

Chapter 8

Promoting Worker Resilience Over the Lifecourse

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Introduction

In Australia, as in most other industrialized economies, there is growing concern about the work capacity of older workers and their retention in the workforce against a background of population aging and efforts to prolong working lives. It is widely recognized that working later will be promoted by equipping industry and workers with instruments that can gauge working potential. Although policy makers in most industrialized nations now consider an extension of working lives as the basis of sustaining welfare systems and offsetting decline in the number of young labor market entrants, globalization and the competition this fosters present as a strong countervailing force for both government and employers. Certain groups, including older workers with few or outdated skills, and those with declining health may be particularly affected by job insecurity and long-term unemployment. Reconciling these seemingly countervailing tensions is a problem now facing a number of industrialized economies. A resilient older worker whose skills and capabilities can easily adjust as the requirements of the market shift would help maintain labor productivity growth even as populations age (Hagemann and Nicoletti 1989).

A potentially useful concept when considering the fit between personal capabilities and changing job demands is Work Ability, which originated in Finland and is now widely used in Europe (Ilmarinen and Rantanen 1999). Work ability concerns how well an individual's capabilities, health, and well-being match job demands. However, the degree to which individual workers will rate their work ability level as high or low will depend upon their employment context. This includes the wider social culture, industrial and labor market situation, workplace conditions, employer practices, and, of course, their occupation and other personal characteristics. Figure 8.1 demonstrates the various elements of work ability. In considering the status of older workers, it is apparent from the research literature that many interrelated factors determine their relationship with the labor market (Taylor et al. 2000). The emerging

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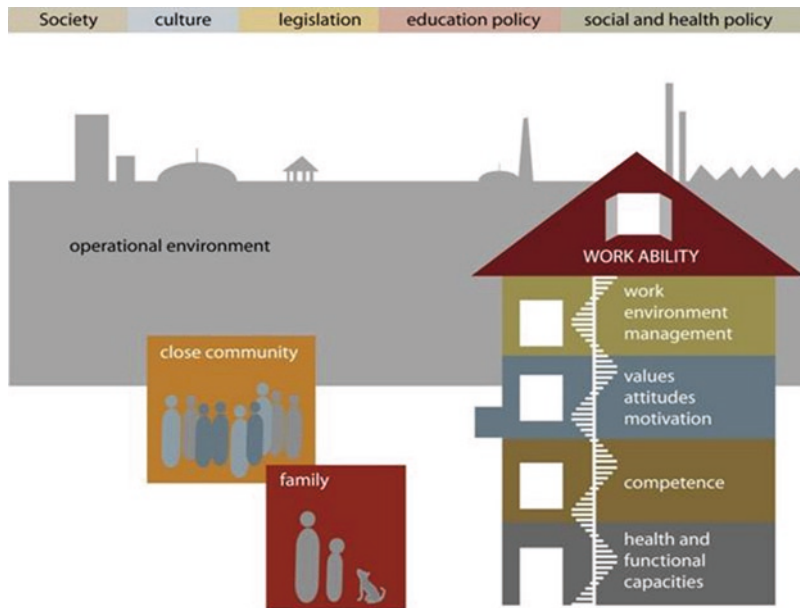


Fig. 8.1 The Work Ability House (Source: Finnish Institute of Occupational Health)

consensus is that tackling the issue of the ongoing employment of older workers requires multifaceted and integrated workplace strategies (Walker 1999).

Finnish studies indicate that at an individual level, the factors that predict work ability include health, functional capacities, competences, and attitudes. Work and workplace also influence work ability through factors including the physical, technological, mental, and social demands of work, work community and management, organizational culture, and work environment. A third level of factors consists of aspects or characteristics of the wider society such as employment, education and exit policies, social and health services, and other preventive measures such as prevention of age discrimination (Ilmarinen 2001). Tuomi et al. (2001) found that the main predictors of work ability were work demands and the environment, followed by work organization and the work community. Professional competence and lifestyle factors have been found to be weaker predictors. Good predictors of high work ability are the use of knowledge and work experience. Strong predictors of low work ability are poor work postures, work climate, an increase in mental workload, uninspiring work, and a lack of satisfaction with working time arrangements. Good perceived work ability is associated with high self-assessments in terms of work quality and productivity.

