model as a predictor of WLC. More research is required into ways in which effort-reward inequity and over-commitment might threaten work-life balance, together with the working practices and organisational factors which might modify this threat.

Originality/value – The ERI model has rarely been examined in the context of the work-home interface. The importance of effort-reward imbalance and over-commitment to WLC has been highlighted.

Keywords Sociology of work, Role conflict, Stress, Personal health, Employees

Paper type Research paper

Introduction

Several models of occupational stress have been formulated in an attempt to explain relationships between features of the working environment and employee wellbeing. One such model is the effort-reward imbalance model (ERI; Siegrist, 1996). The ERI model postulates that strain results from a perceived imbalance between the level of effort employees perceive that they put into their work and the rewards that they receive. The experience of effort-reward imbalance is considered to be more frequent in employees who are excessively committed (or over-committed) to their work.
The ERI model is gaining increasing attention by researchers in the field of occupational health psychology. It has advantages over many other models of work stress, such as the job demand-control (JDC) model, as it incorporates an individual difference component and acknowledges the importance of a wider range of employment conditions (such as pay, career opportunities and job security) to employee wellbeing. Owing to a general erosion of job security and status and enhanced opportunities for schedule flexibility and self-regulation, it has also been argued that the ERI model is a particularly appropriate model through which to investigate stress in contemporary organisational settings (De Jonge et al., 2000).

The ERI model has had considerable success in predicting the health status of employees (Van Vegchel et al., 2005). It has been suggested that the ERI framework should be utilised to examine other outcomes of relevance to contemporary working life (Theorell, 2006). The potential for conflict between the work and home domains has increased amongst employees in most sectors of the economy (Lewis and Cooper, 2005); its negative impact on employee wellbeing has also been highlighted (Kinman and Jones, 2001). Managing the conflict between work demands and family responsibilities has been recognised as a critical challenge for employees and organisations (Kossek and Ozeki, 1999). For several reasons discussed later in the present paper, the ERI model has clear relevance to the work-home interface. Accordingly, the present study aims to enhance knowledge of the ERI model by examining its performance as a predictor of perceived conflict between work and home. As perceived support for work-life balance and individual working practices, such as integration/segmentation, have been associated with work-life conflict (Kinman and Jones, 2001), this study further aims to examine whether these factors account for additional variance in work-life conflict over and above that explained by the three ERI components (i.e. efforts, rewards and over-commitment).

According to Siegrist (2001), between 10 and 40 per cent of the workforce experience some degree of effort-reward imbalance. Owing to the model’s emphasis on wider economic forces, however, some occupational groups might be more likely than others to perceive inequity between efforts expended at work and rewards received. The present study utilises a sample of employees working in UK universities. For a number of reasons explained later in this paper, this sector is currently experiencing working conditions whereby the ERI model might be a particularly salient predictor of strain.

The effort-reward imbalance model

The ERI model postulates that it is not merely effort (i.e. workload or other job demands) that leads to strain, but a perceived imbalance between the effort that employees believe they put into their jobs and the rewards that they receive (Siegrist, 1996). The model explicitly differentiates between extrinsic effort (i.e. situational factors that make work more demanding, such as heavy responsibilities and frequent interruptions) and intrinsic effort (an individual difference variable also termed over-commitment). Rewards are distributed to employees by three “transmitter” elements:

1. money (appropriate salary);
2. esteem (sufficient respect and support); and
3. security/career opportunities (adequate promotion prospects, job security and status consistency) (Siegrist, 1996).
Whereas perceptions of fair and appropriate rewards are expected to promote employee wellbeing, the model predicts that perceived inequity in terms of costs (high efforts expended at work) and gains (low rewards received) are experienced as stressful and will compromise health and wellbeing over the long term (Siegrist, 2005).

The ERI model further predicts that effort-reward imbalance at work will be experienced more frequently by employees who are excessively preoccupied with, and overly committed to, their work. Over-commitment is defined as “a set of attitudes, behaviours and emotions that reflect excessive striving in combination with a strong desire to be approved of and esteemed” (Siegrist, 2001, p. 55). According to Siegrist, an employee who is highly over-committed will respond inflexibly to situations of high effort and low reward at work and will, therefore, be more prone to strain than a person in the same situation who is less committed.

