

***OLDER AND YOUNGER EMPLOYEES: A STUDY INVESTIGATING
COMPARATIVE DIFFERENCES IN VALUE***

**A thesis submitted in partial fulfilment
of the requirements for the degree
of
Master of Science in Psychology**

by

Michael C. Jamieson

University of Canterbury

February 1997

TABLE OF CONTENTS

TABLE OF CONTENTS	I
ACKNOWLEDGEMENTS	IV
LIST OF TABLES	V
LIST OF FIGURES	VI
ABSTRACT	VII
CHAPTER 1 INTRODUCTION	1
CHAPTER 2 LITERATURE REVIEW	3
A. PERCEPTIONS OF OLDER AND YOUNGER EMPLOYEES	3
B. OLDER EMPLOYEES - DISPELLING THE MYTHS	7
C. HUMAN RESOURCE ACCOUNTING	11
D. HUMAN RESOURCE ACCOUNTING MODELS	12
i Stochastic Reward Valuation Model	13
ii Economic Cost Model	16
iii Capitalisation and Amortisation of Human Assets	17
iv Historic Cost Model	17
v Compensation Model	18
vi Unpurchased Goodwill Model	19
vii Competitive Bidding Model	20
viii Replacement Cost Model	21
ix Measuring Human Resource Performance Value	23
E. HUMAN RESOURCE ACCOUNTING AND MANAGEMENT DECISION MAKING	25
F. POSSIBLE UNINTENDED EFFECTS OF HUMAN RESOURCE ACCOUNTING	29
G. PREDICTING TENURE	29
H. SUMMARY	33
CHAPTER 3 THEORY OF THE PRESENT STUDY	35

CHAPTER 4 DEVELOPMENT OF THE HYPOTHESES	38
CHAPTER 5 METHOD	45
A ETHICAL APPROVAL	45
B PARTICIPANTS	45
C DESIGN OF STUDY	47
D MEASURES	47
i Replacement Costs	48
ii Estimate of Performance Value	52
iii Job Evaluation	53
iv Job Satisfaction Index	53
v Organisational Commitment	54
vi Career Intentions	55
vii Probability of Tenure	55
E. PROCEDURE	55
CHAPTER 6 RESULTS	57
A PARTICIPANT CHARACTERISTICS	57
B HUMAN RESOURCE VALUE: DIFFERENCES BETWEEN OLDER AND YOUNGER EMPLOYEES	58
i Hypothesis 1 - Acquisition Costs	58
ii Hypothesis 2 - Development Costs	59
iii Hypothesis 3 - Separation Costs	60
iv Hypothesis 4 - Replacement Costs	61
v Hypothesis 5 - Estimate of Performance Value	62
vi Hypothesis 6 - Human Resource Value	63
vii Hypothesis 7 - Organisational Commitment	63
viii Hypothesis 8 - Job Satisfaction	64
ix Career Intentions	66

x Probability of Tenure	67
xi Correlations between Tenure, Performance Value and Psychological Variables	67
CHAPTER 7 DISCUSSION	68
A INTERPRETATION OF RESULTS	68
B IMPLICATIONS OF FINDINGS	73
C LIMITATIONS OF THE STUDY	75
D FUTURE RESEARCH	77
REFERENCES	79
APPENDICES	91
APPENDIX A - MODIFIED CASCIO AND RAMOS ESTIMATE OF PERFORMANCE IN DOLLARS	91
APPENDIX B - ORGANISATIONAL COMMITMENT QUESTIONNAIRE	95
APPENDIX C - CAREER INTENTION QUESTIONNAIRE	96
APPENDIX D - INFORMATION SHEET - INDIVIDUAL	97
APPENDIX E - CONSENT FORM - INDIVIDUAL	99
APPENDIX F - INFORMATION SHEET - COMPANY	100
APPENDIX G - CONSENT FORMS - COMPANY	102
APPENDIX H - JOB EVALUATION QUESTIONNAIRE	104

ACKNOWLEDGEMENTS

I am grateful to Ming Singer and Simon Kemp for the advice and guidance given throughout the development and writing of this thesis.

To all the companies and individuals who gave their time freely and generously, I extend my sincere thanks.

I would also like to thank and acknowledge the following people:

Clare Jamieson for her patience, encouragement and assistance.

The partners of Deloitte Touche Tohmatsu for their on-going support and in particular to Graeme McNally for his valuable advice.

Peter Macdonald for his continuous encouragement and support.

LIST OF TABLES

Table 2.1	The Population as a Ratio of those in Paid and Non-Paid Employment	4
Table 2.2	Age and Securing Employment within Three Months Following Redundancy	5
Table 2.3	SRVM Model for Accountants in a Chartered Accounting firm	14
Table 2.4	Calculation of Human Asset Value by the Unpurchased Goodwill Model	20
Table 2.5	Predictive Turnover Correlations	30
Table 3.1	Human Resource Value Formula	35
Table 6.1	Demographic Characteristics of the Older and Younger Participants	57
Table 6.2	Acquisition Costs for Older and Younger Employees	59
Table 6.3	Future Maintenance and Development Costs of Older and Younger Employees	60
Table 6.4	Mean Separation Costs of Older and Younger Employees	61
Table 6.5	Replacement Costs of Older and Younger Employees	62
Table 6.6	Mean Estimate of Performance Value between Older and Younger Employees	62
Table 6.7	Mean Estimate of Human Resource Value between Older and Younger Employees	63
Table 6.8	Organisational Commitment differences between Older and Younger Employees	64
Table 6.9	Job Satisfaction differences between the Older and Younger Age Group	65
Table 6.10	Career Intention Differences between Older and Younger Employees	67
Table 7.1	Hypotheses and Results Summary	68
Table 7.2	Calculating Potential Human Resource Costs and Losses	73
Table 7.3	Summary of Older and Younger Employee Costs and Performance Value	75

LIST OF FIGURES

Figure 2.1	Attitudes Toward Older Employees as Indicated by Recommended Manager Actions	6
Figure 2.2	Positional Replacement Cost Model	22
Figure 2.3	Overview of Research FOCI Regarding the Impact of HRA and Directions for Future Research	28
Figure 3.1	Replacement Cost-Job Performance Value Model	36
Figure 5.1	Older and Younger Employee Occupations	46
Figure 5.2	Age Distribution of Employee Participants	46
Figure 6.1	General Level of Job Satisfaction between Age Groups (n=13) as Indicated by the MSQ	66

ABSTRACT

There is ample evidence that age-related discrimination and stereotyping of employees over 50 years of age is endemic (Hassell & Perrewe, 1995). This study uses a Human Resource Accounting model to examine the differences in human resource value (replacement cost and performance value) between older (≥ 50 years) and younger (< 50 years). Investigations into the use of job satisfaction, organisational commitment and career intention (including intentions to quit), to predict tenure and develop a probability of turnover index were also conducted.

The study found no significant differences in replacement costs between older and younger employees, although older participants were found to outperform their younger counterparts. As the psychological data collected are not longitudinal, no significant correlations between the psychological factors and turnover were found.

Overall, the study found no significant difference in value between older and younger employees. These findings support the view that age-related discrimination in the workplace is unjustified.

CHAPTER 1 INTRODUCTION

Our "most valuable asset" is our human resource, is a phrase frequently quoted by many senior managers, even though specific knowledge of the value of the workforce, in financial terms, is likely to be unavailable or non-existent (Applebaum & Hoods, 1993; Eggers, 1974; Figler, 1975; Fitz-enz, 1993; Head, 1994; Lev & Schwartz, 1971; Liao, 1974; Luscombe, 1996, p3). A more accurate statement would be: "we believe our human resource is our most valuable asset, but the true value and financial contribution to the organisation is unknown." Indeed, Dewe's (1996) New Zealand-wide survey of Human Resource Accounting (HRA) systems was abandoned, as most of the organisations surveyed lacked basic HRA information in a form that could be used by human resource managers and senior executives. Consequently, managers often resort to using heuristics and subjective impressions when making important decisions. The lack of appropriate human resource information has many negative consequences, one of which is discrimination against older employees (Hassell & Perrewe, 1995). This is most evident when decisions are made relating to promotions, training and development allocation of rewards and downsizing (Rosen & Jerdee, 1977; Siegel, 1993).

There has been a considerable amount of research investigating age-related differences of cognitive functioning, physiological functioning, psychological dimensions, and on the job performance (Bennington & Tharenou, 1996; McEvoy & Cascio, 1989; Siegel, 1993; Sterns & Miklos, 1995; Walderman & Avolio, 1989; Warr, 1991). Unfortunately, much of the research appears to have had limited success in reducing age-related bias (Bird & Fisher, 1986; Kirchner & Dunnette, 1954; Rosen & Jerdee, 1977; Siegel, 1993; Sterns & Miklos, 1995; Warr, 1991). The job performance research tends to focus on supervisory and objective ratings without endeavouring to quantify employee value in financial terms (Commonwealth Fund, 1993; McNaught & Barth, 1992). As research comparing the financial value of human resources is limited, there is a pressing need to conduct further research to determine if the persistent bias against older employees can be elucidated (Finkelstein, Burke & Raju, 1995; Hassell & Perrewe, 1996; Sterns & Miklos, 1995).

Human Resource Accounting (HRA) and Human Resource Costing (HRC) methodologies offer a means by which employee value can be obtained (Flamholtz, 1985; Cascio, 1991). In particular, HRA and HRC methodologies may be used to measure the value of older and younger employees objectively. This is important to assist organisations:

- comply with legislation which bans age discrimination;
- identify, recruit, develop and retain a high quality, high performing workforce (Commonwealth Fund, 1993; Finkelstein et al., 1995; Fitz-enz, 1993; Hassell & Perrewé, 1995);
- obtain objective information to make decisions and reduce stereotyping of older (≥ 50 years) and younger (< 50 years) employees (Hassell & Perrewé, 1995; Finkelstein et al., 1995);
- treat employees in a fair and equitable manner, through equitable decision making practices (Hassell & Perrewé, 1995; Rosen & Jerdee, 1977; Siegel, 1993).

Despite legislation banning discrimination, the literature suggests that older employees (≥ 50 years) will face greater negative stereotyping, which can have a negative impact on subsequent employment, personal development and promotional opportunities, than younger employees (< 50 years) (Bennington & Tharenou, 1996; Commonwealth Fund, 1993; Hutchens, 1988; Osberg, 1993; Rosen & Jerdee, 1976a; Rosen & Jerdee, 1977).

This study responds to Finkelstein et al (1995) who stated further research to examine comparative human resource costs of older and younger employees is required to dispel or confirm the view, that older employees are less valuable than their younger peers. This study utilises a new and comprehensive approach to valuing older and younger employees using HRA (replacement cost) and HRC (performance value) methodologies (Cascio, 1991, Cascio & Ramos, 1986; Flamholtz, 1973; Flamholtz, 1985). It is hoped that this model will assist decision makers to evaluate older employees' contribution objectively and so minimise reliance on heuristics and stereotyping.

CHAPTER 2 LITERATURE REVIEW

There is a dearth of research examining the financial value of older and younger employees. Tacit and expressed perceptions and stereotypes and their contribution to organisations are typically negative and poorly quantified or qualified. This chapter examines the research concerning stereotyping of older and younger employees and proposes that HRA and HRC approaches are useful tools to identify individual employee value and consequently to break down age-related stereotypes. HRA and HRC methodologies are presented and evaluated to determine their relative merit for obtaining a comprehensive human resource value measure.

A. PERCEPTIONS OF OLDER AND YOUNGER EMPLOYEES

As political and social policies are implemented to remove age-related discriminatory practices, attitudes toward the employment of older employees have been more closely scrutinised. In New Zealand, Section 21 of the Human Rights Act (1993) will ban the compulsory retirement of the employees from 1 February 1999, and will be used in conjunction with existing legislation aimed at reducing age discrimination.

New Zealand and other western economies must grapple with the cost of supporting an increasingly ageing population (James, 1996; Statistics New Zealand, 1995a; 1996b). James (1996) has provided some indication of the proportion of working to non-working populations that may exist over the next ten years in the United States of America (USA), Europe, Australia and Asia. Statistics New Zealand (1995b) estimate the ratio of population who will be in paid employment compared to the remainder of the population in the year 2031 will be 1.6:1, assuming a working population to be in the 15 to 65 year range. Table 2.1 below summarises the findings from James (1992) and Statistics New Zealand (1995b).

Table 2.1 The population as a ratio of those in paid and non-paid employment (James, 1996; Statistics New Zealand, 1995b).

COUNTRY	RATIO OF THE PAID TO THE NON-PAID EMPLOYMENT POPULATION ¹
USA (James, 1996)	1.4:1
Europe (James, 1996)	≤1:1
Australia (James, 1996)	1.4:1
Asia (James, 1996)	2:1
New Zealand (Statistics New Zealand, 1995b)	1.6:1

In order to control the costs of the universal government-funded pension, presently the Guaranteed Retirement Income (GRI), the New Zealand government increased the age of entitlement to GRI from 60 to 65 years (Klap, 1996). Consequently, older employees will be more likely to continue in paid employment into their 70s and 80s due to financial pressures to maintain living standards and provide for health care (Burkhauser, 1978; Commonwealth Fund 1993; Sterns & Miklos, 1995).

Further evidence of employees increasingly working beyond age 65 was reported by Patrickson & Hartmann (1996). The study found 11% of the survey participants intended to retire after age 65, while another 32% stated they did not want to retire at all (Patrickson & Hartmann, 1996).

Evidence for negative and positive stereotypes toward older employees is considerable (Bird & Fisher, 1986; Commonwealth Fund, 1993; McNaught & Barth, 1992; Sterns & Miklos, 1995). For some, the result is sustained unemployment (Deloitte, 1994; Hutchens, 1988). Table 2.2 shows the difficulty older people have in securing employment following redundancy compared to their younger counterparts. Statistics

¹ Assumes a working population to be in the 15 to 65 year range.

New Zealand (1996a). also supports these findings and reports for the 55-59 year age group, the unemployment rate to be 3.9% and the work force participation rate to be 68.5%. The participation rate dropped to 39% for the 60 to 64 year age group. Osberg (1993) support these findings and report those over 45 years to be more likely to lose their jobs and to remain out of work for longer periods than those under 45.

Table 2.2: Age and securing employment within three months following redundancy (Deloitte Touche Tohmatsu, 1994, p20). Reprinted by permission of Deloitte Touche Tohmatsu.

Age Group (years)	Percentage of respondents who found a job within three months
20 - 29	86%
30 - 49	78%
50 +	62%

In the USA, perceptions, predominately of employers, toward those over 55 years of age were examined over a five-year period. The results showed that employers tend to see older employees as less flexible, more resistant to change, more difficult to train and more of a liability due to their increased healthcare costs when compared with those <55 years of age (Commonwealth Fund, 1993). Several studies concur that older employees are likely to be perceived as more accident prone, unable to maintain production schedules (less productive), less creative, disinterested in training and therefore less motivated to keep their skill levels and abilities current (Bennington & Tharenou, 1996; Bird and Fisher, 1986; Britton and Thomas, 1973; Finkelstein, Burke & Raju, 1995; London, 1992; Rosen & Jerdee, 1976a; Rosen & Jerdee, 1976b; Rosen & Jerdee, 1977; Siegel, 1995; Sterns & Alexander, 1988; Sterns & Miklos, 1995; Taylor & Walker, 1992; Worsley, 1996).

The strength and stability of negative perceptions of older employees was remarked by Bird & Fisher (1986). They replicated Kirchner & Dunnette's (1954) study of attitudes

of workers and supervisors toward older employees and found the negative beliefs supervisors held toward older employees had remained virtually unchanged for over 30 years (Bird & Fisher). These negative attitudes may result in reduced funds for training and less opportunity for promotion for older employees compared to their younger counterparts (Rosen & Jerdee, 1977). A brief summary of these findings are presented in Figure 2.1.

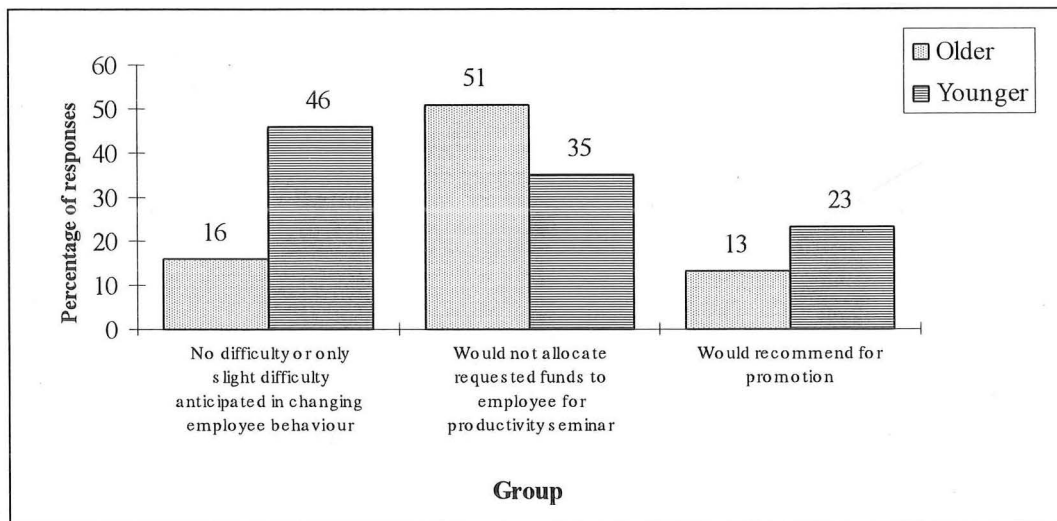


Figure 2.1: Attitudes toward older employees as indicated by recommended manager actions (Rosen & Jerdee, 1977).

O'Meara (1977) and Smith & Hoy (1992) found businesses, particularly small ones, to be youth-orientated and therefore preferred to attract younger employees, who were considered to be more productive. These negative attitudes also have effects beyond recruitment and selection. In 1982, a US House Select Committee on Ageing indicated that 80% of the working population believed personnel systems within organisations were biased against older employees. In particular, performance appraisal systems were seen to be open to bias and produce unfair ratings of older employees (Commonwealth, 1993).