The concept of work ability promotion is based on four different actions: (1) adjustments to the physical work environment, (2) adjustments to the psychosocial work environment, (3) health and lifestyle promotion, and (4) updating skills. The first two activities are focused on work content and work environment, and the latter two on individuals. Research has indicated that (1) reducing repetitive movements, (2) increased satisfaction with supervisors, and (3) an increase in vigorous physical exercise during leisure time are predictors of improved work ability among

men and women aged 51–62 years in physical, mixed, and mentally demanding work (Ilmarinen and Rantanen 1999; Ilmarinen 2001).

The promotion of work ability has been found to reduce the incidence of work disability and the likelihood of premature retirement and absenteeism; increase productivity and competence among the workforce; improve the public image of a company; and improve quality of life and well-being among workers themselves, effects which appear to carry over into retirement (Ilmarinen and Rantanen 1999; Tuomi et al. 2001).

The “*Redesigning Work for an Ageing Society*” (RWAS) project, supported by an Australian Research Council grant, examined the utility of the work ability construct in Australia. Drawing on this study, this chapter explores the measurement of work ability based on a new diverse sample, and examines how work ability may moderate the influence of job demands on critical outcome measures: job satisfaction, personally meaningful work, and job insecurity. Furthermore, the potential value of work ability promotion in terms of facilitating resilience of older workers and the sustainability of labor supply over the long term as populations age is demonstrated.

Project Description

The participants in this project were from across Australia, with a majority working in various locations in the state of Victoria. Sampling was undertaken in four case study organizations: a small national university, two international freight terminals of an international airline, a national manufacturing company, and the roadside assistance division of a motoring organization. Within these organizations, respondents were drawn from different levels, from entry level to management levels. Although response rates varied across case organizations, the survey had an approximate overall response rate of 40%, yielding a total sample of 1,687 respondents. The manufacturing company and the national university made up the vast majority of the sample, representing 53 and 39%, respectively. Males were slightly overrepresented (males, $n = 919$; females, $n = 713$; unanswered, $n = 55$). The average age of respondents was 45 years, with a range of 21–75 years. Occupational group was categorized according to the ANZCO (Australian Bureau of Statistics 2006) coding guidelines. In a very general amalgamation of this coding, 72% of the sample reported their job as white collar and 27% reported their occupation to involve manual work.

It is important to note some details of the configuration of the sample, particularly the gender specificity of certain organizations. As shown in Table 8.1, most of the females in the sample are from the university. It is possible that these female workers are different from the smaller groups in the manufacturing firm or freight terminals. Also shown in Table 8.1 are similarities in the average age of respondents from the different organizations.

Questions have been raised regarding the validity of the Work Ability Index (WAI) as a measure of work ability based on prior work when used with Australian respondents (Healy et al. 2007; Oakman 2007; Parker et al. 2006; Palermo et al. 2009). This motivated the development of a new measure labeled the Work Ability Survey (WAS). The Work Ability Survey (WAS) was developed to be used in this

project. This measure is based on the most recently developed conceptual model of work ability from the Finnish Institute of Occupational Health, presented graphically in Fig. 8.1. Included in this measure are two overall scales reflecting personal and organizational components of work ability, which are the combination of subscales capturing the following factors:

Work ability	
Organizational capacity	Personal capacity
Control of work methods	Intrinsic work benefits
Control of work time	Extrinsic work benefits
Learning opportunities	Work schedule
Trust	Home–work balance
Respect	Work–home balance
Career development support	Physical health
Supervisor consultation	Mental health
Everyday discrimination	Job insecurity
Training	