**Effort-reward imbalance and strain**

Although significant main effects of high effort and low reward on strain are anticipated, three hypotheses relating to the ERI model have been formulated:

1. the extrinsic ERI hypothesis, which maintains that high efforts combined with low rewards results in strain over and above that accounted for by efforts and rewards independently;
2. the intrinsic over-commitment hypothesis, which states the higher the level of over-commitment the greater the strain; and
3. the intrinsic interaction hypothesis, whereby the negative impact of effort-reward imbalance on employee wellbeing is stronger in employees who are over-committed (Siegrist, 1996; Van Vegchel et al., 2005).

Cross-sectional and longitudinal research provides evidence for the extrinsic ERI hypothesis, whereby a co-manifestation of high effort at work and low reward has been found to predict cardiovascular risk factors and psychiatric disorders (e.g. Stansfeld et al., 1999; Siegrist, 2001). Other studies have related effort-reward imbalance to less serious outcomes such as psychosomatic symptomatology, sleep disturbances, fatigue, problem alcohol consumption, absenteeism and turnover (Bobak, 2005; Hasselhorn et al., 2004; Fahlen, 2006; Hanebuth et al., 2006; Van Vegchel et al., 2001; Siegrist, 2005).

Research evidence for the role played by over-commitment in predicting strain is, however, mixed and inconclusive. Some evidence has been provided for the intrinsic over-commitment hypothesis, whereby employees who are more over-committed tend to report poorer physical and psychological health (Fahlen, 2006; Niedhammer, 2006; Van Vegchel et al., 2005), but other studies fail to find support this prediction (Ertel et al., 2005; Kuper et al., 2002; Hanebuth et al., 2006). As yet, the intrinsic interaction hypothesis has been little examined and the available studies have yielded contradictory findings (De Jonge et al., 2000). The present study aims to test all three of the ERI hypotheses in predicting work-life conflict, prior to testing the expanded model described below.

**Work-life conflict and effort-reward imbalance**

Work-life conflict is a form of inter-role conflict whereby the fulfilment of role demands emanating from one domain (i.e. work) interferes with fulfilling role demands in another domain (i.e. home or leisure activities) (Greenhaus and Beutell, 1985). Conflict
between work and other life domains may take several forms, but that derived from time devoted to the work role (known as time-based conflict) and that derived from the strains produced by this role (known as strain-based conflict) are thought to be of key importance (Netemeyer et al., 1996).

The relevance of the ERI model to the work-home interface is clear. It is plausible that high levels of job-related effort and over-commitment to the job role might result in perceived conflict between work and home. It is also likely that employees who believe that their efforts and achievements at work are not counterbalanced by the rewards they receive may be less likely to tolerate intrusion into their home lives than those who work under more equitable conditions. Moreover, as previous studies have found that effort-reward imbalance can lead to negative affective reactions (Van Vegchel et al., 2005), perceived inequity could also manifest itself as strain-based work-life conflict.

As yet, only one published study can be located that has examined the ERI construct in the context of the work-home interface. Franche et al. (2006) assessed the impact of specific working conditions (including the ratio of effort to reward) and work-life conflict on the mental health of female employees. Evidence was found for a mediating effect of work-to-family conflict on the relationship between high effort-reward imbalance and negative health status. The findings are promising, but more research is required that explicitly aims to test the performance of the full ERI model in the context of the work-home interface.

Whilst the components of the ERI model are plausible predictors of conflict between work and other life domains, other variables are also likely to be important. The present study investigates whether specific working practices (i.e. work-life segmentation/integration), schedule flexibility and organisational support for work-life balance predict variance in work-life conflict over and above that accounted for by the ERI.

Border theory posits that the boundaries between roles can be conceptualised and measured in terms of their flexibility and permeability. Flexibility refers to the extent to which a role can be “enacted in various settings and at various times”, whereas permeability represents the degree to which an individual can be “physically located in one role’s domain but psychologically and/or behaviourally involved in another role” (Ashforth et al., 2000, p. 474). When the boundary between two role domains is flexible and permeable these domains are considered to be integrated, whereas if the boundary is inflexible and impermeable they are segmented. Ashforth et al. (2000) maintain that work and family roles can be placed on a continuum ranging from high segmentation to high integration. Although subject to individual differences in context and individual preference, employees whose work and home roles are highly integrated frequently report more work-life conflict than those whose roles are more segmented (Greenhaus and Parasuraman, 1999; Olson-Buchanan and Boswell, 2006).