It appears that the negative perceptions toward older employees are deeply entrenched and are maintained even when compelling evidence to the contrary is available (Hassell &

Perrewe, 1995; Worsley, 1996). For example, Siegel (1993) found that when levels of performance between older and younger employees are equal, younger employees are more likely to be promoted. The research indicates that performance ratings per se are not biased against older employees, rather, prejudice and bias have been shown to prevail against older employees, even when the evidence (performance ratings) does not support such views (Siegel, 1993). London (1992) also reports that bias toward older employees (potential and current) may be particularly difficult to change as these negative perceptions may be concealed beneath a publicly displayed, politically correct corporate image.

Despite negative views, there is considerable evidence that employers may also hold positive stereotypes and perceive older employees to be more loyal, conscientious, dependable, co-operative, motivated, skilled, productive and committed to the organisation. Absenteeism rates are also typically perceived to be lower for older compared to younger people (Commonwealth Fund, 1993; Dennis, 1988; Hassell & Perrewe, 1995).

The stereotypes presented above highlight employer perceptions. The next section will present and contrast age-related perceptions with age-performance and age-value research.

B. OLDER EMPLOYEES - DISPELLING THE MYTHS

The negative perceptions that are often held toward older employees contrasts with related empirical research. One of the most notable studies that has compared the costs and benefits of hiring older (≥ 50 years) and younger employees (< 50 years) was conducted at Days Inns, a hotel chain in the USA (McNaught & Barth, 1992). It showed that older employees with no previous experience could be trained to operate the computer system in the same time as younger cohorts. Older employees were found to be better sales people (i.e. more likely to sell additional reservations and services) than

younger employees. The older group took longer to deal with enquiries, but the additional time with customers was outweighed by the additional sales revenue obtained. McNaught & Barth's (1992) findings concur with two previous studies of Keller & Quirk (1973) and Sonnenfeld (1989), both of which found older sales clerks in department stores outperformed their younger counterparts. Interestingly, Keller & Quirk's (1973) work found sales clerks' peak performance was at age 55.

There is some evidence that older workers are typically less expensive to organisations in terms of recruitment, turnover, accidents, sickness and absenteeism compared to younger employees (Warr, 1991). In fact, McNaught & Barth (1992) found the average tenure of older employees was three years, compared one year for the younger cohort. Employment costs for older employees (\$11,173) were less than younger employees (\$12,253), showing that long-term, older employee recruitment and selection costs are less.

Further evidence that there is little difference in value between older and younger employees is specified in the results of a 30,000 person meta analysis found a weak, but positive correlation between performance and age (McEvoy & Cascio, 1989). A subsequent review of several large meta analyses, including that conducted by McEvoy & Cascio (1989), also found a weak relationship ($r = 0.06$), between age and job performance (as measured by objective and supervisory ratings) (Sterns & McDaniel, 1994, cited in Sterns & Miklos, 1995). The correlation between job performance and age for non-professionals was found to be weak ($r = 0.06$), while the relationship between job performance and age for those employed in professional occupations was similarly weak and negative (-0.08) (Sterns & McDaniel, 1994, cited in Sterns & Miklos, 1995).

The correlation between age and job performance for younger employees was found to be low ($r = 0.16$) and probably reflected the job knowledge (that is required) to achieve satisfactory job performance (Sterns & McDaniel, 1994, cited in Sterns & Miklos, 1995).

Differences in age and performance also appear to vary significantly among various occupational groups. For example Rhodes (1983) and Waldman & Avolio (1986) report positive, negative, non significant and inverted U correlations for blue collar workers, engineers, scientists, clerical workers and scholars (Rhodes, 1983; Waldman & Avolio, 1986).

An opposing view was reported by Hellerstein & Neumark's (1993) investigation of the relationship between earnings, age and productivity. They found earnings of middle aged (35-54 years) and older employees (≥ 55 years) were 1.22 times and 1.34 times greater than that of younger employees. These ratios were almost identical to the comparative levels of productivity for the younger, middle and older groups. Although older employees were paid more than younger employees, the level of remuneration was appropriate, given that older employees were typically more productive than their younger counterparts. These findings have yet to be replicated.

There is considerable evidence that older employees' physical capacities, fluid intelligence, reaction time, working memory and risk taking behaviours are lower than younger employees (Bowers, 1952; McDonald, 1988; Rhodes, 1983; Sonnenfeld, 1989; Sonnenfeld, 1988; Sterns & Miklos, 1995; Vroom & Pahl, 1971; Warr, 1994). However, it appears that wisdom (knowledge through experience) and expertise can moderate and compensate for age-related losses of ability (Warr, 1994). Older managers also tend to be more able to make sense of, and to be more skilled in gathering and utilising new information compared to their younger counterparts. Consequently, overall decision making efficiency is likely to be higher for the of older employee (Pinder & Pinder, 1974; Sonnenfeld, 1989; Sonnenfeld, 1988).

Negative stereotypes about the health of older employees are common. In reality, it appears only a minority of older people are hampered by health problems in terms of their capacity to perform tasks at home or at work (Sterns & Miklos, 1995). In fact Sterns & Miklos (1995) report that only 20% of people in the 65 to 68 year age group

and 22% of 69-74 year olds indicate they are "limited in the amount or kind of activities they can perform" (Sterns & Miklos, 1995, p252). Mitchell's (1988) study of accident rates found employees under 25 were more likely to suffer temporary injury, while those over 65 were likely to suffer a disabling or permanent injury. No differences in the type of accident suffered were reported in the 25 to 65 year age group. Loss of visual acuity and reduced physical strength may play an important part in accidents and it could be argued that the lack of physical ability, rather than age, is a more important factor. In other words, all employees, irrespective of age, who have lower physical abilities (visual acuity, strength, reactions) have a greater likelihood of involvement in accidents than their more able-bodied counterparts. Therefore, provided older employees perform tasks that are suited to their physical or mental abilities, there is no reason to believe they will be more prone to accidents.

There is evidence that older employees take significantly longer to train than their younger counterparts (Bennington & Tharenou, 1996; Commonwealth Fund, 1993; McNaught & Barth, 1992; Sterns & Miklos, 1995). Elias, Elias, Robbins & Gage (1987) reported that older employees may indeed require more time to learn to use new technologies. However, with practice and training to overcome fear of technology, differences in performance between older and younger employees are likely to be small (McNaught & Barth, 1992).

When empirical data are analysed, differences in performance between older and younger employees are generally not significant. As Warr (1991) and Sonnenfeld (1989) noted, within group differences are larger than between group differences. Despite this finding, stereotypical attitudes and beliefs toward older employees remain, and are frequently held to the detriment of older employees (Hassell & Perrewé, 1995).

C. HUMAN RESOURCE ACCOUNTING

Human Resource Accounting (HRA) began in the 1960's, at which time it was referred to as Human Asset Accounting. Research continued in earnest during the 1970's and early 1980's but HRA did not develop conceptually or practically sufficiently to be accepted by managers or accountants (Dawson, 1994b; Roser, 1983).

The difficulty some accountants and senior executives have in accepting the merits of HRA were highlighted by DeWelt (1977). Rather than focus on the potential benefits of HRA, criticism of the lack of conformity to accounting conventions was common during the 1970s and 1980s (Caplan & Landekich, 1974). The "accounting hegemony" that has dominated management thinking is postulated by Dawson (1989, p4) to be responsible for the lack of advances in HRA. According to Luscombe (1996) current accounting conventions fail to measure the intellectual capital within organisations, which is the source of its competitive advantage. *New accounting approaches are required to "measure, manage and value" the workforce* (Luscombe, 1996, p3).

Given that the 1980s and 1990s have seen a shift from manufacturing with traditional capital investment, to service industries with their heavy reliance on effective and efficient use of human capital, it is surprising that HRA has not been more widely developed and accepted (Dawson, 1994b). However, HRA appears to be experiencing something of a "revival" (Dawson, 1994b, p46). The recent interest has been fuelled by increased concern for productivity, developing or maintaining a "sustainable competitive advantage," and the ability of organisations to identify employee value (Dawson, 1994b; Roslender & Dyson, 1992, p323; Sackmann, Flamholtz & Bullen, 1989).

HRA may also provide the means by which the comparative financial contributions of older and younger employees can be assessed. Finkelstein et al. (1995, p661) recommend further research would assist to clarify the validity of "economically based age stereotypes" (that is, the extent hiring and replacement costs are significantly higher for older compared to younger employees).

The Economist (1995, issue 940, p63) states that "the market capitalisation of some companies is now more than ten times the book value of their tangible assets." Dalmahoy (1996, p27) states "either the markets are horribly wrong" or there is a need to formally identify the contribution employees are obviously making to the value of businesses .

According Sackmann et al. (1989, p236) HRA has three major functions:

1. "to provide organisations with objective information about the cost and value of human resources;
2. to serve as a framework to guide decision making (*especially to reduce age-related bias²*);
3. to motivate decision makers to adopt a human resource perspective."

The next section presents an analysis of a number of potential HRA methodologies that may be used to compare the value of older and younger employees. To date, no known research comparing the value of older and younger employees in such a comprehensive manner, has been undertaken.

D. HUMAN RESOURCE ACCOUNTING MODELS

Most organisations in New Zealand have little or no objective human resource information that can be used to guide human resource related decisions (Dewe, 1996). With no objective information available, decision makers then resort to using subjective impressions and rules of thumb, one of which includes stereotyping (Finkelstein et al., 1995; Hassell & Perrewe, 1995; Rosen and Jerdee, 1977; Siegel, 1995; Sterns & Miklos, 1995).

² My italics.

This section presents and discusses the potential of eight alternative HRA models that may be used to obtain a comprehensive human resource value for employees in sales and production positions.

i Stochastic Reward Valuation Model

The Stochastic Reward Valuation Model (SRVM) was developed to measure the value of human assets, and takes a longitudinal perspective to the valuation of employees. A measure of value is obtained by measuring the **conditional value** (the maximum expected potential value that can be derived from an individual employee, under the assumption that the person never leaves the organisation) as well as **realisable value** (the expected value of an individual employee subject to the likelihood that he or she may leave during the anticipated service life) (Flamholtz, 1971; Flamholtz, 1974; Flamholtz et al., 1988; Flamholtz & Wollman, 1978). The SRVM provides a measure of employee value by

1. defining the positions (states) an employee may hold in an organisation;
2. determining the value of each state to the organisation;
3. estimating future tenure in the organisation;
4. identifying the probability an employee will occupy each position (see Table 2.3 below) (Dawson, 1994b; Flamholtz & Wollman, 1978).

Table 2.3 SRVM Model for Accountants in a Chartered Accounting Firm (Searfoss & Coff, 1988, Exhibit 3, p6). (Reprinted by Permission of the Accounting Horizons, University of Oregon).

Job Level in Year T	Accountant Classification in Year T + 1					
	Partner	Manager	Supervisor	Senior Accountant	Accountant	Exit
Partner	0.90					0.10
Manager	0.15	0.75				0.10
Supervisor		0.30	0.50			0.20
Senior Accountant			0.35	0.40		0.25
Accountant					0.90	0.10
Exit						1.00

As seen in the example of the SRVM in Table 2.3 above, a senior accountant during the year T has a 35% chance of promotion to supervisor, a 40% chance of remaining a senior and a 25% chance of exiting the firm in the following year (T + 1). It is assumed that once a person exits from the firm, there is little chance that person will return. Thus the probability of a person in the "exit" state remaining in that state in the following year is 1.00.

The SVRM model has been used with some success in specific environments such as Chartered Accounting firms, where employee value can be measured relatively easily from the level of income generated (Flamholtz, 1985; Flamholtz & Wollman, 1978). However, obtaining a reliable measure of human resource value when applying the SVRM outside the Chartered Accounting environment appears to be problematic due to the difficulty in identifying an accurate income level for those positions that do not normally generate significant income such as production, secretarial and administration-type positions (Dawson, 1994a). However, factors outside the individual employee's control can also influence the value of individual output, positively and negatively (Sadan & Auerbach, 1974). Thus obtaining a value can be difficult. Predicting tenure using historical and subjective forecasts has yet to be validated or demonstrated in applied settings. In a five year longitudinal study, Flamholtz (1975) endeavoured to obtain a measure of employee value using supervisor, peer and participant subjective predictions

of tenure. Despite high correlations between supervisors, peers and participants, the predictive validity of the approach was not conclusive. Supervisor predictions of tenure were found to be most accurate. Self ratings of tenure were of doubtful utility (Flamholtz, 1975).

The prediction of mobility using only historical information is more difficult when there have been significant changes in economic activity. Dittman, Juris & Revsine (1976) reported that as labour markets tightened, employee mobility rose. In other words, as the ratio of the pool of potential employees to the number of available positions in the economy declines, employee mobility will be easier and will therefore be more likely occur. This has certainly been the case in New Zealand over the last decade. The usefulness of historical turnover and internal mobility are therefore at best likely to be imprecise and more probably inaccurate.

Another disadvantage of the SRVM, is that it does not take account of the prevailing internal market conditions which may result in employee value rising and falling, with the level of available employees to perform similar tasks (Dawson, 1994a). Dawson's (1994a) study, which compared the value of employees from the SRVM and Replacement Cost Model, highlighted the need for a broader range of internal factors (e.g. technology use, restructuring) and external factors (e.g. economic activity, competition) to be included in a more comprehensive predictive model. It is suggested that further research into the possible integration of individual psychological and economic dimensions to predict turnover, would potentially have broad and general application.

Sadan & Auerbach (1974) claimed that organisations can increase the certainty that individuals will stay with their current employers by having written contracts of employment. However, in New Zealand, fixed term individual employment contracts cannot tie an employee to an employer for the full term of the contract. The sole use of employment contracts to predict tenure is likely to be low. The only notable exception

are contracts of employment for professional athletes which appear to be more reliable due to enforceable restraint of trade conditions.

Initial approaches to organisations who were likely to participate in this study revealed that detailed records of internal mobility and turnover were unlikely to be available. Mobility probabilities were therefore likely to be highly subjective. Consequently the SVRM was considered to be inappropriate for use in this study. It is suggested that with further research, psychological dimensions of job satisfaction, organisational commitment and intention to quit, may provide more stable measure of employee mobility and turnover (Cohen, 1993; Tett & Meyer, 1993).

ii Economic Value Model

The earliest Economic Value Model was introduced by Lev & Schwartz (1971), who proposed employee value was equivalent to the capital value of future earnings over their useful working life, discounted to present value (Caplan & Landekich, 1974; Irving, 1979). An advantage of this model is that organisations are able to examine rates of return from capital and human investments. The value of employee groups may be compared to determine the extent to which high value employees are retained.

Not surprisingly, several disadvantages have been identified. Irving (1979, p11) described this method of valuation as less a measurement than it is a "subjective evaluation." It is likely that the value of older employees may be under-predicted as their potential working life is significantly less when compared to younger employees (Flamholtz, 1985). The actual value of future benefits is likely to be difficult to measure, highly unreliable and probably not a valid measure of actual employee value (Caplan & Landekich, 1974). There is no published evidence that the model has been empirically validated. General application beyond sports organisations where individual value can be attributed to the value of the contract, is also likely to be problematic. Consequently,

this model was not considered to be an appropriate method of costing or valuing human assets.

iii Capitalisation and Amortisation of Human Assets

Capitalisation of human assets and amortisation of these investments over their useful life is seldom used. The method tends to be restricted to human resource intensive firms such as airlines and professional sport organisations (Flamholtz, 1985). Of the limited studies identified in the literature, Bell's (1988) investigation of Victoria Football League (VFL) found amortisation over the term of the contract (useful life of the asset) to be widespread, as players tend to sign contracts for a fixed term. An American football team, (the Milwaukee Braves) have also used this approach to capitalise and amortise their human resources (Flamholtz, 1985).

A major weakness of the model is determining what to capitalise, and what can be considered a useful service life, in order that the capitalisation and amortisation of human assets can be applied (Flamholtz, 1985). At best, service life can only be an estimate, even if restraint of trade clauses are included in contracts, or if the contract is for a fixed term, as these types of contracts, apart from sporting type contracts, being generally difficult, if not impossible to enforce (Employment Institutions Information Centre, 1996). Given that service life is difficult to predict and enforce, this approach was considered inappropriate for this study.

iv Historic Cost Model (HCM)

The Historic Cost Model is concerned with the actual costs that have **been** incurred in acquiring employees (Dawson, 1994b). Two models for calculating historic cost (HC) have been proposed (Flamholtz, 1974, p67).

$$1. \quad HC = \text{recruitment costs} + \text{selection costs} + \text{hiring costs} + \text{placement costs} + \text{trainer time} \\ + \text{lost productivity during training};$$

2. $HC = \text{recruiting outlay costs} + \text{acquisition costs} + \text{formal training and familiarisation costs} + \text{investment building experience costs} + \text{development costs}.$

The model generally conforms with accounting conventions as a measure of value. However, as with other models, its use is restricted as many organisations do not collect or maintain detailed historic human resource costings (Bromwich, 1984; Scarpello & Theeke, 1989). The historic costs of acquisition may also bear little resemblance to current costs, and therefore, do not accurately reflect current employee value (Scarpello & Theeke, 1989). Separation costs, and costs associated with loss of productivity, loss of revenue (sales and customers) are not included in the model (Jaggi, 1974). Historical costs alone are inadequate for providing useful economic information for decision making purposes (Scarpello & Theeke, 1989). Consequently, this model was thought inappropriate for this study.

Despite the disadvantages of HCM, it does highlight the need for additional output or performance measures in order that a comprehensive measure of employee value can be obtained.

v Compensation Model

Compensation is measured as an employee's level of remuneration (salary, commissions and additional benefits). Hermanson (1964, cited in Flamholtz, 1974) proposed that salaries could be used to measure employee value. By forecasting future levels of compensation and discounting it to the present worth, a measure of the human resource value is obtained.

Limitations of the Compensation Model include:

1. it ignores variable levels of individual productivity which may not be reflected by the level of compensation received;
2. future value will only be approximate, as continued tenure and actual future salaries can only be estimated (Flamholtz, 1985);

3. this model does not give consideration to turnover or career movement (Jaggi, 1974);
4. labour market salaries alone will not always give an accurate measure of value, as many salaries may reflect a combination of skills that are marketable, as well as those that are unique and do not have a relevant market value (Scarpello & Theeke, 1989);
5. the model does not include a process for evaluating and valuing individual employee performance.