The relationship between individuals’ level of work ability, the demands of their work, and their resilience in working life has an easily grasped, intuitive link. The core of the work ability concept captures how the individuals’ resources, the design of their work, and the physical and psychosocial environment at work are matched

Table 8.1 Firm- and gender-specific sample sizes

Organization	Sample size	Average age of respondent		Gendered sample size	Work type	Percentage	
Manufacturing firm	896	42.89	Male	619	White collar	55	
						Manual work	42
			Female	253	White collar	91	
					Manual work	9	
Roadside assistance	59	49.88	Male	59	White collar	–	
						Manual work	100
			Female	0	White collar	–	
					Manual work	–	
National university	656	48.11	Male	187	White collar	84	
						Manual work	15
			Female	440	White collar	92	
					Manual work	8	
Air freight terminals	76	44.84	Male	54	White collar	51	
						Manual work	48
			Female	20	White collar	91	
					Manual work	8	

to job demands. The notion of providing tools, resources, and supportive frameworks which assist a worker to respond to and meet changing environmental demands, be they in their place of work or external, may be viewed as engendering resilience. In this case, the different types of demands encountered in one's working life represent stressors. The personal and organizational capacity components of the present conceptualization of work ability define areas where protective measures against the stressors or risk factors presented in the demands of working life may be initiated. Supporting individual work ability can be viewed as providing protection from the potential negative effect of demands that exceed personal capacity, for instance the potentially adverse effects of changing production methods may be countered by adequate training in new skills while adequate health and safety policies may reduce the incidence of absence due to sickness or injury. The extent of resilience to stressors or adversity can be determined through the extent of positive outcomes or the absence of negative outcomes despite the adversity present. In order to explore this, work-related psychosocial factors were used to determine: (1) the influence of different types of stressors (work demands) on job satisfaction, job insecurity, and level of personal meaning of work and (2) how different levels of work ability (protective factor) affect the influence of work demands (stressor) in terms of job satisfaction, job insecurity, and level of personally meaningful work (positive and negative outcomes related to stressor).

In addition to the WAS and measurement of work demands, three measures of work-related psychosocial factors were used to demonstrate the potential for improving the resilience of a workforce through improving work ability. These were job satisfaction, personally meaningful work, and job insecurity. The factor structure of these measures and the measures of work demands are presented in Appendix 8.1. The measure of job satisfaction used was a single item scored on a five-point Likert-type response scale. Personally meaningful work and job satisfaction were measured using the existing subscales adapted from the Copenhagen Psychosocial Questionnaire (Kristensen and Borg 2003). The measure of job insecurity was developed and piloted for use in the case study organizations. The items that make up these subscales were scored on a five-point Likert-type response scale. The personally meaningful work measure consisted of five items, while that of job insecurity consisted of four items, and larger scores on all these scales indicated greater job satisfaction, job insecurity, and meaningfulness of individuals' work. Statistical analysis indicates that WAS scores decrease as the demands of an individual's work increase, except in the case of cognitive demands, where an increase in WAS scores by 1.5 points is predicted for every one-point increase in the cognitive demands while controlling for the other variables in the equation. There was also a significant relationship between WAS scores and the outcome measures as presented in Table 8.2. Specifically, WAS scores explained 6% of the variance in job insecurity, 29% of job satisfaction, and 16% of personally meaningful work. The predictive regression models based on measures of work demands explained 7, 10, and 18% of the variance in job insecurity, job satisfaction, and personally meaningful work, respectively, and when WAS scores were introduced, the variance explained became 11, 31, and 19%, respectively.