To a large extent, employees are responsible for maintaining an acceptable degree of separation between the work and home domains. Nonetheless, organisations clearly have some responsibility for helping their employees achieve this aim. In general, the perception of a supportive organisational culture that aspires to promote work-life balance has been associated with lower levels of work-life conflict (Allen, 2001; Thompson et al., 1998). More specifically, however, it has been argued that control over where, when and how an employee works may be one of the most critical predictors of work-home conflict (Kossek and Lambert, 2004.) It is recognised that rigid work
scheduling with low levels of timing control may undermine family functioning (Haas, 1999). Conversely, schedule flexibility (or the ability to adapt working hours to meet personal and/or family needs) may increase the ability of employees to cope with the competing demands of the work and non-work domains (Sullivan and Lewis, 2006). There is some evidence that employees who work flexibly report better work-life balance and less strain (Brough et al., 2005; Fox and Fallon, 2003). As yet, however, most studies tend to compare objectively defined flexible workers with those who work conventional hours rather than examine the impact of perceived schedule flexibility (Kossek et al., 2005).

The adverse effects of perceived inequity between job-related efforts and rewards, together with a tendency towards over-commitment, might be compounded in employees who:

• perceive less support from their employers to help them balance the demands of their work and home lives;
• have less separation between work and home; and
• perceive lower levels of flexibility to work where and when they choose.

These issues will be examined in the present study.

Work-life conflict, effort-reward imbalance, and university employees
This study utilises a sample of university employees. For several reasons, this occupational group constitutes a particularly appropriate sample for the present study. Academic work is essentially "unbounded" and incorporates a wide range of roles – each with potentially competing demands (Fisher, 1994). These factors are likely to result in increased perceptions of work-life conflict in the sector (Wortman et al., 1991). Indeed, several studies conducted in the UK and other countries provide evidence that university employees encounter particular difficulties in maintaining an acceptable work-life balance (Doyle and Hind, 1998; Winefield et al., 2003).

A review of the literature on the working conditions of university employees suggests that the ERI model is a particularly salient framework through which to examine job stress in this context. Research findings suggest that employees of UK universities generally perceive their jobs as having become increasingly more demanding as a result of expanded student numbers, restructuring and mergers, increased commercialisation, enhanced external scrutiny and reductions in funding (Kinman and Jones, 2003, Kinman et al., 2006). Heavy workload and time and resource constraints are frequently highlighted as the most stressful aspects of academic and academic-related work, but other more specific demands include:

• long working hours;
• too much administrative paperwork;
• lack of support;
• obtaining research funding and finding time for research;
• frequent interruptions;
• rapid change;
• poor leadership and management; and
poor salary and lack of promotion prospects (e.g. Blix et al., 1994; Thorsen, 1996; Hogan et al., 2002; Fisher, 1994; Abouserie, 1996; Doyle and Hind, 1998; Kinman, 2001; Kinman and Jones, 2003; Tytherleigh et al., 2005).

Many of these stressors are key components of the extrinsic effort dimension of the ERI model (Siegrist, 2001). Previous studies conducted in the university sector in the UK have also highlighted low levels of many of the reward components of the ERI model (i.e. salary, esteem and job security/career opportunities) as problematic (Association of University Teachers, 2001; Tytherleigh et al., 2005). In particular, the central importance of professional recognition and respect to the wellbeing of academic employees has been emphasised (Cross and Carroll, 1990; Kinman et al., 2006; Gillespie et al., 2001; Winter and Sarros, 2002).

Aims of this study
This study aims to extend knowledge of the ERI model to the work-home interface. More specifically, the three ERI hypothesis outlined above will be tested as a predictor of work-life conflict in a sample of employees working in UK universities. It is also predicted that lower organisational support for work-life balance, less schedule flexibility and lower levels of separation between work and home life will result in increased work-life conflict.