This model was therefore deemed to be inappropriate for this study.

vi Unpurchased Goodwill Model

Goodwill is the amount that is typically allocated to a purchase price and represents the difference between the purchase price, and the value of the business physical assets when a business is sold. However, as the value of human resources may be required by decision makers, without resorting to selling the business, a methodology (Unpurchased Goodwill Model) to value human resources was developed (Flamholtz, 1985).

This model applies a compensating factor when the "purchase price of a firm is greater than the physical assets" (Stabile, 1993, p180). The model values human assets by comparing the organisation's net income with industry net income norms (Flamholtz, 1974). Any variances between the organisation and industry net incomes norms are seen as the asset value. See Table 2.4 below. The difference, between the asset value and purchase price, gives an indication of the value of the organisation's human resources (Flamholtz, 1985).

Table 2.4: Calculation of Human Asset Value by the Unpurchased Goodwill Model (Flamholtz, 1974, p181). (As Dickenson Publishing, Belmont California have ceased trading permission to use this table was obtained from Professor E.G. Flamholtz, University of California).

	FIRM			INDUSTRY
	A	B	C	
Total Owned Assets	\$100,000	\$200,000	\$300,000	\$600,000
Net Income	\$20,000	\$10,000	\$30,000	\$60,000
Ratio of Income to Assets	20%	5%	10%	10%
Net Income at 10%	\$10,000	\$20,000	\$30,000	\$60,000
Variance	\$10,000	(\$10,000)	Nil	Nil
Human Assets (capitalised at 10%)	\$100,000	(100,000)	Nil	

The limitations of this model are:

1. it assumes that human resources are primarily responsible for differences in earnings among firms;
2. location, monopoly (e.g. electricity supply authorities), patents, diversification and technological contributions are ignored (Scarpello & Theeke, 1989; Jauch & Skigen, 1974);
3. the value of human resources is typically only derived where the organisation is either sold, or where earnings exceed the industry average (Flamholtz, 1974);
4. the model does not attempt to identify value at an individual employee level.

As this study required an individual employee value be obtained, the model was not considered appropriate in this instance.

vii Competitive Bidding Model

According to the Competitive Bidding Model, scarce resources under go an intra-organisational bidding process to determine resource allocation, and assess the value of employees (Hekimian & Jones, 1967). In the event resources can be hired externally, the

resource is no longer considered scarce and in such instances, “competitive bidding” is not required (Dawson, 1994b).

While this model may work well when there is a suitable pool of employees whom can compete for a particular position, this model does not give recognition to the value of employees who are not considered to be scarce, but who are valuable to the organisation. Consequently, the contribution made by employees is unlikely to be quantified or recognised (Flamholtz, 1985). The bidding process is potentially invalid because it places a value on an employee that does not reflect actual productivity or value. Overall, the model has limited application if employee value and contribution are to be measured.

viii Replacement Cost Model (RCM)

The Replacement Cost model has two distinct parts, positional and personal. The Positional Replacement Cost Model (PRCM) is concerned with assessing the costs associated with replacing existing employees with a person who can provide an equivalent range of services (Cascio, 1991; Flamholtz, 1985; Klaasen & Verburg, 1984). Using the PRCM, a measure of employee value is obtained from *acquisition costs* (recruitment, selection, hiring, placement), *learning costs* (on and off the job training, loss of production while training) and *separation costs* (separation pay, loss of production due to separation, loss of efficiency prior to separation) (Applebaum & Hood, 1993; Flamholtz, 1985; Flamholtz, 1973). Figure 2.2 below, identifies the way in which these separate components are linked together to obtain a total positional replacement cost.

The second part of the Personal Replacement Cost approach focuses on replacing the person who has, or is about to leave an organisation. It focuses on the personal abilities and attributes, the value of particular skills, and costs relating to loss of sales,

production, productivity and profitability following an employee's departure from an organisation.

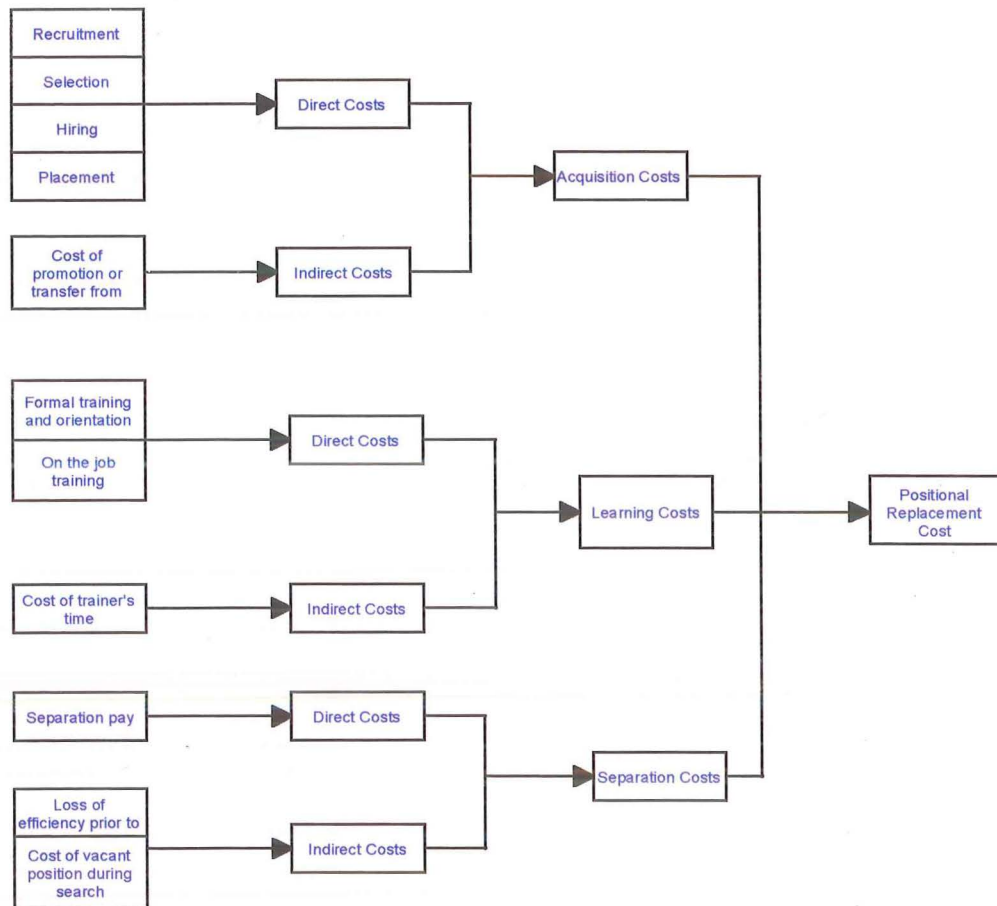


Figure 2.2. Positional Replacement Cost Model (Flamholtz, 1973, p11). Reprinted by permission of the University of Michigan, publishers of the journal, Human Resource Accounting).

The limitations of the RCM include:

1. the model may lead to upward biases of value (replacement costs) in organisations that are inefficient (Dawson, 1994a). Conversely, organisations which improve efficiency, may show a decline in replacement costs, and therefore in the value of its human resources (Dawson, 1994a);
2. the value of individual performance or output is not objectively measured or quantified (Cascio, 1991; Caplan & Landekich, 1974);

3. the economic impact of employees leaving an organisation e.g. legal costs and reduced sales, production, productivity and loss of high performing employees are typically not assessed by the RCM (Hirsch, 1994; Scarpello & Theeke, 1989);
4. there is a limited amount of empirical research (Scarpello & Theeke, 1989).

One study which investigated the validity of replacement costs for 31 people in a sales team found positional replacement costs to correlate highly with supervisor evaluations of employees and correlated moderately with peer evaluations. The study concluded that positional replacement costs provide valid measures of individual value, provided evaluations were carried out by supervisors (Flamholtz, 1975).

Despite its limitations, replacement cost information is known to assist decision makers, who are typically managers, to make investment decisions, optimise the mix of positions and employees, and make decisions to recruit and develop existing employees (Flamholtz, 1975; Flamholtz, 1984; Flamholtz, 1987; Flamholtz et al., 1988; Ogan, 1988; Oliver & Flamholtz, 1978; Schwan, 1976; Tomassini, 1977). Its inclusion, combined with an estimate of performance value model, (the CREPID Model), provides a comprehensive and robust measure of human resource value.

ix Measuring Human Resource Performance Value

Flamholtz (1985, p6) states that HRA has the "potential of leading a re-conceptualisation of the management of people in organisations," However, more basic and applied research is required to advance the application of HRA further (Sackmann et al., 1989).

Despite Dawson's (1994b, p50) comment that the RCM has "limited utility," it has been empirically tested, and of the models available, thus far, it is the only one that appears to have general application (Flamholtz, 1984; Flamholtz, 1987; Flamholtz & Oliver, 1978; Flamholtz et al., 1988; Harrell & Klick, 1980). The SVRM, while having some promise

in a Chartered Accounting or consulting environment, is limited in general industrial and commercial settings, due to its emphasis on income generation at an individual level.

As mentioned previously, one disadvantage of the RCM is that this model does not include a methodology to measure individual performance. Therefore, there is a need to further develop the RCM to ensure replacement costs, the financial impact of losing individual talents due to separation (which may include loss of sales, productivity or production) and performance value, are included in a comprehensive human resource value model (Carter, 1994; Dawson, 1994a; Flamholtz, 1985; Flamholtz, 1971; Jauch & Skigen, 1974; Scarpello & Theeke, 1989).

A measure of individual employee performance value using a modified Cascio Ramos Estimate of Performance in Dollars (CREPID) is used in the present study as it has previously been used to obtain an estimate of employee performance value for sales type positions (Cascio, 1991; Cascio & Ramos, 1989; Edwards, Frederick & Burke, 1988; Greer & Cascio, 1987; Riely & Smither, 1985). The CREPID model assess performance value by assessing the extent employee performance is below, or above the average level of peer performance.

Many organisations who might potentially be involved in the present study were likely to employ sole specialist sales and production employees. Consequently, the conventional CREPID approach of rating and valuing employee performance by comparing performance levels with an average level of performance has been modified. Each position was rated using a combination of objective information (e.g. production and sales outputs), manager ratings (e.g. team participation, staff management ability and satisfying customers' needs) and, where possible, self ratings (Bommer et al., 1995; Bretz & Milkovitch, 1992). This approach is intended to maximise the overall accuracy of the evaluation and minimise potential manager and employee biases (Bommer et al., 1995; Carter, 1994; Cascio, 1991; Flamholtz, 1975).

Competency ratings are also used to evaluate knowledge and skills where these important dimensions could not be assessed by any other means or where direct output measures are inappropriate (Bommer et al., 1995; Burchell, 1995; Rudman, 1995).

E. HUMAN RESOURCE ACCOUNTING AND MANAGEMENT DECISION MAKING

Given that organisations use a variety of information to guide decisions (financial, economic projections, market demand, competitor activity), it is surprising that little use is made of HRA to guide and assess human resource management decisions.

To avoid and minimise errors in management decisions Fitz-enz (1993) and Flamholtz (1987) propose that HRA provides a useful framework to facilitate effective decision making by providing quantitative information relating to the value of the workforce at an individual and group level.

As long as 30 years ago, HRA was promoted as having the capacity to provide valuable information for investors, when making decisions relating to investment and utilisation of human assets (Brummet, 1974; Brummet, Flamholtz & Pyle, 1969; Craft & Birnberg, 1976; Irving, 1979; Sackmann et al., 1989). In 1972, an empirical study demonstrated that the inclusion of HRA information in the financial accounts provided valuable information to guide and influence investor decision making (Elias, 1972). Using simulated investors, (finance students), Hendricks (1976) found human resource cost information (amortised historical costs) to significantly and positively influence stock investment decisions, when compared with those who were not supplied with the same information.

Another early study examined the extent to which human resource cost information influenced management's ability to plan and manage future costs and human resource quality effectively (Schwan, 1976). Sixty investment analysts and bank managers from

nine large banks in the USA were supplied with information. One group was provided with human resource data (human resource costs were amortised over a five year period), the other, conventional accounting data, in which human resource costs were recorded as expenses incurred during the accounting period. Those supplied with human resource data were found to make significantly superior decisions relating to the bank's predicted income, and ability to meet future challenges and opportunities (Schwan, 1976).

Two studies have reported that HRA, in the form of replacement cost information, to have a positive impact on the quality of decision making by simulated managers (students) (Oliver & Flamholtz, 1978; Tomassini, 1977). A subsequent study found replacement cost information to be of significant value in assisting real managers make decisions relating to: acquisition (actual costs relating to recruitment, selection and placement); development (facilitated acquisition, development-recruitment trade offs, as well as quantifying development costs); conservation (costs relating to turnover control programmes) and evaluation and rewards (provided measures to permit analysis of compensation in relation to replacement costs) (Flamholtz, 1984).

In a similar study, Ogan (1988) had two groups of real managers examine the impact HRA had on decisions to lay off staff. A control group was given conventional data only (salary savings), the experimental group HRA (re-hiring and replacement costs) and conventional accounting data (Ogan, 1988). Higher quality decisions were made in terms of minimising re-hiring and replacement costs by managers supplied with HRA information. Interestingly, the control group managers endeavoured to incorporate subjective estimates of HRA costs into their layoff decisions.

There is considerable evidence to support the view that during downsizing, organisations will lay off both productive and unproductive employees. Sadly, older employees' real contribution and worth may be ignored in favour of ageist stereotypes (Hassell & Perrewe, 1995; Warr, 1991; Worsley, 1996). Human Resource Accounting appears to

offer significant potential to provide organisations with information relating to costs and potential long-term losses in productivity and profitability (Flamholtz, 1984; Hermanson, Ivancevich & Hermanson, 1992; Ogan, 1988; Oliver & Flamholtz, 1977; Tomassini, 1977).

Further empirical support for HRA has been provided by Flamholtz et al. (1988), who investigated the extent to which HRA influenced management decision making at Deloitte & Touche (USA). Human Resource Accounting information was found to assist with decisions relating to: recruitment and career planning; determining replacement costs; developing turnover probabilities; and determining hiring versus training cost differentials. These findings were consistent with an earlier study in which executives found HRA cost information, relating to replacement and training to be useful when making promotion decisions. Even when other non-monetary information (work history, employee rating, education and training history) was available, the usefulness of HRA remained (Harrell & Klick, 1980).

To date, the cumulative research highlights that HRA information has an important impact and effect on employee behaviours and attitudes, as well as management decisions (Sackmann et al., 1989). Figure 2.3 below highlights how HRA information can impact on intra and extra-organisational decisions, including decisions relating to acquisition, development, performance evaluation and promotion.

Not unexpectedly, the use of HRA as a means to derive a monetary or an economic value of employees has a number of critics. Re-occurring themes include:

1. concerns that people are considered solely as assets, particularly economic (Phillips, 1992; Sackmann et al., 1989; Scarpello & Theeke, 1989). This philosophical issue is not new. The concept of people being considered as human resources has raised similar debates that continue today.

2. the reliability of HRA accounting measures, especially as the various HRA methodologies presented are likely to produce different dollar values (Phillips, 1992; Scarpello & Theeke, 1989).
3. until more empirical research is conducted into the use of HRA methodologies, problems with generalisability will remain. For example the use of the SVRM outside Chartered Accounting or consulting organisations is likely to be limited.

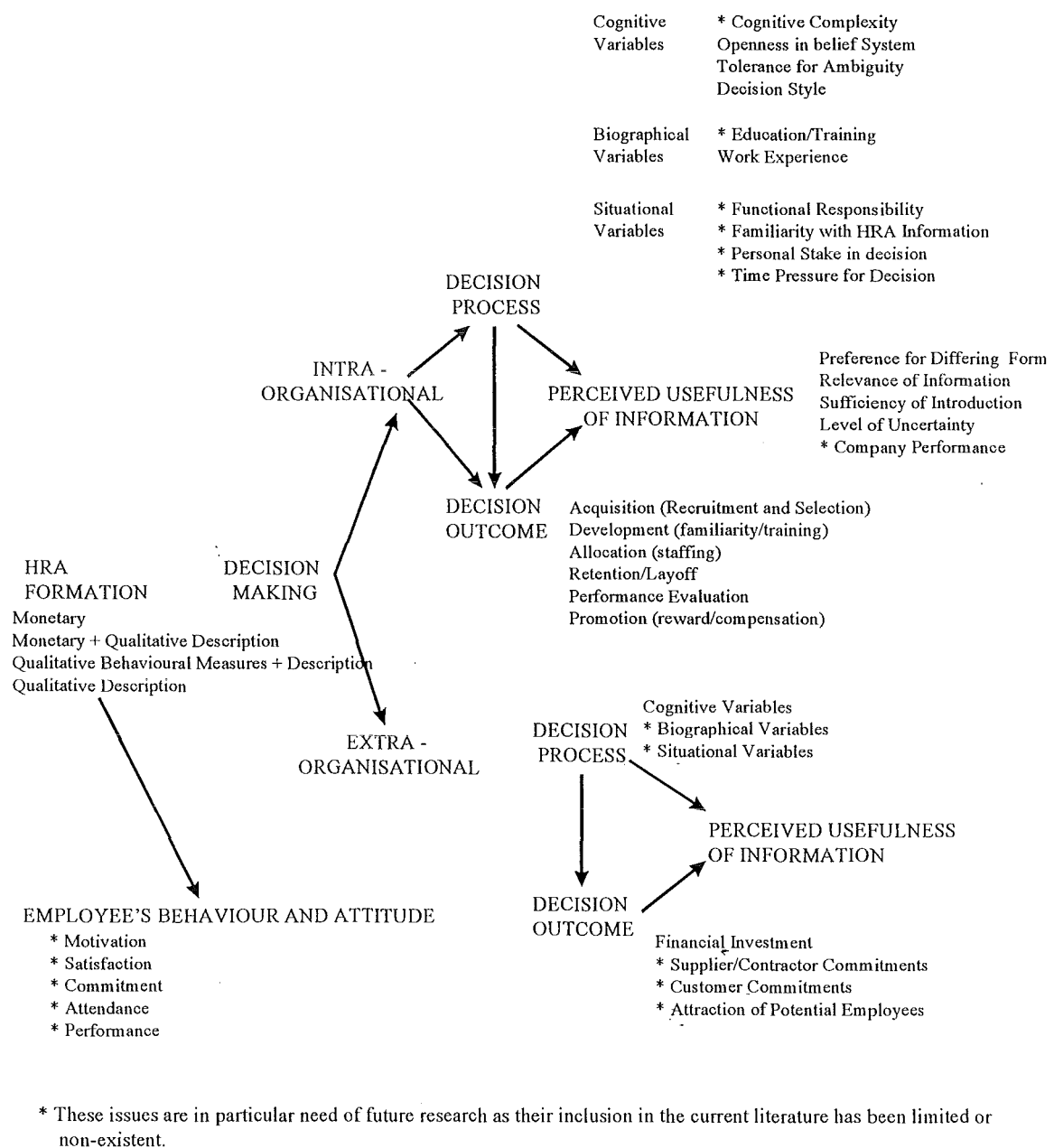


Figure 2.3: Overview of research FOCI regarding the impact of HRA and directions for future research (Sackmann, Flamholtz & Bullen, 1989, p261). Reprinted by permission of the Journal of Accounting Literature, University of Florida).