Table 8.2 Linear regression showing the relationship between WAS scores and the outcome measures

		<i>B</i>	Std error	Beta	<i>t</i>	Sig.
Job satisfaction	(Constant)	4.752	0.123		38.622	0
	WAS	0.023	0.001	0.539	23.422	0
Meaningful work	(Constant)	7.178	0.728		9.857	0
	WAS	0.092	0.006	0.397	15.844	0
Job insecurity	(Constant)	12.492	0.518		24.139	0
	Organizational capacity	-0.045	0.005	-0.257	-9.734	0

Taking each of these work-related psychosocial factors individually, their relationship with work demands and work ability is elucidated. Notably higher scores on the job design, task demand, and emotional demand scales predicted higher levels of job insecurity. Countercurrent to this, higher levels of work pace and cognitive demands predicted lower levels of job insecurity. When respondents' WAS scores were introduced into the model, the job design and the task demand measures showed partial mediation. The work pace measure remained unchanged, and the emotional demand and cognitive demand measures showed full mediation. These results suggest that a high pace of work buffers against job insecurity at any level of work ability. Also, work ability level influences the relationship between problems with the design of a job or the work environment and the difficulty of the tasks in respondents' work and job insecurity. Interestingly, WAS score mediated fully the increase in job insecurity observed with higher emotional and cognitive demands.

The predictive regression model of job satisfaction included four measures of work demands as significant contributors to the model. Notably, higher scores on the job design, and excess workload scales predicted higher levels of job satisfaction. Countercurrent to this, higher levels of emotional demands and cognitive demands predicted lower levels of job satisfaction. When respondents' WAS score was introduced into the model, the job design measure showed partial mediation. The emotional demand, excess workload, and cognitive demand measures showed full mediation. Work ability level influences the relationship between problems with the design of a job or the work environment in respondents' work and job satisfaction. Interestingly, WAS score mediated fully the increase in job satisfaction associated with increased excess workload scale scores and the reduced job satisfaction associated with increased emotional and cognitive demands.

The predictive regression model of personally meaningful work included six measures of work demands as significant contributors to the model. Notably, higher scores on the cognitive demand, work pace, and emotional demand scales predicted higher levels of personally meaningful work. Countercurrent to this, higher levels of job design, excess workload, and task demands predicted lower levels of personally meaningful work. When respondents' WAS score was introduced into the model, the emotional demand, job design, cognitive demand, and work pace measures showed partial mediation. The job design and the task demand measures showed full mediation. These results suggest that work ability level influences the relationship between problems with the design of a job or the work environment, the cognitive

demands, emotional demands and the work pace in respondents' work, and the level of personal meaning in work perceived by respondents. Interestingly, WAS score mediated fully the increase in personally meaningful work associated with reduced excess workload and task demand scale scores. The full tabulated output from these analyses is presented in Appendix 8.2.

Concluding Remarks

Taking the above results as a whole, interesting inferences can be drawn regarding the influence of the demands of individuals' work, their level of work ability, and work-related psychosocial factors. The first interesting facet of the project is the nuanced relationship between different types of work demands and job satisfaction, job insecurity, and personally meaningful work. It was evident in each of the predictive models based on work demand variables that increases in some types of work demands were related to increases in job satisfaction and personally meaningful work and reductions in job insecurity, while increases in other types of work demands showed the inverse relationship. It is suggested that this is a critical aspect of this analysis. The configuration of the types of work demands that showed a differentiated influence on the various outcome measures demonstrates that some work demands may actually promote greater job satisfaction, more meaning in individual's work and less job insecurity. If the conceptual content of the outcome measures and the work demand measures is considered, it appears logical that the analysis demonstrated the particular directionality of the relationship between these measures of work demands and psychosocial factors related to work.

The next notable aspect of this analysis is the manner in which work ability offsets the influence of work demand measures on the outcome variables, demonstrating the potential gains offered through the promotion of work ability. It was evident that work ability offsets both the positive and negative influence of various types of work demands on work-related psychosocial factors. If organizational and personal capacities are of sufficient magnitude, the importance of job demands is mitigated, partially or completely, in terms of job satisfaction, personally meaningful work, and job insecurity. This is of particular practical significance. In the pursuit of greater productivity, workplace interventions can usefully focus on enabling and improving personal and organizational capacities, as work ability is conceptualized here, that promote worker resilience and potentially moderate the demands of a given job.