Method
Participants
Questionnaires were sent to a random sample of 5,000 academic and academic-related staff employed within universities in the UK. This sample was drawn at random from the membership database of the association that represents the largest proportion of university academic staff in the UK (The Association of University Teachers, or AUT). In total, 1,108 completed questionnaires were returned, representing a response rate of 22 per cent.

Fifty-five per cent of respondents were male. The majority of respondents were in the older age groups 45-49 years (18 per cent), 50-54 years (17 per cent) and 55-59 (17 per cent). Analysis of staffing figures from the Higher Education Statistics Agency (2004) confirmed that the gender balance and age profile of respondents in the present survey corresponded broadly with that of the wider population of staff in the UK at that time[1]. The majority of the sample (90 per cent) was employed on a full-time basis and held permanent contracts (82 per cent).

Measures
Background information was obtained, including age and gender. Multi-item measures were used to assess the components of the ERI model and work-life conflict.

Effort-reward imbalance. Scales from the effort-reward imbalance (ERI) questionnaire developed by Siegrist (1996) were used to measure extrinsic effort, rewards and over-commitment. A five-item measure of extrinsic efforts and a six-item measure of over-commitment were used. Examples of items measuring extrinsic effort and over-commitment are “I have constant time pressure due to a heavy workload” and “People close to me say I sacrifice too much for my job”, respectively. A ten-item scale was used to measure esteem, financial, and status rewards. An example of an item that assesses reward is “My job promotion prospects are poor”. These scales have been
shown to have good psychometric properties (Siegrist et al., 2004). All items were scored on a five-point scale. Mean scores were taken across items with a higher score signifying higher efforts, rewards and over-commitment (Cronbach’s $\alpha$: efforts = 0.83; over-commitment = 0.92; rewards = 0.88).

Work-life separation/integration. A single item assessed the extent to which respondents perceived their home and work lives to be separated/integrated. Respondents were asked to indicate on a nine-point scale (where 1 denoted total separation and 9 represented total integration) the extent to which their work and home lives were separated/integrated.

Schedule flexibility. A three-item scale examined the extent of perceived schedule flexibility. An example of an item is “How well does your working schedule and the degree of flexibility in this schedule meet your personal needs?”. Responses were requested on a four-point scale where 1 represented “not at all” and 4 denoted “very much so”. Mean scores were computed across items with high scores representing more schedule flexibility (Cronbach’s $\alpha = 0.87$).

Organisational support for work-life balance. A single item measured the level of support provided by employers to aid work-life balance. Responses were requested on a four-point scale where 1 represented no support and 4 represented high support.

Work-life conflict. A seven-item scale adapted from a measure developed by Netemeyer et al. (1996) was utilised. Although this scale encompasses aspects of time-based and strain-based conflict, it was designed as a unidimensional measure. Responses were requested on a seven-point scale (1 = “strongly disagree” to 7 = “strongly agree”). Mean scores across items were computed with higher scores denoting higher levels of work-life conflict (Cronbach’s $\alpha = 0.92$).

Analysis
The majority of studies that have tested the ERI model have utilised categories or ratios of various types in order to calculate high/low effort, high/low reward and/or develop an index of effort-reward imbalance. A review of the literature on the ERI model by Van Vegchel et al. (2005) highlights the risks in utilising arbitrary cut-off points and dichotomising continuous variables. These authors recommend that future research should utilise continuous variables and employ hierarchical linear regression techniques in order to test the interactions implied in the ERI model. They further argue that utilising an interaction term (rather than the commonly used ratio term) to assess effort-reward imbalance is more likely to yield significant effects. This study follows these recommendations.