While universal agreement on an HRA model has yet to be obtained, a number of approaches have withstood empirical testing. This study has adopted methodologies which have demonstrated validity and utility in decision making in experimental and applied settings.

F. POSSIBLE UNINTENDED EFFECTS OF HUMAN RESOURCE ACCOUNTING

While offering a range of potential benefits to organisations, particularly to assist managers and others make sound decisions, the use of HRA may produce unintended effects. These are:

1. human resource valuation could potentially increase employee bargaining power. In this study, four companies withdrew their participation as they felt employees may be able to use the replacement cost and performance value information as a significant bargaining tool to assist their bargaining initiatives.
2. human resource value may have negative effects on employees whose value is falling. In this instance, careful management to minimise harm to self esteem would be required.
3. some managers may find being accountable for improving the value of the workforce threatening. Implementing HRA will therefore require skilled and careful management (Rhode et al., 1976).

Such unintended effects are a significant threat for employees and employers. Organisations which contemplate using HRA information need to be aware of the impact of these potential negative effects.

G. PREDICTING TENURE

An asset in accounting terms must have some future benefit to the organisation. Therefore, the value of employees can at present only be defined as an asset if tenure can readily and accurately be predicted, at least for the subsequent 12-month accounting

period. To date, models that have included probability of tenure in human resource valuation calculations are SRVM and Economic Cost Models (Flamholtz, 1985; Ogan 1976; Flamholtz, 1972a). However, subjective judgements and historical turnover trends have been the primary method for identifying tenure.

Three psychological dimensions have been reported to have moderate levels of predictive ability. These are job satisfaction, organisation commitment and career intentions (including intentions to leave) (Cohen & Hudecek, 1993; Dawson, 1994a; Juris & Revsine, 1976; Rhode, Sorensen, & Lawler, 1977; Tett & Meyer, 1993; Williams & Hazar, 1986). Studies to date indicate **intention to leave** an organisation to be the strongest predictor of turnover followed by **organisational commitment** and **job satisfaction** (Bannister & Griffeth, 1986; Cohen, 1993; Rhodes, Sorenson & Lawler, 1977; Shore & Martin, 1989; Steel & Ovalle, 1984; Tett & Meyer, 1993). Findings from studies that have investigated the relationship between Intention to Leave, Organisational Commitment and Job Satisfaction are summarised in Table 2.5 below. The table indicates intention to leave is a moderate predictor of turnover within a 12 month period. Turnover correlations between job satisfaction ratings and organisation commitment tend to be weak and negative.

Table 2.5: Predictive Turnover Correlations

Predictive Measure	Correlation with Turnover		
	Job Satisfaction	Organisational Commitment	Intention to Leave
Cohen (1993) After one year	- 0.25	- 0.36	0.45
Tett & Meyer (1993) After one year	-0.27	-0.33	
Steel & Ovalle (1984) After one year	-0.28	-0.38	0.5
Cohen & Hudecek (1993)		-0.43	
Williams & Hazer (1986)			0.37

a. Career Intentions

Career Intentions are defined as an individual's perception that his or her future career prospects are supported, and the extent they are consciously and actively seeking to leave or stay with the organisation (Cohen, 1993; Tett & Meyer, 1993).

Moderate correlations (0.57) between career commitment and career withdrawal intentions have been reported (Aryee, Chay & Chew, 1994; Blau, 1989). Sterns and Miklos (1995) noted that career stages are important when distinguishing between older and younger employees. In the present study, questions relating to career intentions are included along with intentions to leave, to determine the extent these factors may predict turnover.

b. Organisational Commitment

Commitment to the Organisation is defined as the measure of an individual's strength of "identification and involvement" in the organisation (Porter, Steers, Mowday & Boulian, 1974, p604). Organisation Commitment is typically measured using the Organisation Commitment Questionnaire (OCQ) and assessments made employee perceptions of loss of valued monetary benefits (should the employee leave) and the sense of moral obligation the employee may feel to stay with their current employer (Cohen, 1993; Heshizer, 1994; Meyer, Panonen, Gellatly, Goffin & Jackson, 1989; Reed, Kratchman & Strawser, 1994; Tett & Meyer, 1993).

When commitment is compared between older and younger employees, it is important to note that there are some important difficulties with tenure prediction. Older employees tend to be more satisfied, more committed and stay longer in their jobs, when compared to younger employees (Arnold & Feldman, 1982; Cohen, 1993; Commonwealth Fund, 1993; Krecker, 1994; McNaught & Barth, 1992; Rhodes, 1983; Weaver, 1980). Thus older employees, as compared to younger employee, will be more stable and less likely to leave (Bannister & Griffeth, 1986; Krecker, 1994; Mobley, Horner & Hollingsworth, 1978; Smith & Hoy, 1992). Younger employee organisational commitment is noted to

be somewhat unstable, particularly during the first few months of employment with a new organisation, as compared to older employees (Werbel & Gould, 1984). In this study, employees whose tenure was less than three months were excluded from participating.

c. Job Satisfaction

Job satisfaction is defined as a global measure of employee attachment to the job (Mobley et al., 1978; Ironson, Smith, Brannick, Gibson & Paul, 1988; Tett & Meyer, 1993).

There is general agreement that older employees are likely to be more satisfied with their job, compared to younger employees (Bennington & Tharenou, 1996; Heshizer, 1992; Lufthans & Thomas, 1989; Warr, 1992). The higher levels of older employee satisfaction may occur because they have established themselves in positions in which they enjoy and in which they can perform effectively.

A curvilinear relationship between job satisfaction and age between the ages of 23 to 63, peaking around 43 to 45 years of age has been reported (Lufthans & Thomas, 1989). In a cross-sectional study, Kalleberg & Lascocco (1983) found job satisfaction increased with age until age 40, levelled off and then increased again in the late 50's. These age related variances in job satisfaction have important implications for predicting tenure.

Using job satisfaction to predict turnover can be complex. Cotton & Tuttle (1986) found job satisfaction was more reliable for predicting turnover in service than manufacturing organisations. This may be due in part to the more favourable working conditions, pay and alternative employment prospects for those employed in service compared to manufacturing organisations (Cotton & Tuttle, 1986). There is a possibility that service organisations employ more white collar and professional employees who are more intrinsically (job satisfaction, job challenge) than extrinsically (pay, benefits) motivated.

Turnover is likely to increase with levels of economic activity and as rates of unemployment decline (Dawson, 1988). However, the lack of an available empirically researched economic model, prevented these factors being included in this study. Examining how economic factors can be used to predict turnover could be an avenue for future research. To be of applied value, the model would need to differentiate between business sectors and geographic regions, as a single national economic measure is unlikely to be sufficiently sensitive to identify the local conditions that influence employee turnover. This study examined the extent to which turnover may be predicted, but due to time constraints, only preliminary data could be gathered and analysed.

H. SUMMARY

It is obvious that negative stereotyping of older employees is widespread. Despite 40 years of research the incidence of age related stereotyping has not diminished. Equally, organisations continue to use subjective information sources or heuristics to make important decisions relating to employee development, promotion or downsizing. Increased objective information that can be used by decision makers to make more objective decisions is required (Finkelstein et al , 1995; Hassell & Perrewe, 1995). HRA offers significant potential to assist fulfil these requirements.

Although there are models available to measure employee value, all have inherent deficits. Prior to HRA being applied in real world settings, weaknesses need to be recognised and understood. Any model developed will be required to provide a comprehensive measure of value and include; current performance, plus the array of costs involved in acquisition, development and reduced productivity, sales, or production.

The development of psychological factors which reliably identify employees who are contemplating leaving organisations is likely to be of considerable value to organisations

and to assist decision makers take pre-emptive action to prevent or reduce the potential loss of highly valued employees.

The next chapter will identify a model that may be used to obtain a comprehensive measure of human resource value at an individual level.

CHAPTER 3 THEORY OF THE PRESENT STUDY

The previous chapters showed that the perceptions of older and younger employee contributions (actual or potential) are often stereotyped and are typically not quantified in financial or economic terms (Finkelstein et al, 1995).

This study seeks to obtain a value of older and younger employees. To gain a comprehensive measure of human resource value, a new Replacement Cost - Job Performance model has been developed. It is based on:

1. Flamholtz's replacement cost model (Flamholtz, 1985; Flamholtz, 1973);
2. Cascio & Ramos' CREPID model (Cascio & Ramos, 1986);
3. the psychological factors known to predict tenure (Cohen, 1993; Cohen & Hudecek, 1993; Steel & Ovalle, 1984; Tett & Meyer, 1993; Williams & Hazer, 1986).

Flamholtz's (1985) PRCM has been modified to include additional measures relating to learning costs and personal contribution (these are included in separation costs). To enable more objective, rather than comparative measures of performance to be obtained, Cascio & Ramos' (1986) CREPID model has been modified. A formula for calculating an overall human resource value is shown in Table 3.1. These factors are graphically presented in Figure 3.1.

Table 3.1: Human Resource Value Formula

$HRV = AC + FMDC + SC + PV$	
$= RC + PV$	
<i>Key:</i>	
<i>HRV</i>	= Human Resource Value
<i>AC</i>	= Acquisition Cost
<i>FMDC</i>	= Future Maintenance and Development Cost
<i>SC</i>	= Separation Cost
<i>RC</i>	= Replacement Cost
	= $AC + FMDC + SC$
<i>PV</i>	= Estimate of Actual Performance

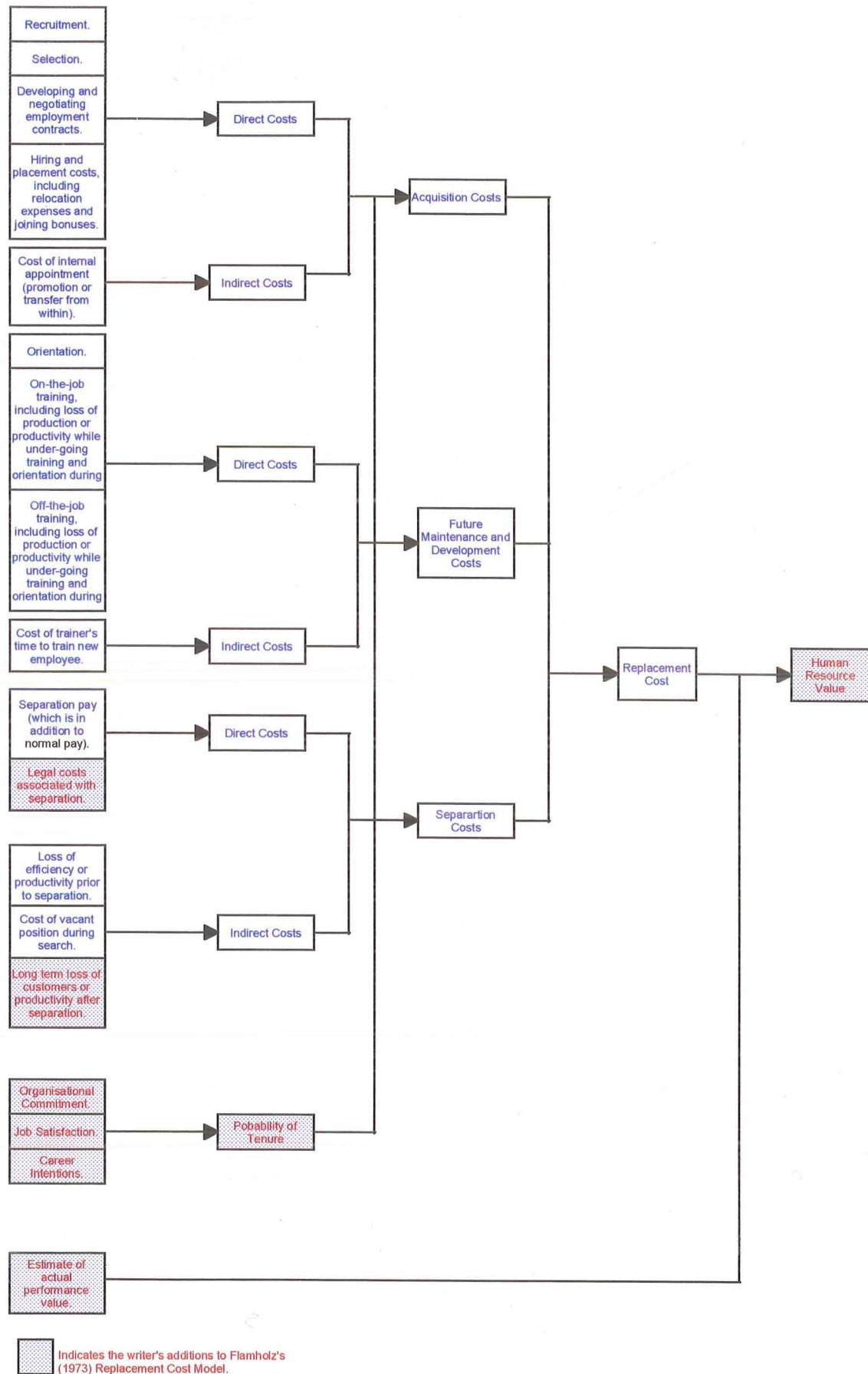


Figure 3.1: Replacement Cost-Job Performance Value Model

In accounting terms, assets cannot have a prescribed value unless they have some future benefit to the organisation. Therefore, psychological dimensions are used to assess the extent to which organisational commitment, job satisfaction and career intentions may predict tenure. These dimensions are intended to reveal factors that could reliably predict turnover, and therefore lead to the development of a turnover index. It is hoped that the index will be used by organisations to predict and plan turnover and to perform an alert function to minimise loss of valued and valuable employees. A valid turnover index may also assist to establish an employee asset value. This is presented and discussed more fully in the Discussion section.

CHAPTER 4 DEVELOPMENT OF THE HYPOTHESES

This study evaluates a number of hypotheses which compare older and younger employees in HRA terms. Value is defined as the sum of costs relating to; acquisition, development and maintenance, separation and an estimate of performance value. To limit the influence of position complexity and seniority on the value attributed to either the older and younger employee groups, a job evaluation exercise has been performed. It was proposed that the groups would be equivalent if job evaluation and salary differences were not significant. The hypotheses that are evaluated in this study are now introduced.

i Hypothesis 1 Rationale

The research examining comparative acquisition costs between older and younger employees is limited. Two recent studies found only small, non-significant recruitment and selection cost differences between older and younger customer service representatives (McNaught & Barth, 1992; Commonwealth Fund, 1993).

In the current study, older and younger employee groups are expected to hold equivalent levels of seniority. If this is so, no significant recruitment, selection, hiring and placement, development of employment contracts or internal appointment costs, between the groups, are expected. It is hypothesised that:

Hypothesis 1 There will be no difference in acquisition costs between the older (≥ 50 years) and younger employee (< 50 years) groups.

ii Hypothesis 2 Rationale

The stereotypical view of older employees, is that they are more difficult to train because they are less motivated to learn new skills and less willing to adapt to change (Bennington & Tharenou, 1996; Bird & Fisher, 1986; Bowers, 1952; Britton & Thomas, 1973; Commonwealth Fund, 1993; Finkelstein, Burke & Raju, 1995; Hassell & Perrewe, 1995; Rosen & Jerdee, 1976a; Rosen & Jerdee, 1976b; Rosen & Jerdee, 1977; Sterns & Alexander, 1988). Stereotypes are often used as a justification for not providing training and development opportunities to older employees (Rosen & Jerdee, 1977; Rosen & Jerdee, 1989).

To date, few studies have investigated the differences in older younger employee training and development costs (Bennington & Tharenou, 1996; Commonwealth Fund, 1993; Elias et al., 1987; McNaught & Barth, 1992). The results available reveal that older people may take longer to learn to use computer based technology, but this is not always the case (Bennington & Tharenou, 1996; Elias et al., 1987). McNaught & Barth (1992) found no significant differences in the costs required to train and develop older or younger people to use computer applications in a customer service situation. However, the mean training costs were higher for the younger group. Given that the positions in this study did not include significant technology based responsibilities, no significant differences in orientation and training and development costs between the groups are expected. It is therefore hypothesised that:

Hypothesis 2	There will be no difference in future maintenance and development costs between the older (≥ 50 years) and younger employee (< 50 years) groups.
---------------------	---

iii Hypothesis 3 Rationale

Separation costs are defined as the sum of separation pay, legal costs, long term loss of sales, production and productivity and, loss of efficiency prior to and following employee departure (Flamholtz, 1985; Flamholtz, 1974; Flamholtz, 1973; Sackmann et al., 1989).

Several studies indicate that older employee tenure is typically greater than their younger counterparts (Hellerstein & Neumark, 1993; McNaught & Barth, 1992). In fact, tenure and productivity have been found to correlate positively. That is, increased tenure brings opportunities for developing and refining skills which will assist to improve productivity levels (Hellerstein & Neumark, 1993). It therefore follows that older people, with longer tenure, will have had greater opportunities to develop specialist, organisation specific abilities and knowledge e.g. equipment and production processes. The opportunities to develop long-term and positive relationships with customers are also likely to be greater for older employees. Consequently, the departure of an older employee, is more likely to result in loss of expertise and therefore reduced levels of production, productivity, sales and profits.