The results of the analysis reported in this chapter are in line with previous work ability research. A large body of work in Europe has shown that long-term and multifaceted interventions have improved and sustained employee work ability. If work ability is considered as a protective factor against the influence of the stressors of work demands, its promotion offers a potentially useful approach to maintaining resilience as workers age. Through collaboration between government, management, and employee groups, work ability promotion can be used to improve both individual and organizational components of work ability. The complex interrelation of protective and risk factors that are key to resilience and which may

prohibit the clear planning and implementation of workplace interventions aimed at supporting older workers may be circumvented through the application of the work ability concept and the body of work relating to its promotion. With debate increasing about the steps that will be necessary to respond adequately to the vast array of issues that will manifest as the populations of the industrialized nations age, in particular that of maintaining a sustainable supply of labor, issues of maintaining resilience over a working life will inevitably come to the fore. Work ability provides a lens through which to view the responses that will be required.

Appendix 8.1 Items and factor structure of measures used in the linear regression analysis

	Job design	
To what extent does your job involve repetitive movements?		0.417
To what extent does your job involve awkward positions?		0.812
To what extent does your job involve working beyond physical capacity?		0.548
To what extent does your job involve poor work stations?		0.493

	Work pace	Excess workload
Is your workload unevenly distributed so it piles up?		-0.773
Do you work at a high pace throughout the day?	0.763	
Do you have enough time for your work tasks?		0.672
Do you have to work very fast?	0.794	
Do you get behind with your work?		-0.794
Is it necessary to keep working at a high pace?	0.854	

	Cognitive demands	Task demands
Do you have to keep your eyes on lots of things while you work?		0.547
Does your work demand that you come up with new ideas?	0.734	
Does your work require you to make difficult decisions?	0.802	
Do you need to meet precise quality standards?		0.512
Do you carry out monotonous tasks?		0.516
Do you carry out complex tasks?	0.714	
Does your work require you to shuffle priorities?	0.598	

	Emotional demands
Does your work put you in emotionally disturbing situations?	0.725
Do you have to relate to other people's personal problems in your work?	0.74
Do you get emotionally engaged in your work?	0.626

	Meaningful work
Do you feel that the work you do is important?	0.781
Is your work meaningful to you?	0.908
Do you feel motivated and involved in your work?	0.868
Do you feel that the problems at your place of work are yours too?	0.506
Do you feel that your place of work is of great personal importance?	0.731

	Job insecurity
Becoming unemployed?	0.739
New technology making you redundant?	0.73
Finding it difficult to find another job if you became unemployed?	0.681
Being transferred to another job against your will?	0.609

Appendix 8.2 Tabulated output showing the statistical evidence of work ability moderating the influence of work demands on work-related psychosocial factors

Linear regression for a work demands predictive model of WAS scores

	Unstandardized coefficients		Standardized coefficients		Sig.
	<i>B</i>	Std error	Beta	<i>t</i>	
(Constant)	157.52	3.47		45.396	0
Job design	-1.595	0.171	-0.273	-9.303	0
Excess workload	-0.965	0.348	-0.077	-2.772	0.006
Work pace	-1.025	0.231	-0.135	-4.438	0
Cognitive demands	1.502	0.185	0.255	8.132	0
Task demands	-0.953	0.218	-0.128	-4.369	0
Emotional demands	-1.21	0.206	-0.175	-5.863	0

Predictive regression model for job insecurity based on work demand variables

Job insecurity	Unstandardized coefficients		Standardized coefficients		Sig.	Raw correlation
	<i>B</i>	Std error	Beta	<i>t</i>		
(Constant)	5.344	0.571		9.353	0	
Job design	0.178	0.035	0.153	5.129	0	0.22
Work pace	-0.11	0.045	-0.073	-2.414	0.016	0.002
Cognitive demands	-0.124	0.037	-0.106	-3.338	0.001	-0.06
Task demands	0.192	0.045	0.128	4.269	0	0.203
Emotional demands	0.127	0.042	0.092	3.02	0.003	0.07