Results
Table I shows the correlations between the components of the ERI model (i.e. efforts, rewards and over-commitment), work-life separation/integration, schedule flexibility, employers support for work-life balance and the outcome variable work-life conflict. Job-related efforts were negatively associated with rewards and positively associated with over-commitment (both $p < 0.001$). Significant relationships were observed between the three components of the ERI model and work-life conflict (all $p < 0.001$): i.e. respondents who reported higher efforts, lower rewards and greater over-commitment reported higher levels of work-life conflict. Significant negative relationships were also observed between work-life conflict and schedule flexibility.
### Table I. Descriptive statistics and correlations between ERI components and other study variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Means</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Efforts</td>
<td>2.67</td>
<td>0.89</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2. Rewards</td>
<td>2.16</td>
<td>0.94</td>
<td>-0.45***</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Over-commitment</td>
<td>2.73</td>
<td>0.59</td>
<td>0.60***</td>
<td>-0.37***</td>
<td>0.00</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>4. Work-home separation/integration</td>
<td>5.53</td>
<td>2.27</td>
<td>0.30***</td>
<td>-0.18***</td>
<td>0.46***</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Schedule flexibility</td>
<td>2.71</td>
<td>0.77</td>
<td>-0.26***</td>
<td>0.23***</td>
<td>-0.29***</td>
<td>-0.18***</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Employer support</td>
<td>1.53</td>
<td>1.03</td>
<td>-0.11***</td>
<td>0.17***</td>
<td>-0.16***</td>
<td>-0.11***</td>
<td>0.23***</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>7. Work-life conflict</td>
<td>4.43</td>
<td>1.45</td>
<td>0.63***</td>
<td>-0.43***</td>
<td>0.73***</td>
<td>0.51***</td>
<td>-0.35***</td>
<td>-0.20***</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**Note:** One-tailed correlations: *p < 0.05; **p < 0.01; ***p < 0.001
In terms of working practices, respondents whose work and home lives were more integrated tended to report significantly higher levels of work-life conflict ($p < 0.001$).

In order to examine the predictors of work-life conflict, a hierarchical multiple regression equation was computed whereby the mean-centred independent variables were entered in seven steps. At the first step, gender was entered to control for any effects. Job-related efforts and rewards were entered in step two to examine their main effects. The third step tested the extrinsic ERI hypothesis by entering a two-way interaction between efforts and rewards. The fourth step tested the intrinsic over-commitment hypothesis, by entering over-commitment in order to examine its direct effects. In the fifth step, the three-way interaction term efforts $\times$ rewards $\times$ over-commitment was entered in order to test the intrinsic interaction hypothesis. Employer support for work-life balance, perceived schedule flexibility and work-life separation/integration were entered in the sixth and final step. Table II presents the results of these analyses.

Gender, entered in Step 1 of the equation, failed to account for any significant variance in work-life conflict. The main effects of efforts and rewards entered in Step 2 accounted for 42 per cent of the variance in work-life conflict. An examination of the betas indicated that both job-related efforts and rewards were significant ($p < 0.001$) but efforts made the strongest contribution. A significant two-way interaction between efforts and rewards (Step 3) was observed that explained 2 per cent of variance in work-life conflict, thus supporting the extrinsic ERI hypothesis. The intrinsic over-commitment hypothesis was supported by the main effects of over-commitment making a unique contribution to the variance of 17 per cent (Step 4). Some evidence was also found to support the intrinsic interaction hypothesis of the ERI model with a significant three-way interaction between efforts, rewards and over-commitment but at 0.4 per cent its contribution to the variance was minimal (Step 5). Employer support for work-life balance, schedule flexibility and work-life separation/integration (entered in the sixth and final step) together accounted for just over 5 per cent of variance. An examination of the betas indicated that schedule flexibility and work-life separation/integration were significant predictors (both $p < 0.001$) and that the latter variable was made the strongest contribution. The final model explained a total of 66 per cent of the variance in work-life conflict.

Discussion
This study aimed to extend knowledge of the ERI construct as a predictor of work-life conflict – an issue of considerable relevance to contemporary organisations. Three hypotheses relating to the model were tested suggested by Siegrist (1996) prior to examining an extended model that encompassed organisational support for work-life balance, schedule flexibility and work-life separation/integration. Findings indicate that the components of the ERI model are powerful predictors of work-life conflict. University employees whose reward expectancies are not fully met tended to report a poorer work-life balance than those who worked under conditions of greater equity, on average, reported more conflict between their work and home lives. As hypothesised by the model, some evidence was found that the experience of effort-reward imbalance at work is potentially more damaging to work-life balance in employees who exhibit a particular pattern of coping with work demands characterised by excessive
commitment to work. The study also found evidence that lack of perceived schedule flexibility and higher levels of work-life integration are independent risk factors that further compromise work-life balance.