Due to the longer tenure of older employees, greater separation pay and costs are expected for the older, than the younger employee group. It is therefore hypothesised that:

Hypothesis 3 The separation costs of older employees (≥ 50 years) will be higher when compared to younger employees (< 50 years) holding equivalent positions.

iv Hypothesis 4 Rationale

Replacement costs are the sum of costs incurred with acquisition, future development and maintenance, and separation. As separation costs are expected to be higher for the older group, replacement costs are also expected to be higher for older employees. No between group differences in acquisition or maintenance and development costs are expected. It is therefore hypothesised that:

Hypothesis 4 Replacement costs will be higher for older (≥ 50 years) than younger (< 50 years) employees.

v Hypothesis 5 Rationale

A number of meta analyses report that the relationship between age and performance is weak (McEvoy & Cascio, 1989; Rhodes, 1983; Sterns & Miklos, 1995; Waldman & Avolio, 1986). The age-performance relationship, as measured by objective or supervisory ratings is weak ($r = 0.06$) (Sterns & McDaniel, (1994, cited in Sterns & Miklos, 1995). The correlation between age and job performance for younger employees is only slightly higher ($r = 0.16$) and is probably a reflection of the relevant job knowledge that is required to achieve a satisfactory level of performance Sterns & McDaniel, (1994, cited in Sterns & Miklos, 1995).

Despite evidence that there is little difference in job performance between the older and younger groups, negative attitudes toward older employees prevail (Bennington & Tharenou, 1996; Bird & Fisher, 1986; Commonwealth Fund, 1993; Finkelstein et al., 1995; Hassell & Perrewe, 1995; Sterns & Miklos, 1995). Bias toward older employees is known to result in reduced promotional opportunities for older employees (Cleveland & Shore, 1992; Cox & Nkomo, 1992; Siegal, 1993). It appears that even if levels of performance between older and younger employees are equivalent, younger employees will still be seen as more promotable (Rosen & Jerdee, 1977; Siegel, 1993).

The CREPID approach is known to be a valid method for obtaining a performance value, and has been used successfully to obtain performance values for sales people (Cascio, 1991; Cascio & Ramos, 1986; Edwards et al., 1988; Greer & Cascio, 1987; Riely & Smither, 1985; Siegal, 1993; Weekley, Frank, O'Conner & Peters, 1985). However, objective measures and ratings made by supervisors tend to be more valid than employee self ratings, especially if self ratings are used in isolation (Bommer et al., 1995; Bretz & Milkovitch, 1992). A combination of objective information, manager and employee self ratings is the recommended approach for obtaining valid measures of performance, as well as minimising rater bias (Bommer et al., 1995; Bretz & Milkovitch, 1992). Given that the previous research shows that age and performance are not significantly related, it is therefore hypothesised that:

Hypothesis 5 There will be no difference in the Estimate of Actual Performance value between older (≥ 50 years) and younger employees (< 50 years) holding equivalent positions.

vi Hypothesis 6 Rationale

The Replacement Cost Model has demonstrated validity and utility for determining human resource value (Flamholtz, 1973; Flamholtz, 1974; Flamholtz, 1984; Flamholtz, 1985; Flamholtz et al., 1988). The CREPID Model has also been utilised to obtain performance values for sales type positions (Edwards et al., 1988; Greer & Cascio, 1987; Riely & Smither, 1985; Siegal, 1993; Weekley et al., 1985).

The present study derives human resource value from the sum of replacement of costs and performance value using a **modified** CREPID model. As mentioned previously, (see hypothesis 4), replacement costs are expected to be higher for the older group due to higher separation costs. Consequently human resource value is anticipated to be higher for the older age group. It is therefore hypothesised that:

Hypothesis 6 Human resource value will be higher for older employees (\geq 50 years) compared to the younger (<50 years) employee group.

vii Hypothesis 7 Rationale

Organisational commitment of older employees is known to be significantly higher compared to younger employees (Cohen, 1993; Landau & Hammer, 1986; Smith & Hoy, 1992). Older employees are more stable in their employment, which may be due in part to higher levels of loyalty and organisational commitment (Bannister & Griffeth, 1986; Krecker, 1994; Mobley et al., 1978; Rhodes, 1983). Consequently, older employees have been found to stay in their jobs longer compared to their younger counterparts (Arnold & Feldman, 1982; Bannister & Griffeth, 1986; Commonwealth Fund, 1993; McNaught & Barth, 1992; Mobley et al., 1978). It is therefore hypothesised that:

Hypothesis 7 Organisational commitment will be significantly higher for older employees (\geq 50 years) compared to younger employees (< 50 years)

viii Hypothesis 8 Rationale

Older employees are generally more positive and satisfied with their jobs than younger employees (Bennington & Tharenou, 1996; Heshizer, 1992; Lufthans & Thomas, 1989; Warr, 1992). Kalleberg & Lascocco's (1983) cross sectional study noted job satisfaction tended to increase until age 40, level off and then increase again in the late 50's. As stated previously, this finding was supported by in part Lufthans & Thomas (1989). Consequently, higher levels of job satisfaction are expected to be found the older age group. It is therefore hypothesised that:

Hypothesis 8 **Job satisfaction will be significantly higher for older employees (≥ 50 years) compared to younger employees (< 50 years)**

CHAPTER 5 METHOD

This study was undertaken during a ten (10) month period between April 1996 and January 1997.

A ETHICAL APPROVAL

Ethical approval for this study was sought and obtained from the University of Canterbury Ethics Committee prior to the study commencing. The procedures approved by the Ethics Committee were strictly adhered to.

Following a detailed explanation of the methods and intended outcomes, only participants (companies and employees) who gave written consent participated in the study.

All participant identities and test results are confidential and do not appear in this study.

B PARTICIPANTS

Nineteen companies were approached in Greymouth and the Christchurch metropolitan area to participate in this study. Nine companies agreed to participate. Of the 48 employee participants, 47 were male and one was female.

Of the **older** employee participants ($n = 21$), one held a sales role and the other 20 production positions. Twenty two of the **younger** employees ($n = 27$) were employed in production roles and the other five in sales and marketing positions. See Figure 5.1.

The age distribution of the employee participants is detailed in Figure 5.2.

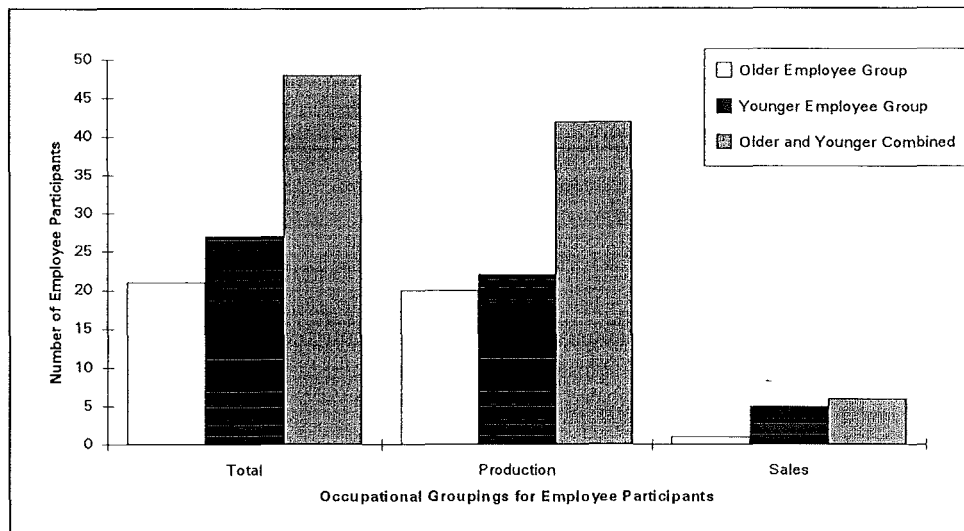


Figure 5.1: Older and Younger Employee Occupations

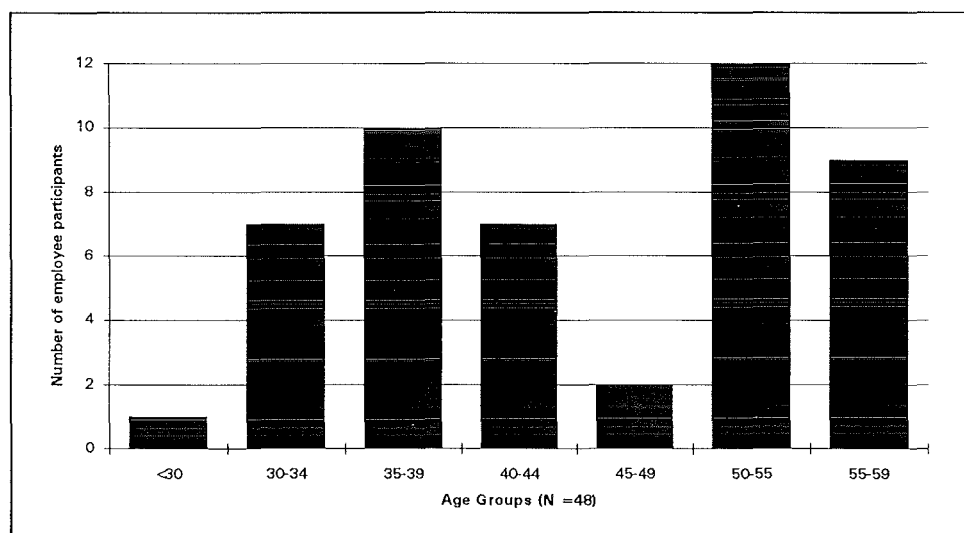


Figure 5.2: Age Distribution of Employee Participants.

i. Inclusion Criteria

All study participants were employed in sales (sales and customers service representatives), marketing (marketing managers and officers) or production roles (manufacturing and forestry production). All employee participants held supervisory or management positions.

Using the employee data, participants were matched according to occupational type (sales, marketing or production management), position seniority (job evaluation, salary) and education.

ii. Exclusion Criteria

In keeping with the findings of Bedeian et al., (1992) and Werbel & Gould (1984) those employed for less than three months were excluded from the study.

C DESIGN OF STUDY

The effect of age on the eight hypotheses previously specified is examined in this investigation.

DEPENDENT VARIABLES

- *Acquisition Cost* recruitment, selection, employment contract development and negotiation, hiring, placement, internal transfers).
- *Future Maintenance and Development Costs* (off and on job training, orientation, internal trainer's time, loss of productivity while training).
- *Separation Costs* (separation pay, legal costs, loss of efficiency, loss of production or sales).
- *Replacement Costs (Summative costs of Acquisition, Future Maintenance and Development, and Separation).*
- *Estimate of Performance Value*
- *Human Resource Value (Summative costs of Estimate of Performance Value and Replacement Costs).*
- *Psychological Dimensions*
 - *Career Intentions, including intentions to quit.*
 - *Organisational Commitment*
 - *Job Satisfaction*

D MEASURES

The assessment tools used in this study are intended to provide a comprehensive measure of human resource value and to ascertain the extent to which the three stated psychological dimensions may predict employee turnover.

i Replacement Costs

The methodology for obtaining a value of replacement cost was derived using the a Replacement Cost Methodology as detailed below, together with a modified CREPID approach for obtaining an estimate of performance value (see Appendix A). The replacement costs include; estimates of losses associated with losses in production, productivity and sales, following the departure of an employee from an organisation. To minimise reliability errors, quality review checks were undertaken to ensure methodologies were correctly followed.

Human Resource Replacement Cost Methodology

A. ACQUISITION COSTS³

a. Recruitment

- | | |
|---|--|
| 1. Estimate of costs to obtain approval to recruit. | Σ (Current hourly rate x hours required to prepare case and obtain approval to recruit employee). |
| 2. Estimate of costs to develop Job Descriptions (JD) and Person Specifications (PS). | Σ (Current hourly rate of all personnel involved in preparation of JD and PS x hours to prepare JD and PS for employee). |
| 3. Estimate of costs to prepare organisational and job related material for potential applicants. | Σ (Current hourly rate of all personnel involved in preparing organisational and job related materials x hours to prepare material for potential applicants). |
| 4. Estimate of costs to develop advertisement. | Σ (Current hourly rate of all personnel involved x hours required to prepare advertisement). |
| 5. Estimated advertising costs. | Σ (Current cost of placing adverts in newspapers, journals or other publications or media). |

³ Costs relate to recruitment, selection, orientation and training that are required to replace the current employee with to bring the incumbent's level of competence to that required for the position. Based on the work of Cascio (1991) and Flamholtz's (1973) RCM Model.

- | | |
|---|--|
| 6. Estimate of administration and clerical costs (sending potential applicants information acknowledging applications, other correspondence). | Σ (Current hourly rate of all personnel involved x hours to administer the recruitment and selection process). |
|---|--|

b. Selection

- | | |
|---|---|
| 7. Estimate of interview costs (screening and in-depth). | Σ (Current hourly rate of all personnel to conduct screening and in-depth x hours to undertake interviews for each employee involved). |
| 8. Estimate of psychological assessment costs. | Σ (Current hourly rate x hours to prepare, complete, interpret and produce report, OR current agency fee). |
| 9. Estimate of travel and accommodation costs associated with interviews and selection processes. | Σ (Total costs related to interviewer and interviewee travel, accommodation and associated expenses expended to participate in recruitment and selection processes). |
| 10. Estimated agency fees. | Σ (Current agency recruitment and selection fee). |

c. Hiring and Placement Costs

- | | |
|---|--|
| 11. Estimated relocation costs | Σ (Current relocation costs to relocate employee within or to another city, including insurance and any associated claims). |
| 12. Estimated joining bonus, and /or moving incentive that may be paid. | Σ (Total bonus or joining incentive). |

d. Employment Contract Costs

- | | |
|---|---|
| 13. Estimated cost of developing and negotiating individual contract of employment. | Σ [(Current hourly rate of all personnel involved in the development and negotiation of an individual contract x hours required to develop individual contract of employment and complete negotiations) + (total current cost of legal advice)]. |
|---|---|

e. Internal Appointment Costs

- | | |
|--|--|
| 14. Estimated cost of making employee appointment opportunity. | Σ [(Current hourly rate of all personnel involved in making employee aware of appointment opportunity x hours required to promote the position, including meeting with employees) + (advertising costs to develop and produce appointment opportunity, <i>if required</i>)]. |
| 15. Estimated cost of negotiating new terms and conditions. | Σ [(Current hourly rate of all personnel involved in the development and negotiation of an individual contract x hours required to develop individual contract of employment and complete negotiations) + (total current cost of legal advice)]. |

B. FUTURE MAINTENANCE AND DEVELOPMENT COSTS

a. Orientation Costs

- | | |
|---|---|
| 16. Estimate orientation programme preparation costs. | Σ (Current hourly rate of incumbent, managers, co-employees, trainers, HR Manager x hours required to prepare orientation programme). |
| 17. Estimated orientation programme delivery costs. | Σ [(Current hourly rate of manager, supervisor, co-worker, human resource manager, incumbent x hours involved in orientation programme) + current value of reduced production of manager, supervisors and co-employees]. |

b. On Job Training Costs

- | | |
|---|--|
| 18. Estimated on job training costs to bring the incumbent's level of competence to that required for the position over the next 12 months. | Σ [(Current hourly rate of manager, supervisor, co-worker, human resource manager, incumbent x hours involved in on-job training programme) + current costs of reduced production as a result of manager, supervisor, co-employee or incumbent involvement in training programme(s)]. <i>To be calculated for each training programme that is required to be delivered.</i> |
|---|--|

c. Off Job Training Costs

- | | |
|---|---|
| 19. Estimate of new employee off job training costs to bring the incumbent's level of competence to that required for the position over the next 12 months. | Σ [(Current hourly rate of incumbent x hours involved in off-job training programme) + (training course fees + cost of employee travel, accommodation and associated costs)]. <i>To be calculated for each training programme.</i> |
|---|---|

- | | |
|--|--|
| 20. Estimate of education costs likely to be incurred over the next 12 months. | $\Sigma [(Current\ hourly\ rate \times hours\ spent\ each\ manager,\ supervisor,\ co-worker,\ human\ resources\ manager\ involved\ in\ off\ or\ on\ job\ training + current\ value\ of\ reduced\ production\ as\ a\ result\ of\ involvement\ by\ manager,\ supervisor,\ co-worker,\ human\ resources\ manager\ involved\ in\ new\ employee\ training)$ |
|--|--|

d. Trainer Costs

- | | |
|---|---|
| 21. Estimate of training costs to train new employee over the next 12 months. | $\Sigma [(Current\ hourly\ rate \times hours\ spent\ by\ employee\ in\ on\ job\ training\ and\ education) + (cost\ of\ training\ and\ education\ course) + (accommodation,\ travel\ and\ associated\ costs\ per\ course)]\ during\ the\ next\ twelve\ months\ transformed\ to\ current\ value.$ |
|---|---|

C. SEPARATION COSTS

a. Separation Pay

- | | |
|--|---|
| 22. Estimate of retirement, separation costs, including outplacement and redundancy. | $\Sigma [(Current\ value\ of\ retirement,\ redundancy\ payments\ that\ could\ be\ available\ to\ employee) + (within\ the\ next\ twelve\ months) + (outstanding\ service\ payments) + (outstanding\ holiday\ pay) + (payment\ for\ benefits) + (outplacement\ services)].$ |
|--|---|

b. Legal Costs

- | | |
|--|--|
| 23. Estimate of post employment legal fees including personal grievance and dispute costs. | $\Sigma [(Current\ hourly\ of\ those\ involved\ in\ personal\ grievance\ and\ dispute\ costs \times number\ of\ expected\ hours) + (legal\ fees)] \times (probability\ personal\ grievances\ and\ disputes\ will\ occur).$ |
|--|--|

c. Loss of Efficiency Prior to Separation

- | | |
|--|--|
| 24. Estimate of reduction in workforce efficiency prior to separation. | $\Sigma (Value\ of\ reduced\ production,\ sales\ or\ service\ in\ the\ one\ month\ period\ prior\ to\ separation\ transformed\ to\ current\ value).$ |
|--|--|

d. Cost of Vacant Position

- | | |
|--|--|
| 25. Estimate of costs related to other employee overtime. | $\Sigma [(Current\ hourly\ overtime\ rate - Standard\ hourly\ rate) \times number\ of\ employee\ overtime\ hours)\ while\ position\ remains\ vacant] - [normal\ salary\ payments\ that\ were\ not\ made\ while\ the\ position\ remained\ vacant].$ |
| 26. Estimate of reduced production, sales, service while vacancy exists. | $\Sigma (Expected\ total\ cost\ or\ value\ of\ lost\ production,\ sales\ or\ services\ to\ the\ organisation,\ while\ the\ position\ remained\ vacant\ transformed\ to\ current\ value).$ |

e. Long Term Loss of Productivity and Sales

- | | |
|---|---|
| 27. Estimate of long term loss in productivity. | $\Sigma(\text{Potential value of reduced production until new employee becomes fully productive, transformed to current value}).$ |
| 28. Estimate of long term loss of sales, service. | $\Sigma(\text{Potential value of loss of customers the employee will take with them when they leave the organisation transformed to current value}).$ |

D. FORMULA FOR CALCULATING REPLACEMENT COSTS.

$$29. \text{Replacement Cost (\$)} = \Sigma(A + B + C).$$

E. FORMULA FOR CALCULATING HUMAN RESOURCE VALUE.

$$30. \text{Human Resource Value (\$)} = \Sigma(\text{Performance Value} + D)$$

The methodology for obtaining the performance value is specified in Appendix A.

ii Estimate of Performance Value

The Cascio and Ramos Estimate of Performance Value in Dollars (CREPID) model has previously been used to obtain an objective value of employee performance and has successfully been applied to obtain a value of performance for sales positions (Cascio & Ramos, 1986; Edwards et al., 1988; Greer & Cascio, 1987; Riely & Smither, 1985). However, two significant modifications to the model were required for the present study. Firstly, objective measures are used to rate performance and competencies against specified criteria (see Appendix A). Cascio & Ramos (1986) rated performance against a sample average. This alteration was required as many employee participants were sole specialists, and there were no other employees with whom performance comparisons could be made.