Predictive regression model for job insecurity based on work demands and WAS score

Job insecurity	Unstandardized coefficients		Standardized coefficients		Sig.	Partial correlations
	<i>B</i>	Std error	Beta	<i>t</i>		
(Constant)	9.225	1.017		9.075	0	
Job design	0.117	0.037	0.103	3.13	0.002	0.088
Work pace	-0.154	0.049	-0.104	-3.13	0.002	-0.088
Cognitive demands	-0.07	0.041	-0.061	-1.716	0.086	-0.048
Task demands	0.16	0.047	0.11	3.438	0.001	0.097
Emotional demands	0.086	0.044	0.064	1.955	0.051	0.055
Organizational capacity	-0.032	0.005	-0.179	-5.892	0	-0.164

Predictive regression model for job satisfaction based on work demand variables

Job satisfaction	Unstandardized coefficients		Standardized coefficients		Sig.	Raw correlation
	<i>B</i>	Std error	Beta	<i>t</i>		
(Constant)	0.979	0.13		7.536	0	
Job design	0.069	0.006	0.276	11.079	0	0.307
Excess workload	0.041	0.014	0.077	2.918	0.004	0.134
Cognitive demands	-0.022	0.007	-0.09	-3.068	0.002	0.016
Emotional demands	0.032	0.009	0.108	3.711	0	0.141

Predictive regression model for job satisfaction based on work demands and WAS score

	Unstandardized coefficients		Standardized coefficients		Sig.	Partial correlation
	<i>B</i>	Std error	Beta	<i>t</i>		
Job satisfaction						
(Constant)	4.161	0.208		20.038	0	
Job design	0.03	0.006	0.121	4.717	0	0.13
Excess workload	0.018	0.014	0.034	1.339	0.181	0.037
Cognitive demands	-0.002	0.007	-0.009	-0.305	0.761	-0.008
Emotional demands	-0.003	0.008	-0.011	-0.375	0.708	-0.01
WAS	-0.021	0.001	-0.495	-19.009	0	-0.468

Predictive regression model for personally meaningful work based on work demands

	Unstandardized coefficients		Standardized coefficients		Sig.	Raw correlation
	<i>B</i>	Std error	Beta	<i>t</i>		
Meaningful work						
(Constant)	15.592	0.748		20.851	0	
Job design	-0.334	0.038	-0.251	-8.886	0	-0.212
Excess workload	-0.227	0.075	-0.08	-3.009	0.003	0.039
Cognitive demands	0.414	0.04	0.31	10.228	0	0.339
Emotional demands	0.158	0.046	0.099	3.45	0.001	0.205
Work pace	0.16	0.05	0.092	3.174	0.002	0.14
Task demands	-0.149	0.049	-0.087	-3.056	0.002	-0.088

Predictive regression model for personally meaningful work based on work demands and WAS score

	Unstandardized coefficients		Standardized coefficients		Sig.	Partial correlation
	<i>B</i>	Std error	Beta	<i>t</i>		
Meaningful work						
(Constant)	1.195	1.24		0.964	0.335	
Job design	-0.202	0.039	-0.149	-5.171	0	-0.145
Excess workload	-0.116	0.077	-0.04	-1.517	0.13	-0.043
Cognitive demands	0.3	0.042	0.22	7.177	0	0.199
Emotional demands	0.268	0.046	0.167	5.808	0	0.162
Work pace	0.249	0.051	0.142	4.858	0	0.136
Task demands	-0.066	0.048	-0.038	-1.367	0.172	-0.039
WAS	0.09	0.006	0.391	14.548	0	0.381

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