Strong main effects of job-related efforts and rewards on work-life conflict were observed. The significant two-way interaction between efforts and rewards also supports the extrinsic ERI hypothesis in the context of the work-home interface. Two hypotheses relating to the intrinsic effort component of the model in predicting work-life conflict were also supported in this study. Previous research that has

<table>
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<tr>
<th>Predictors</th>
<th>$R^2$ change</th>
<th>Betas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>0.00</td>
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</tr>
<tr>
<td>Step 1 $R^2$ change</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>-0.00</td>
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</tr>
<tr>
<td>Efforts</td>
<td>0.54 ***</td>
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</tr>
<tr>
<td>Rewards</td>
<td>-0.18 ***</td>
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</tr>
<tr>
<td>Step 2 $R^2$ change</td>
<td>0.417 ***</td>
<td></td>
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<tr>
<td>Gender</td>
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<tr>
<td>Efforts</td>
<td>0.08 ***</td>
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<tr>
<td>Rewards</td>
<td>-0.06 ***</td>
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<tr>
<td>Efforts $\times$ rewards</td>
<td>0.69 ***</td>
<td></td>
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<tr>
<td>Step 3 $R^2$ change</td>
<td>0.022 ***</td>
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<tr>
<td>Gender</td>
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<tr>
<td>Efforts</td>
<td>0.46 ***</td>
<td></td>
</tr>
<tr>
<td>Rewards</td>
<td>-0.40 ***</td>
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<tr>
<td>Efforts $\times$ rewards</td>
<td>0.42 ***</td>
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<tr>
<td>Over-commitment</td>
<td>0.53 ***</td>
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<tr>
<td>Step 4 $R^2$ change</td>
<td>0.017 ***</td>
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<tr>
<td>Gender</td>
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<tr>
<td>Efforts</td>
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<tr>
<td>Rewards</td>
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<td>Efforts $\times$ rewards</td>
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<td>Over-commitment</td>
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<td>Efforts $\times$ rewards $\times$ over-commitment</td>
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</tr>
<tr>
<td>Step 5 $R^2$ change</td>
<td>0.004 **</td>
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<tr>
<td>Gender</td>
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<tr>
<td>Efforts</td>
<td>0.34 ***</td>
<td></td>
</tr>
<tr>
<td>Rewards</td>
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<tr>
<td>Efforts $\times$ rewards</td>
<td>0.07</td>
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<tr>
<td>Over-commitment</td>
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<tr>
<td>Efforts $\times$ rewards $\times$ over-commitment</td>
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<tr>
<td>Employer support</td>
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<tr>
<td>Schedule flexibility</td>
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<td>Work-home separation/integration</td>
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<tr>
<td>Step 6 $R^2$ change</td>
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<tr>
<td>Total $R^2$</td>
<td>0.66</td>
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</table>

Notes: $n = 1,108; \ p < 0.05; \ ** p < 0.01; \ *** p < 0.001$
examined the role played by intrinsic effort, or over-commitment, in employee wellbeing has yielded inconsistent findings (Van Vegchel et al., 2005). Although it has been suggested that over-commitment might not be a risk factor for all occupational groups (Van Vegchel et al., 2001), the findings of this study suggest that it is a robust predictor of work-life conflict in university employees that might also exacerbate the negative effects of effort-reward imbalance. Evidence to support the intrinsic over-commitment hypothesis and the intrinsic interaction hypotheses as predictors of work-life conflict was therefore found. Although the variance accounted for by the three-way interaction between efforts, rewards and over-commitment was minimal, it has been suggested that even small contributions to the observed variance may be an indication that there are substantial effects for those at the extremes of a population (Frese, 1985, p. 314).