The second modification relates to the use of competencies. While a more direct measure of performance was preferred, the competency measures assess important

knowledge, skills and attributes that can not be directly assessed. A combination of objective, manager and self ratings were selected to minimise potential rating bias, and to obtain a valid overall measure of performance (Bommer et al., 1995; Bretz & Milkovitch, 1992).

iii Job Evaluation (to ensure positions are comparable)

To ensure the positions within the two groups, (≥ 50 years and < 50 years) have equivalence in seniority responsibilities, outputs and authority, Deloitte Touche Tohmatsu's job evaluation methodology EVALU8 was used. The full job evaluation methodology is subject to copyright and cannot be reproduced in this report. A summary of the factors considered in the job evaluation exercise are included in Appendix H (Deloitte Touche Tohmatsu, 1995).

The job evaluation rates the positions, which when analysed with a Mann-Whitney U two tailed test, revealed any significant between groups differences to be revealed.

iv Job Satisfaction Index

The Minnesota Satisfaction Questionnaire (MSQ) measures job satisfaction. Participants rate each item on a five point scale; Very Dissatisfied, Dissatisfied, Neither (dissatisfied nor satisfied) Satisfied, Very Satisfied (Weiss, Dawis, England & Lofquist, 1967). Job satisfaction measures are obtained from the 20 MSQ sub-scales as well as a total level of "General Job Satisfaction" (Sims & Kroeck, 1994; Landy, 1989; Bannister & Griffeth, 1986; Dalessio, Silverman & Schuck, 1986).

The 20 MSQ sub-scales used were:

1. Ability utilisation	<i>(the chance to use of individual abilities);</i>
2. Achievement	<i>(feelings of accomplishment obtained from the job);</i>
3. Activity	<i>(being able to keep busy all the time);</i>
4. Advancement	<i>(the opportunities for advancement);</i>
5. Authority	<i>(the chance to direct other people);</i>
6. Company policies and practices	<i>(the way company policies are put into place);</i>
7. Compensation	<i>(the pay received for the work performed);</i>
8. Co-workers	<i>(the way my co-workers get along with each other);</i>
9. Creativity	<i>(the chance to try my own methods on the job);</i>
10. Independence	<i>(the chance to work alone on the job);</i>
11. Moral Values	<i>(not being required to go against own ethical standards);</i>
12. Recognition	<i>(the praise received for doing a good job);</i>
13. Responsibility	<i>(the freedom to use personal judgement);</i>
14. Security	<i>(the extent the job provides for steady employment);</i>
15. Social Service	<i>(the chance to do things for other people);</i>
16. Social Status	<i>(the chance to be recognised in the community);</i>
17. Supervision - human relations	<i>(satisfaction with staff management practices);</i>
18. Supervision - technical	<i>(the technical competence of management);</i>
19. Variety	<i>(the chance to do different things from time to time);</i>
20. Working conditions	<i>(the working conditions).</i>

v **Organisational Commitment**

Organisation commitment is measured using the 15 item Organisational Commitment Questionnaire (OCQ) (Mowday, Steers & Porter, 1979). Each item is rated on a seven point scale; Strongly Disagree, Moderately Disagree, Slightly Disagree, Neither Disagree Nor Agree, Slightly Agree, Moderately Agree, Strongly Agree. Meta analyses indicate the 15 item questionnaire to have a significantly stronger capacity to predict turnover,

(and will therefore be more likely to predict tenure), compared to the nine item alternative (Cohen, 1993; Tett & Meyer, 1993). The Organisational Commitment Questionnaire is included in Appendix B.

vi Career Intentions

The Career Intention Questionnaire (CIQ) includes seven items that have been previously used to predict turnover (Heshizer, 1994; Landau & Hammer, 1986). Participants rated each item on a seven point scale; Strongly Disagree, Disagree, Somewhat Disagree, Unsure, Somewhat Agree, Agree, Strongly Agree. Turnover intentions, as identified by Landau & Hammer (1986), are also included in the questionnaire with additional items suggested by Aryee et al., (1994) and Sterns & Miklos (1995). Appendix C details the specific items used in this study.

vii Probability of Tenure

At this time there are no published measures for the probability of tenure. This study attempted to develop an instrument by using the scores from the MSQ, OCQ and CIQ. This measure is currently too gross to give a reliable or valid measure, but further refinement was beyond the scope of this investigation.

E. PROCEDURE

Full details of the study were provided to employee and employer participants (see Appendices D and F) and written consent obtained. The participants were advised that confidentiality was guaranteed and that they could withdraw from the study at any time without negative consequences. Due to the nature of the information sought, confidentiality was particularly important.

In some instances, employers supplied employee financial and performance details without disclosing the identity of the individual employee, as the recruitment of employee participants into the study was found to be difficult. The integrity of the study and

ethical requirements were adhered to at all times. Employers and employees who agreed to participate completed the required consent forms (see Appendices E and G). Where employers were the sole participants, an alternative consent form was completed (see Appendix G - Form B).

The employee participants were requested to complete the psychological tests alone, at work or at home and without consultation to any other person. The time required to complete all the assessments was approximately 30 minutes. *This process was designed to facilitate participation, as many employers involved in the study wished to minimise or limit the time employees spent away from the job.*

All financial details provided by employers were audited by the investigator to ensure the information obtained was gathered in a consistent manner. After all the data had been gathered and assessments completed, feedback of the assessment results was provided to the employee and employer participants. The feedback session took between 30 and 45 minutes and included full details of the financial and psychological results.

CHAPTER 6 RESULTS

As the numbers of participants in each group were dissimilar (older employees $n = 21$, younger employees $n = 27$), non-parametric Mann-Whitney U two tailed tests were used to assess the differences between older and younger employees. Six major dependent variables (acquisition costs, future development and maintenance and development costs, separation costs, total replacement costs, estimate of performance value and human resource value) were analysed. The same analyses were performed on an additional 14 minor dependent cost variables (as is detailed in Figure 3.1), and three psychological dimensions (organisational commitment, job satisfaction and career intentions).

A PARTICIPANT CHARACTERISTICS

Apart from tenure (two tailed Mann-Whitney U, $p < 0.01$), the older and younger groups did not differ significantly on years of education (two tailed Mann-Whitney U, $p > 0.1$), or on levels of seniority as indicated by salary level (two tailed Mann-Whitney U, $p > 0.1$) and job evaluation point scores (two tailed Mann-Whitney U, $p > 0.1$). Although not significant, older employees tended to hold positions with greater responsibility and higher salaries while younger employees were slightly more educated. A summary of the between group differences are detailed in Table 6.1.

Table 6.1: Characteristics of older and younger participants.

	GROUP						
	≥50 (n = 21)			<50 (n = 27)			
Mean Costs	Mean	Median	Range	Mean	Median	Range	p
Tenure (years)	8.6	8.0	4.0 - 19.75	5.8	5.0	1.0 - 12.6	0.007 [‡]
Education (years)	12.3	12	10 - 16	12.7	13	11 - 17	0.361 ^{NS}
Salary (\$)	51908	49950	24388 - 86598	47388	47300	26000 - 78540	0.078 ^{NS}
Job Evaluation (points)	696	669	119 - 1471	617	589	119 - 1379	0.389 ^{NS}

Note: NS = Not Significant; [‡] $p \leq 0.01$,

Additional Mann-Whitney U analyses found no significant differences in job evaluation ratings and salary levels between the following:

- 30 to 39 year age group versus ≥ 50 year age group;
- 30 to 39 age group versus 40 to 49 age group;
- 30 to 39 age group versus ≥ 40 year age group;
- 40 to 49 age group versus ≥ 50 year age group;
- 40 to 49 age group versus <40 year age group.

B HUMAN RESOURCE VALUE: DIFFERENCES BETWEEN OLDER AND YOUNGER EMPLOYEES

i Hypothesis 1 - Acquisition Costs

As is indicated in Table 6.2, the only significant differences identified in acquisition costs between the groups related to development and negotiation of employment contracts (two tailed Mann-Whitney U, $p < 0.05$). It may be that older employees are more willing to negotiate terms and conditions of employment rather than simply accepting what is offered. However the negotiation of employment contracts costs are quite small when considered as a proportion of the total acquisition costs (3.0% and 1.7% respectively for the for older and younger employee groups).

No significant differences in costs relating to: total acquisition (two tailed Mann-Whitney U, $p > 0.1$), recruitment (two tailed Mann-Whitney U, $p > 0.1$), selection (two tailed Mann-Whitney U, $p > 0.1$), hiring and placement (two tailed Mann-Whitney U, $p > 0.1$), and internal appointments (two tailed Mann-Whitney U, $p > 0.1$), were found. The mean acquisition costs for the younger employee group were higher than those for older employees. Therefore Hypothesis 1 is accepted. Table 6.2 summarises the findings.

Table 6.2: Acquisition Costs for Older and Younger Employees

	GROUP						
	≥50 (n = 21)			<50 (n = 27)			
Mean Costs	Mean	Median	Range	Mean	Median	Range	ρ
Total Acquisition Costs (\$)	7940	3095	993 - 28,124	8040	11570	730 - 19760	0.644 ^{NS}
Recruitment Costs (\$)	2181	1225	355 - 6984	2111	2840	355 - 3700	0.723 ^{NS}
Selection Costs (\$)	3006	1020	375 - 12460	2676	2840	180 - 7820	0.667 ^{NS}
Employment Contract Development and Negotiation (\$)	239	200	0 - 750	135	100	0 - 200	0.042 [†]
Hiring and Placement Costs (\$)	2190	500	0 - 8000	2333	4000	0 - 5000	0.767 ^{NS}
Cost of Internal Appointment (\$)	323	150	0 - 800	418	300	0 - 740	0.464 ^{NS}

Note: NS = Not Significant, † $p \leq 0.05$

ii Hypothesis 2 - Future Maintenance and Development Costs

Comparisons between expected future development and maintenance costs (within the next 12 months) for older and younger employees are detailed in Table 6.3. The results indicate no significant between-group differences in costs relating to; total future development and maintenance (two tailed Mann-Whitney U, $p > 0.1$), orientation (two tailed Mann-Whitney U, $p > 0.1$), off job training (two tailed Mann-Whitney U, $p > 0.1$) and trainer time (two tailed Mann-Whitney U, $p > 0.1$). On job training costs were found to be significantly higher for younger employees. This is a reflection of the time that younger employees required to develop new skills, particularly during the first few months of an appointment. Hypothesis 2 was therefore accepted.

Table 6.3: Future Maintenance and Development Costs of Older and Younger Employees

	GROUP						
	≥50 (n = 21)			<50 (n = 27)			
Costs	Mean	Median	Range	Mean	Median	Range	ρ
Total Future Maintenance and Development Costs (\$)	9576	4350	540 - 26000	14206	11400	490 - 26000	0.224 ^{NS}
Orientation Costs (\$)	1729	400	0- 6400	2900	960	0 - 6400	0.291 ^{NS}
On -job Training Costs (\$)	3211	1600	340 - 6600	3859	2800	350 - 6600	0.042 [†]
Off-job Training Costs (\$)	559	500	0 - 2500	864	0	0 - 10000	0.767 ^{NS}
Cost of Trainer Time (\$)	4076	2000	0 - 13000	6435	4000	0 - 13000	0.464 ^{NS}

Note: NS = Not Significant, $\dagger \rho \leq 0.05$

iii Hypothesis 3 - Separation Costs

It was anticipated that separation costs would be higher for the older employee group due to higher separation payments. Table 6.4 presents the differences in separation costs between the older and younger employee groups. Significant differences in total separation costs (two tailed Mann-Whitney U, $\rho < 0.05$) and separation pay (two tailed Mann-Whitney U, $\rho < 0.05$) were found. This is not surprising given that separation pay is dependent on tenure and that older employees, on average, were employed in their respective positions three years longer than younger employees. Legal costs (two tailed Mann-Whitney U, $\rho > 0.1$), loss of efficiency (two tailed Mann-Whitney U, $\rho > 0.1$), vacancy costs (two tailed Mann-Whitney U, $\rho > 0.1$), and long term losses (two tailed Mann-Whitney U, $\rho > 0.1$), failed to reach the 0.05 level of significance. Hypothesis 3 was therefore accepted.

Table 6.4: Mean Separation Costs of Older and Younger Employees

	Group						
	≥50 (n = 21)			<50 (n= 27)			
Costs	Mean	Median	Range	Mean	Median	Range	p
Separation Costs (\$)	44717	39500	240 - 212700	43993	22700	0 - 463125	0.043 [†]
Separation Pay (\$)	23886	25000	0 - 70000	13848	12400	0 - 32000	0.043 [†]
Legal Costs (\$)	905	0	0 - 3000	1167	0	0 - 2500	0.420 ^{NS}
Loss of Efficiency Costs (\$)	1904	2500	0 - 3000	1377	800	0 - 3000	0.068 ^{NS}
Cost of Vacancy (\$)	2547	1350	240 - 7000	7417	3500	0 - 103125	0.176 ^{NS}
Long term Losses and Costs (\$)	65000 ^a	10000 ^a	5000 - 190000 ^a	181667 ^b	180000 ^b	5000 - 360000 ^b	0.276 ^{NS}

Note: NS = Not Significant, [†] $p \leq 0.05$

^a Indicates 5 participants, ^b Indicates 3 participants

The results detailed in Table 6.4 indicate long term losses following employee departure are atypical and occur with a minority of employees. In this study long term losses due to employee departures instance applied to only eight of the 48 employee participants. Three of this group of eight are older and the other five are younger.

iv Hypothesis 4 - Replacement Costs

Table 6.5 shows replacement cost differences between the older and younger employee groups. Contrary to the predicted hypothesis, that replacement costs would be higher for older employees due to higher separation costs, no significant differences in replacement cost were found (two tailed Mann-Whitney U, $p > 0.1$). Hypothesis 4 was therefore rejected.

Table 6.5: Replacement Costs of Older and Younger Employees

	Group						
	≥50 (n = 21)			<50 (n= 27)			
Costs	Mean	Median	Range	Mean	Median	Range	ρ
Replacement Costs (\$)	62233	48945	1773 - 250270	66240	60270	1930 - 472705	0.975 ^{NS}

Note: NS = Not Significant

v Hypothesis 5 - Estimate of Performance Value

The estimates of performance value between older and younger employee are detailed in Table 6.6. The results indicate a significant difference between the older and younger groups (two tailed Mann-Whitney U, $\rho < 0.05$). In other words, employee performance value, as indicated by the estimate of performance value, was found to be higher for the older employee group, meaning Hypothesis 5 was rejected.

The mean levels of salary were found to be 1.1 times higher for the older group (see Table 6.1. Interestingly, the mean performance value as indicated in Table 6.6, was also 1.12 times higher for the older employee group. These results support the view of Hellerstein & Neumark (1993) who noted that although older employees may be paid more, higher levels of productivity or performance justify the higher salary payments.

Table 6.6: Mean Estimate of Performance Value between Older and Younger Employees

	Group						
	≥50 (n = 21)			<50 (n= 27)			
Costs	Mean	Median	Range	Mean	Median	Range	ρ
Estimate of Performance Value (\$)	53511	48945	22693 - 73590	47762	47741	30750 - 74703	0.027 [†]

Note: [†] $\rho < 0.05$

vi Hypothesis 6 - Human Resource Value

The hypothesis, that human resource value would be higher for older employees, due to higher replacement and separation costs, was not supported.

Table 6.7 details the comparative differences of older and younger employee value. The wide range of scores for both groups is secondary to the high variability of separation costs and long term loss costs.

Table 6.7: Mean Estimate of Human Resource Value between Older and Younger employees

	Group						
	≥50 (n = 21)			<50 (n= 27)			
Costs	Mean	Median	Range	Mean	Media n	Range	ρ
Human Resource Value (\$)	115744	101818	24466 - 294280	114002	95298	35872 - 544530	0.284 ^{NS}

Note: NS = Not Significant

vii Hypothesis 7 - Organisational Commitment

Table 6.8 summarises the differences that were found in organisational commitment between the older and younger employee as indicated by the OCQ. Due to difficulties in recruiting sufficient participants into this study, only thirteen employee participants completed this questionnaire.

No significant differences were found on any sub-scales or on the overall measure of Organisational Commitment (two tailed Mann-Whitney U, $\rho \geq 0.05$). Hypothesis 7 was therefore rejected. However, the results show Item 10 approached the 0.05 level of significance (two tailed Mann-Whitney U, $\rho = 0.062$), and indicated older employees to be slightly, but not significantly, more positive toward working in their current organisation, compared to their younger counterparts. The small sample size prevents any definitive conclusions being reached.

Table 6.8: Organisational Commitment differences between Older and Younger Employees

Organisational Commitment Items	Group						p
	≥50 (n = 5)			<50 (n= 8)			
	Mean	Median	Range	Mean	Median	Range	
Item 1	5.2	6.0	3 - 7	6.1	6.0	5 - 7	0.695 ^{NS}
Item 2	4.6	5.0	1 - 7	3.8	3.5	2 - 6	0.458 ^{NS}
Item 3	3.2	1.0	1 - 7	6.3	2.5	1 - 7	0.494 ^{NS}
Item 4	5.4	6.0	1 - 7	3.8	3.5	1 - 6	0.118 ^{NS}
Item 5	4.2	5.0	1 - 7	4.0	4.0	1 - 6	0.881 ^{NS}
Item 6	5.2	6.0	1 - 7	4.1	4.5	1 - 5	0.264 ^{NS}
Item 7	4.2	4.0	1 - 7	4.7	5.0	1 - 7	0.553 ^{NS}
Item 8	4.6	5.0	2 - 7	4.5	5.0	2 - 6	0.881 ^{NS}
Item 9	3.6	2.0	1 - 7	4.9	5.0	3 - 7	0.448 ^{NS}
Item 10	6.2	7.0	4 - 7	4.9	5.0	3 - 7	0.062 ^{NS}
Item 11	3.4	1.0	1 - 7	4.6	5.0	1 - 7	0.497 ^{NS}
Item 12	4.2	3.0	2 - 7	5.4	5.5	3 - 7	0.412 ^{NS}
Item 13	5.0	6.0	1 - 7	4.5	4.5	1 - 7	0.653 ^{NS}
Item 14	4.4	6.0	1 - 7	3.8	4.5	1 - 6	0.410 ^{NS}
Item 15	2.4	1.0	1 - 7	2.4	2.0	1 - 6	0.647 ^{NS}
OC Total	65.8	66.0	61 - 70	64.9	66.0	50 - 70	0.882 ^{NS}

Note: NS = Not Significant

viii Hypothesis 8 - Job Satisfaction

Differences in job satisfaction between the older and younger employees are detailed in Table 6.9. Although no significant differences in general job satisfaction were found, the results from the Supervision - Human Relations sub-scale (two tailed Mann-Whitney U, $\rho < 0.05$) showed a significant between group difference. Therefore, the results indicate older employees will tend to be more satisfied, than younger employees, with the quality

of supervision and with the manner in which they are managed. Hypothesis 8 was therefore rejected. Figure 6.1 highlights the similarities of overall job satisfaction between the age groups. Due to difficulties in recruiting participants into this study, only thirteen employee participants completed the Job Satisfaction questionnaire. These findings are to be regarded as tentative.

Table 6.9: Job Satisfaction differences between the older and younger age groups.

Job Satisfaction Items	Group						p
	≥50 (n = 5)			<50 (n= 8)			
	Mean	Median	Range	Mean	Median	Range	
Ability Utilisation	18.8	20	13 - 24	17	17.5	12 - 21	0.554 ^{NS}
Achievement	18.6	18	16 - 22	16.6	16.5	12 - 20	0.210 ^{NS}
Activity	20	20	16 - 24	18.3	19	13 - 22	0.373 ^{NS}
Advancement	12	12	5 - 19	13.1	13	5 - 19	0.658 ^{NS}
Authority	14.6	17	8 -21	15.4	15.5	12 - 20	0.883 ^{NS}
Company Policies and Practices	12.2	13	5 - 20	13.8	11.5	8 - 20	0.768 ^{NS}
Compensation	11.4	11	6 - 18	11.4	14.5	6 - 15	0.461 ^{NS}
Co-workers	18.4	19	13 - 25	18.6	19	16 - 21	0.706 ^{NS}
Creativity	15.2	17	10 - 21	15.5	16	10 - 20	0.883 ^{NS}
Independence	18.4	19	14 - 21	18.9	19	14 - 23	0.941 ^{NS}
Moral Values	20	20	17 - 23	18.6	19	15 - 24	0.376 ^{NS}
Recognition	15	16	9 - 23	12.1	11	8 - 21	0.268 ^{NS}
Responsibility	17.6	19	10 - 22	17	17	13 - 20	0.503 ^{NS}
Security	13.4	15	5 - 20	13.9	15	5 - 20	1.00 ^{NS}
Social Service	19	19	17 - 21	17.9	18	15 - 21	0.416 ^{NS}
Social Status	12.6	15	5 - 15	14	14.5	9 - 16	0.597 ^{NS}
Supervision (human relations)	18.8	17	16 - 25	12.8	12	6 - 19	0.018 [†]
Supervision (technical)	17.2	18	12 - 24	15.1	15	9 - 21	0.557 ^{NS}
Variety	15.6	16	13 - 20	15.5	16	11 - 19	0.881 ^{NS}
Working conditions	14.6	15	10 - 20	16.1	15.5	12 - 20	0.505 ^{NS}
Job Satisfaction Total	63.6	62	54 - 74	63	60	54 - 77	0.883 ^{NS}

Note: NS = Not Significant, † p < 0.05

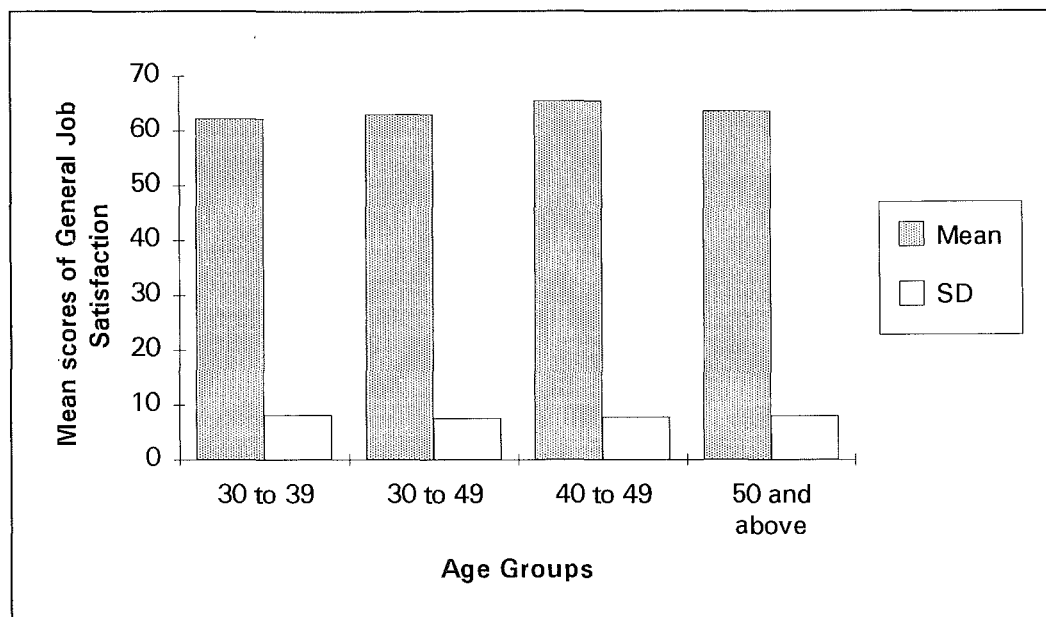


Figure 6.1: General Level of Job Satisfaction between age groups (n=13) as indicated by the MSQ.

ix Career Intentions

No significant between group differences were found on any item or factors relating to; Career Progression (two tailed Mann-Whitney U, $p > 0.05$), Intention to Quit (two tailed Mann-Whitney U, $p > 0.05$) and Working Conditions (two tailed Mann-Whitney U, $p > 0.05$). The results of this analysis are identified in Table 6.10. Although the scores showed no significant between group differences, older employees tended to perceive there were fewer opportunities to advance their careers with their current employers (career progression score), and were slightly happier than younger employees with their working conditions (hours of work, remuneration), as indicated by the working conditions score. Younger employees show a trend towards higher intentions to leave their present employment (intention to quit score).

Table 6.10: Career Intention differences between the older and younger employees.

Career Intentions Items	Group						p
	≥50 (n = 5)			<50 (n= 8)			
	Mean	Median	Range	Mean	Median	Range	
Factor 1	3.6	3.0	2 - 6	5	5.5	2 - 6	0.170 ^{NS}
Factor 2	3.4	3.0	1 - 6	4.6	5.0	1 - 7	0.264 ^{NS}
Factor 3	2.8	1.0	1 - 6	3.3	2.0	1 - 6	0.448 ^{NS}
Factor 4	4.0	5.0	1 - 7	2.75	2.5	1 - 5	0.412 ^{NS}
Factor 5	4.4	5.0	3 - 6	3.9	3.5	2 - 6	0.548 ^{NS}
Factor 6	4.6	4.0	2 - 7	4.25	5.0	2 - 6	0.822 ^{NS}
Factor 7	3.2	1.0	1 - 7	4.3	4.5	1 - 7	0.257 ^{NS}
Factor 8	3.2	1.0	1 - 8	3.8	3.5	1 - 8	0.497 ^{NS}
Career Progression	11	13.0	4 - 18	12.4	12.5	4 - 18	0.883 ^{NS}
Intention to Quit	9.2	3.0	3 - 19	11.4	12	3 - 19	0.552 ^{NS}
Working Conditions	11	10.0	7 - 19	8.1	7.5	5 -12	0.206 ^{NS}

Note: NS = Not Significant (Please note Factors 1-8 are included in Appendix C).

x Probability of Tenure

Correlations between scores from the MSQ, OCQ and CIQ and turnover, were analysed to determine if a probability of tenure index could be developed. As only one person departed from the organisation during the study, no probability of tenure index could be developed.

xi Correlations between Tenure, Performance Value and Psychological Variables

As the sample size was small (n = 13) no conclusive results could be obtained between.

CHAPTER 7 DISCUSSION

A INTERPRETATION OF RESULTS

The aim of the investigation was to examine the comparative value of older and younger employees. Table 7.1 provides a summary of the hypotheses that were tested.

Table 7.1: Hypotheses and Results Summary

Hypotheses Summary	Result
1 No acquisition cost differences between the groups.	Accepted the hypothesis
2 No future maintenance and development cost differences between the groups.	Accepted the hypothesis
3 Separation costs will be higher for the older employee group.	Accepted the hypothesis
4 Replacement costs will be higher for the older employee group.	As no significant between group differences in replacement costs were found, this hypothesis was rejected.
5 There will be no difference in Performance Value between the groups.	As performance value was found to be higher for older employees, this hypothesis was rejected.
6 Human Resource value will be higher for the older employee group.	As no significant in between group differences in human resource value were found, this hypothesis was rejected.
7 Organisational commitment will be higher for older employees.	As no significant in organisational commitment was found between the groups, this hypothesis was rejected.
8 Job satisfaction will be higher for older employees.	As no significant difference in job satisfaction was found between the groups, this hypothesis was rejected. The only significant between group difference found, relates to on job satisfaction - human relations.

i Participant Matching

Forty eight participant employees were involved in the study and were matched on education, salary and job size (as indicated by the job evaluation ratings). These factors can be therefore excluded as having a significant influence on the outcome of the study. In other words, the participants were matched on important factors that may have influenced their contribution and value.

Tenure was significantly higher for older employees and is consistent with earlier studies that found older employees were more stable than younger employees (Arnold & Feldman, 1982; Cohen, 1993; Commonwealth Fund, 1993; Krecker, 1994; Rhodes, 1983).

Although there were no significant differences between the groups, younger employees were slightly more educated than their older counterparts. For older employees, mean salary levels and job responsibilities, (as indicated by the job evaluation scores), were slightly higher compared to the younger employees.

ii Hypothesis 1

No significant differences in acquisition costs were found. This is consistent with the findings from McNaught & Barth (1992) who reported recruitment and selection costs be slightly, but not significantly higher for the younger employee group.

iii Hypothesis 2

No significant between group differences in future training and development costs were found. However it is interesting to note that the training and development costs were higher for younger employees. These findings support those of McNaught & Barth (1992) who also found older employees training costs to be lower than their younger peers.

Elias et al (1982) found older employees took longer to learn to use computer based technology. As employee participants in this study were not generally required to use computer technologies, the findings from Elias's (1987) study appear to be limited to environments where utilisation of new technologies is high and where employees, older or younger are reticent about using these technologies. It appears that where training can be provided to overcome fear of technology, training and development time for older employees will not be significantly different from younger employees (Commonwealth Fund, 1993; McNaught & Barth, 1992).

iv Hypothesis 3

Separation costs and separation pay were significantly higher for the older employee group. Given that tenure was greater for the older employees, it is not surprising that payments relating to redundancy and superannuation were higher for this group.

Long-term losses were expected to be higher for the older employee group, as these people would have typically had more experience in the workforce and therefore more time to develop and refine the relevant skills (Hellerstein & Neumark, 1993). In this study, no significant differences in long-term loss costs were found between group.

Long-term losses were also associated with only eight of the 48 (16.7%) participants. In some instances the losses were considerable, i.e. up to \$360,000. To date, no other research has attempted to measure the impact of separation costs in this manner. The findings of this study suggest that losses may be considerable and irrespective of age and will tend to occur with a minority of the workforce.

v Hypothesis 4

While no significant differences in replacement costs were found between the groups, the mean cost of replacement was higher for the older employee group. This is consistent with the limited amount of research that has investigated the comparative cost of

replacement, between older and younger employees (Commonwealth Fund, 1993; McNaught & Barth 1992).

vi Hypothesis 5

A considerable number of studies have reported the relationship between age and performance to be weak (McEvoy & Cascio, 1989; Rhodes, 1983; Sterns & Miklos, 1995; Waldman & Avolio, 1986). The findings of this study generally support Hellerstein & Neumark (1993) who found older employees to earn 1.34 times that of younger employees as a result of superior levels of productivity. In the present study, older employee salary levels were 1.1 times that of the younger employees. Older employee performance value was found to be 1.12 times that of the younger participants, thus providing justification for the higher salary levels.

These results indicate that salary levels accurately reflect comparative levels of performance and productivity (Hellerstein & Neumark, 1995). However, large within-group variations in performance value indicate highly productive employees may be found in both the older or younger employee groups.

vii Hypothesis 6

The human resource value findings indicate that departures of older and younger employees results in similar levels of financial burden for organisations. Within group variance in human resource value was high and appears to be significantly influenced by the large range of long-term loss costs. As mentioned above, these results lend further weight to the view that generalised negative attitudes toward older employees are not justified, as no significant difference in the value can be attributed to age alone (Bennington & Tharenou, 1996; Cleveland & Shore, 1992; Commonwealth Fund, 1993; Hassell & Perrewe, 1995; Siegel, 1993; Sterns & Miklos, 1995).

There is therefore a need for organisations to assess employee contribution objectively by focusing on performance value and to examine costs (replacement costs, lost sales or

reduced productivity) that will be incurred following employee departure. These costs will not typically be dependant on age. Rather, the magnitude of the costs that will be incurred will be dependant on the timely availability of appropriately skilled people to replace those departing from the organisation (Flamholtz, 1985).

viii Hypothesis 7

Some researchers have found organisational commitment to be significantly higher for older than younger employees (Cohen, 1993; Landau & Hammer, 1986; Smith & Hoy, 1992). However, the small sample size ($n = 13$) prevents any meaningful conclusions being drawn until a larger pool of older and younger employees (≥ 100) have completed the questionnaires.

ix Hypothesis 8

In addition to organisational commitment, previous studies have indicated that job satisfaction is higher for older employees (Bennington & Tharenou, 1996; Heshizer, 1994; Luthans & Thomas, 1989; Warr, 1992). Again, due to the sample size ($n = 13$) a larger number of participants will need to complete the questionnaire before meaningful interpretation of the results can occur.

x Career Intentions

The writer is unaware of any other research that has examined differences between career intentions of older and younger employees, especially using the career progression and intention to quit variables. Although no significant differences were found on any dimension, younger employees did show less commitment to their current employer. As with the other psychological factors, the small sample size ($n = 13$) prevents any meaningful conclusions being made.

xi Predicting Tenure

An intention of this study was to develop further the research of Cohen (1993), Tett & Meyer (1993), Cohen & Hudecek (1993) and Bannister & Griffeth (1986) and produce an index to predict tenure. An index would be useful for identifying employees who may be contemplating leaving their current employer and assist organisations with identification of potential costs and losses. The formula below details how these costs may be predicted using a probability of tenure index.

Table 7.2: Calculating Potential Human Resource Costs and Losses

Potential Human Resource Costs and Losses	= Replacement Cost x (1 - Probability of Tenure Index)
	= Replacement Cost x [1 - (job satisfaction z score + organisational commitment z score + career intention z score) / 3]

This formula shows that as the probability of tenure rises, the probability of costs or losses being incurred declines. Conversely, as the probability of employees leaving their employing organisation rises, there is a greater likelihood associated costs and losses will be incurred. The z scores require development.

This index may help minimise age related bias by providing decision makers with an empirical sound approach to analyse financial factors associated with employee departure. Although further research is required to determine the feasibility of developing and utilising a valid and reliable probability of tenure index, it has potentially significant utility.

B IMPLICATIONS OF FINDINGS

Given that no between group differences were found for human resource value or replacement costs, and that performance value was higher for the older employees, this study provides further evidence that discrimination against older employees is unjustified

and unfounded (Commonwealth Fund; Hassell & Perrewe, 1995; London, 1992; Rosen & Jerdee, 1977; Sterns & Miklos, 1995; Siegal, 1993).

As large variances exist within each of the groups studied, there is a need to focus on the contributory value (performance value) each person makes, as well as the costs and losses associated with departure (acquisition, development and separation). Given that the participation rate of older employees in the workforce is likely to continue to increase, (as the GRI entitlement age rises and legislation banning compulsory retirement, takes effect), organisations need to ensure internal policies and practices do not unfairly discriminate against older employees (Klap, 1996; Statistics New Zealand, 1995b).

Most organisations in New Zealand have little or no HRA systems or information (Dewe, 1996). It is likely that this lack of information results in stereotyping toward older employees, even if policies exist to prohibit such discrimination. Table 7.1 below summarises the costs and performance value of older and younger employees. The results indicate that the loss of employees can have a considerable and negative impact on organisational profitability. Organisations are therefore advised to ensure appropriate strategies recognise and minimise the loss of valued (productive) employees. Stereotyping older employees as having a lower value than younger counterparts not only is misguided but also may result in organisations incurring costs that could be avoided.