The cognitive, emotional and motivational pattern that constitutes over-commitment (i.e. excessive striving combined with a strong motivation to seek esteem and approval) signifies high engagement with the work role. The potential for over-commitment to threaten work-life balance is therefore clear. In the present study, over-commitment emerged as one of the strongest predictors of work-life conflict. Furthermore, university employees who were more over-committed to their jobs perceived less separation between their work and home lives, lower levels of schedule flexibility and less support from their employers to facilitate work-life balance. Future research should investigate the mechanisms by which over-commitment manifests itself in the home domain. Employees who are more over-committed to their work may have less time and energy available to engage fully in home life and leisure activities; they may also be more likely to import strain engendered by work into the home environment. It is also possible that employees who more over-committed perceive their job roles to be more salient than their family roles. Nonetheless, the fact that they report significantly higher levels of work-life conflict suggests that an over-committed employee might perceive this tendency as threatening his or her wellbeing and family functioning.

This study found that work-life integration and lack of schedule flexibility were independent risk factors for work-life conflict beyond that accounted for by the components of the ERI model. In accordance with previous research findings (e.g. Desrochers et al., 2005), respondents with firmer boundaries between their work and home lives were more likely to have achieved a better work-life balance. Organisations might help their employees to maintain an acceptable balance between work and home by offering guidance on strategies to help them maintain greater separation between the two domains. Schedule flexibility (or the level of control over where, when, and how an employee works) was also found to be a key predictor of work-life conflict. This implies that the ability to adapt working hours to meet personal and/or family needs may help employees cope with the competing demands of the work and non-work domains. Based on previous research (Allen, 2001), it was anticipated that an organisational culture that supported work-life balance might protect employees from work-life conflict. Nonetheless, although participants who perceived greater support from their institutions tended to report significantly lower levels of conflict, support did not emerge as a significant predictor in the regression analysis. The mean level of satisfaction with organisational support for work-life balance was, however, extremely low (i.e. 1.5 on a four-point scale), suggesting that support in the sector should be enhanced.
Interventions to minimise work-life conflict based on the ERI model would involve restoring the balance between efforts expended and rewards received – thus improving employees' sense of fairness and reciprocity. In the university sector, such balance could be achieved by reducing extrinsic efforts and/or enhancing rewards such as esteem, promotion prospects and job security. It is acknowledged that enhancing rewards without simultaneously reducing efforts might not necessarily reduce work-life conflict and might further threaten quality of life outside the working environment – especially for employees who are more over-committed to the job role. The findings of this study also suggest that attempts to modify over-commitment might improve the work-life balance of employees beyond those afforded by structural improvements. However, finding ways to accomplish this is likely to be a challenge for occupational health researchers. Siegrist's (2001, 2005) view that over-commitment is an intrinsic characteristic of the individual implies that it might not be easily modifiable. Nonetheless, the stability of over-commitment has not yet been established; it is possible that this tendency might, to some extent, be encouraged by exposure to specific working conditions or occupational cultures. Longitudinal research is needed to investigate the extent to which over-commitment is a state or a trait, and to establish ways by which it might be modified. Whether such interventions would be successful under current working conditions in the UK university sector is open to question. A high degree of commitment to the job role may be required if academics are to meet personal and professional standards of performance in the face of high levels of demand emanating from the different aspects of the job role.

There are some limitations inherent in this study. The cross-sectional nature of the data precludes making firm conclusions about causality. Although considerably less plausible, it is nonetheless possible that negative assessments of work-life balance are the cause (rather than the result) of a perception of imbalance between efforts and rewards and a tendency towards over-commitment. Future studies should adopt a longitudinal design to more confidently establish the direction of causation between the ERI components and work-life conflict. The risk of common method variance in inflating relationships between some of the independent and dependent variables utilised in this study is also acknowledged. Despite these limitations, this study has undoubted strengths. The negative implications of effort-reward imbalance and over-commitment for work-life balance have been confirmed, as has the value of extending the model to encompass different working practices and perceptions of support.

More research is necessary to further examine the implications of the ERI model for the work-home interface. There is evidence that perceptions of working conditions and work-life conflict are subject to daily variation (Jones and Fletcher, 1996; Butler et al., 2005). Future research might utilise daily diaries to examine ways in which inequity between job-related efforts and rewards and a tendency towards over-commitment might lead to work-life conflict (differentiating between time-based and strain-based conflict) and the working practices and organisational factors which might modify or mitigate this threat.

Note
1. The mean age of the sample utilised in the present study was slightly higher than that of the UK population working in the higher education sector at the time the study was conducted.
References


**Further reading**


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