Table 7.3: Summary of Older and Younger Employee Costs and Performance Value.

	GROUP						
	≥50 (n = 21)			<50 (n = 27)			
Mean Costs	Mean	Median	Range	Mean	Median	Range	p
Salary (\$)	51908	49950	24388 - 86598	47388	47300	26000 - 78540	0.078 ^{NS}
Job Evaluation (points)	696	669	119 - 1471	617	589	119 - 1379	0.389 ^{NS}
Total Acquisition Costs (\$)	7940	3095	993 - 28,124	8040	11570	730 - 19760	0.644 ^{NS}
Total Future Maintenance and Development Costs (\$)	9576	4350	540 - 26000	14206	11400	490 - 26000	0.224 ^{NS}
Separation Costs (\$)	44717	39500	240 - 212700	43993	22700	0 - 463125	0.043 [†]
Replacement Costs (\$)	62233	48945	1773 - 250270	66240	60270	1930 - 472705	0.975 ^{NS}
Human Resource Value (\$)	115744	101818	24466 - 294280	114002	95298	35872 - 544530	0.284 ^{NS}

Note: † $p < 0.05$

In summary, the results of the study provide further evidence that negative older employee stereotypes are generally unjustified. The HRA model also provides human resource practitioners and managers with a workable strategy to support initiatives that further reduce age discrimination in the workplace.

C LIMITATIONS OF THE STUDY

This study provides general support for the view that discrimination against older employees is warranted. There are however a number of limitations:

1. The findings of the study are limited by the sample size (n = 48). The sample may not be representative of sales, marketing or production employees.

2. As the study focused on those employed in supervisory or management roles, generalisations to other groups, e.g. shop floor employees may not be possible. Shore & Martin (1989) and Cohen & Hudecek (1993) note that job satisfaction and organisational commitment show high variability among differing occupational groups, especially between white and blue collar workers.
3. The results of the relationship between the psychological factors and turnover are inconclusive due to the small sample size. The sample size may have been increased if the study was conducted in a larger centre, with a larger pool companies whom could have been approached. A longer time-frame, over a two to three year period, to recruit participants and review responses would also have been valuable.
4. The costs of acquisition, future development and separation were typically estimated, rather than obtained from historic accounts of the costs that were actually incurred. Once again, a longitudinal study to examine the incurred costs would elicit more precise information than those which were indicated in this study.
5. This study did not attempt to assess older employee bias. Rather, evidence that bias against older employees is unjustified was provided in the form of older and younger employees' replacement costs and performance values (Hassell & Perrewe, 1995). However, it appears that bias toward older employees is deeply ingrained, despite the compelling evidence that such attitudes are unfounded and illogical. A conscious and sustained effort on the part of management to resolve the issue is therefore required. HRA will provide a means by which organisations can objectively identify the contribution employees make to organisations and further reduce reliance on anecdotal evidence, which may result in age-related bias.

D FUTURE RESEARCH

This thesis has provided compelling, albeit preliminary evidence, that older employees make equal contributions to organisations compared with younger employees. In some instances the older group outperformed their younger counterparts.

However a number of the findings were inconclusive. Further research to substantiate these results:

1. Hassell & Perrewé (1995) and Siegel (1995) note that negative attitudes toward older employees are highly ingrained. Further research into how managers can effectively communicate and implement programmes to minimise and ultimately eliminate ageism from the workplace is required.
2. Further development of a probability of tenure index is required. The concept of "continuance commitment" appears to be a worthwhile line of enquiry (Meyer et al, 1989, p152). It is recommended that in future studies, the sample size should be a minimum of 100 and the duration over a two to three year period to thoroughly investigate the feasibility of the probability of index. As mentioned previously, this index could provide organisations with a means to identify and potentially to avoid significant human resource costs.

Dawson (1994a) suggests the economic factors such as economic growth rates and other economic indicators may also be worthwhile avenues for tenure prediction research.

3. Sackmann, Flamholtz & Bullen (1989) indicate that HRA information will be more widely used when the information motivates and influences behaviour, and is perceived to be useful by decision makers, investors and employees.

During the course of the study many employers stated they were reluctant to participate as they felt the information was too sensitive, and they did not want their

employees to be provided with such information. Further research to examine manager and employee acceptance of HRA to reduce age discrimination is much needed.

REFERENCES

- Atkinson, R.L., Atkinson, R.C., & Hilgard, E.R. (1993). Introduction to Psychology. San Diego: Harcourt Brace
- American Accounting Association. (1973). Report of the Committee on human resource accounting. The Accounting Review, Supplement to Volume 48, 169-185.
- Applebaum, S.H., & Hood, J. (1993). Accounting for the firm's human resources. Managerial Accounting, 8, 2, 17-24.
- Arnold, H.J., Feldman, D.C. (1982). A multivariate analysis of the determinants of job turnover. Journal of Applied Psychology, 67, 350-360.
- Arthur, J.B. (1994). Effects of Human Resource systems on manufacturing performance and turnover. Academy of Management Journal, 37, 3, 670-687.
- Aryee, S., Chay, Y.W., & Chew, J. (1994). An investigation of the predictors and outcomes of career commitment in three career stages. Journal of Vocational Behaviour, 44, 1-16.
- Baker, G.M. (1974). The feasibility and utility of Human Resource Accounting. California Management Review, 10, 4, 17-23.
- Band, D.C., & Scanlon, G. (1995). Strategic control through core competencies. Long range planning, 28, 2, 102-114.
- Bannister, B.D. & Griffeth, R. W. (1986). Applying a causal analytic framework to Mobley, Horner & Hollingsworth's (1978) Turnover Model: A useful re-examination. Journal of Management, 12, 3, 433-443.
- Bedeian, A.G., Ferris, G.R., & Kaemar, K.M. (1992). Age, tenure and job satisfaction: Journal of Vocational Behaviour, 40, 33-48.
- Bell, I. (1988). Human resource accounting in the VFL. School of Management, Deaking University, Occasional Paper 103.
- Bennington, L., & Tharenou, P. (1996). Older workers: Myths, evidence and implications for Australian managers. Asia Pacific Journal of Human Resources, 34, 3, 63-76.
- Bird, C.P., & Fisher, T.D. (1986). Thirty years later: Attitudes toward the employment of older workers. Journal of Applied Psychology, 71, 3, 515-517.
- Blau, G. (1989). Testing the generalizability of a career commitment measure and its impact on employee turnover. Journal of Vocational Behaviour, 35, 88-103.
- Bommer, W.H., Johnson, J.I., Rich, G.A., Podsakoff, P.M., & MacKenzie, S.B. (1995). On the interchangeability of objective and subjective measures of employee performance: A meta analysis. Personnel Psychology, 48, 587-605.

- Bowers, W.H. (1952). An appraisal of worker characteristics as related to age. Journal of Applied Psychology, 36, 296-300.
- Bretz, R.D., & Milkovitch, G.T. (1992). The current state of performance appraisal research and practice: concern, directions and implications. Journal of Management, 18, 321-352.
- Britton, J. & Thomas, K. (1973). Age and sex as employment variables: Views of employment service interviewers'. Journal of Employment Counselling, 10, 180-186.
- Bromwich, M. (1984) The usefulness of current replacement cost information within a general economic framework. In J Klaasen & P Verburg (Eds.) Replacement costs for managerial purposes. Elsevier Science Publishers: Amsterdam.
- Brummet, R. Lee. (1974). Accounting for human resources. CMA Bulletin, 11, 9-23.
- Brummet, R., Lee., Flamholtz, E.G., Pyle, W.C. (1969). Human resource accounting: A tool to increase managerial effectiveness. Management Accounting, August, 12-15.
- Burchell, N. (1995). Competencies and Human Resource Management Applications. Proceedings of the IPMNZ, National Conference, Christchurch.
- Burkhauser, R.V. (1978) The pension acceptance decision of older workers. The Journal of Human Resources, 14, 1, 63-75.
- Caplan, E.H., & Landekich, S. (1974). Past, present and future. National Association of Accountants: New York.
- Carter, C.C. (1994). Measuring and improving the human resources function. Employment Relations Today, Spring, 63-78.
- Cascio, W.F. (1991). Costing human resources: The financial impact of behaviour on organizations. Boston: PWS Kent.
- Cascio, W.F., & Ramos, R.A. (1986). Development and application of a new method for assessing job performance in behavioural/economic terms. Journal of Applied Psychology, 71, 20-28.
- Cleveland, J.N., & Shore, L (1992). Self and supervisory perspectives on age and work attitudes and performance. Journal of Applied Psychology, 77, 469-484.
- Cohen, A. (1993). Organisational commitment and turnover: A meta analysis. Academy of Management Journal, 36, 5, 1140-1157.
- Cohen, A., & Hudecek, N. (1993). Organisational commitment turnover relationship across occupational groups. Group and Organisation Management, 18, 2, 188-213.

- Commonwealth Fund (1993). The Untapped Resource: The final report of the American over 55 at work program. New York: The Commonwealth Fund.
- Cotton, J.L., & Tuttle J.M. (1986). Employee turnover: A meta analysis and review with implications for research. Academy of Management Review, 11, 1, 55-70.
- Cox, T., & Nkomo, S.M. (1992). Candidate age as a factor in promotability ratings. Public Personnel Management, 21, 2, 197-210.
- Craft, J.A., & Birnberg, J.C. (1976). Human Resource accounting: Perspective and prospects. Industrial Relations, February, 2-12.
- Dalessio, A., Silverman, W.H., and Schuck, J.R. (1986). Paths to turnover: A re-analysis and review of existing data on the Mobley, Horner and Hollingsworth turnover model. Human Relations, 39, 3, 245-264.
- Dalmahoy, M. (1996). Putting a value on people. Management Accounting, February, 27-28.
- Dawson, C. (1994a). The use of simulation methodology to explore Human Resource Accounting. Management Decision, 32, 7, 46-52.
- Dawson, C. (1994b). Human Resource Accounting: From prescription to description. Management Decision, 32, 6, 35-40.
- Dawson, C. (1989). The moving frontiers of personnel management: Human resource management or human resource accounting. Personnel Review, 18, 3, 3-12.
- Dawson, C. (1988). Costing labour turnover through simulation processes: A tool for management. Personnel Review, 17, 4, 29-37.
- Deloitte Touche Tohmatsu (1994). Survey of peoples experience of redundancy. Deloitte Touche Tohmatsu: Wellington.
- Deloitte Touche Tohmatsu (1995). Job Evaluation Manual. Deloitte Touche Tohmatsu: Wellington.
- Dennis, H. (1988). Management training. In H. Dennis (Ed.) Fourteen steps in managing an ageing workforce, 141-154.
- Dewe, P. (1996). Valuing Human Resources. Proceedings of the IPMNZ, National Conference, Palmerston North.
- DeWalt, R.L. (1977). Replacement costs - another nightmare for accountants. Management Accounting, October, 17-22.
- Dittman, D.A., Juris, H.A. & Revsine, L. (1980). Unrecorded human assets: A survey of accounting firm's training programs. The Accounting Review, 55, 4, 640-647.

- Dittman, D.A., Juris, H.A. & Revsine, L. (1976). On the existence of unrecorded human assets: An economic perspective. Journal of Accounting Research, Spring, 49-65.
- Edwards, J.E., & Frederick, J.T., & Burke, M. J. (1988). Efficacy of modified CREPID SDys on the basis of archival organizational data. Journal of Applied Psychology, 73, 3, 529-535.
- Elias, N. (1972). The effects of human assets statement on the investment decision: An experiment. Journal of Accounting Research Supplement.
- Elias, P.K., Elias, M.F., Robbins, M.A., & Gage, P. (1987). Acquisition of word-processing skills by younger, middle-age and older adults. Psychology and Aging, 2, 4, 340-348.
- Employment Institutions Information Centre. (1996). Employment Cases Summary, August. Wellington: Employment Institutions Information Centre.
- Eggers, H. C. (1971). The evaluation of human assets. Management Accounting, November, 28-30.
- Fazio, R.H., Zanna, M.P., & Cooper, J. (1977). Dissonance and self-perception: An integrative view of each theory's proper domain and application. Journal of Experimental Social Psychology, 13, 464-479.
- Festinger, L., & Carlsmith, J.M. (1959). Cognitive consequences of forced compliance. Journal of Abnormal and Social Psychology, 58, 203-210.
- Figler, H.R. (1975). Accounting for Human Assets. Management Accounting, November, 23-26.
- Finkelstein, L.M., Burke, M.J., & Raju, N.S. (1995). Age discrimination in simulated employment contracts: An integrated analysis. Journal of Applied Psychology, 80, 6, 652-663.
- Fitz-enz, J. (1993). The mythology of measuring staff performance. Canadian Business Review, Spring, 17-20.
- Flamholtz, E. G. (1971). A model for human resource valuation: a stochastic process with service rewards. The Accounting Review, April, 666-678.
- Flamholtz, E. G. (1972a). Toward a theory of human resource value in organisations. The Accounting Review, 47, 666-678.
- Flamholtz, E.G. (1972b). Assessing the validity of a theory of human resource value: A field study. Empirical research in Accounting, Selected Studies, 241-266.
- Flamholtz, E. G. (1973). Human resource accounting: Measuring positional replacement costs. Human Resource Management, Spring, 8-16.

- Flamholtz, E. G. (1974). Human Resource Accounting. Belmont, California: Dickenson Publishing.
- Flamholtz, E. G. (1975). Assessing the validity of selected surrogate measures of human resource value: a field study. Personnel Review, 4, 3, 37-50.
- Flamholtz, E.G. (1980). The process of measurement in managerial accounting: A psycho-technical systems perspective. Accounting, Organizations and Society, 5, 31-42.
- Flamholtz, E.G. (1984). The development of a replacement cost model for measuring capital: A field study. Personnel Review, 13, 25-35.
- Flamholtz, E. G. (1985). Human Resource Accounting. San Francisco: Josey Bass Publishers.
- Flamholtz, E. G. (1987). Valuation of human assets in a securities brokerage firm: An empirical study. Accounting, Organizations and Society, 12, 4, 309-318.
- Flamholtz, E. G., Searfoss, D.G. & Coff, R. (1988). Developing human resource accounting as a human resource decision support system. Human Resource Accounting, September, 1-9.
- Flamholtz, E. G., & Wollman, J.B. (1978). The development and implementation of the stochastic rewards model for human resource valuation in a human capital intensive firm. Personnel Review, 7, 3, 20-38.
- Frantzberg, R.B., Landau, L.L.T., & Lundberg, D.P. (1974). The valuation of human resources. Business Horizons, June, 73-80.
- Friedman, A., & Lev, B. (1974). A surrogate measure for the firm's investment in human resources. Journal of Accounting Research, 12, 2, 235-250.
- Gibson, V.M. (1995). Compensation management: Align people with business strategies. Human Resource Focus, March, 18-20.
- Greer, D.L., & Cascio, W.F. (1987). Is cost accounting the answer ? Comparison of two behaviourally based methods for estimating the standard deviation of job performance in dollars with a cost accounting based approach. Journal of Applied Psychology, 72, 4, 588-595.
- Hantula, D.A. (1992). The basic importance of escalation. Journal of Applied Behaviour Analysis, 25, 579-583.
- Harrell, A.M., & Klick, H.D. (1980). Comparing the impact of monetary and non-monetary human asset measures on executive decision making. Accounting, Organisations and Society, 5, 4, 393-400.
- Hassell, B., Perrewew, P.L. (1995). An examination of beliefs about older workers: do stereotypes still exist? Journal of Organisational Behaviour, 16, 457-468.

- Head, G.L. (1994). Protecting employee productivity. Risk Management, March, 55-63.
- Hekimian, J.S., & Jones, C.H. (1967). Put people on your balance sheet. Harvard Business Review, January-February, 105-113.
- Hellerstein, J.K., & Neumark, D. (1993). Are earnings profiles steeper than productivity profiles ? Evidence from Israeli firm level data. The Journal of Human Resources, 30, 89-109.
- Hendricks, J.A. (1976). The impact of human resource accounting information on stock investment decisions. The Accounting Review, April, 292-305.
- Heshizer, B. (1994). The impact of flexible benefit plans on job satisfaction, organisation commitment and turnover intentions. Benefits Quarterly, Fourth Quarter, 84-90.
- Hutchens, R.M. (1988). Do opportunities decline with age ? Industrial and Labour Relations Review, 42, 1, 89-99.
- Hodges, C. (1994). Why aged policies on redundancy need reviewing. Personnel Management, June, 15.
- Iaffaldano, M.T., & Muchinsky, P.M. (1985). Job satisfaction and job performance: A meta-analysis. Psychological Bulletin, 97, 2, 251-273.
- Ironson, G.H., Smith, P.C., Brannick, M.T., Gibson, W.M., & Paul, K.B. (1989). Construction of a job in general scale: A comparison of global, composite and specific measures. Journal of Applied Psychology, 74, 193-200.
- Irving, P. (1979). Human resources accounting: A review of some of its problems. Massey University, Working Papers in Accounting Theory No. 3.
- Jaggi, B.L. (1974). Valuation of human resources in a firm. The Chartered Accountant, March, 467-470.
- James, D. (1996). Ageing populations will sort out the fittest economies. Business Review Weekly, July, 15, 76-77.
- Juach, R., & Skigen, M. (1974). Human Resource Accounting: A critical evaluation. Management Accounting, May, 33-36.
- Jones, M. (1996). HR Management: Four trends to reckon with. HR Focus, July, 22-23.
- Judiesch, M.K., Schmidt, F.L., & Mount, M.K. (1992). Estimates of the dollar value of employee output in utility analyses: An empirical test of two theories. Journal of Applied Psychology, 77, 3, 234-250.
- Kalleberg, A.L., & Lascocco, K.A. (1983). Ageing, values and rewards: Explaining age differences in job satisfaction. American Sociological Review, 48, 78-90.
- Kelleher, C.H., & Quirk, Q.A. (1973). Age physical capacity and work: An emotional bibliography. Industrial Gerontology, 19, 80-98.

- Kirchner, W.K., Dunnette, M.D. (1954). Attitudes toward older workers. Personnel Psychology, 7, 257-265.
- Klaasen, J., & Verburg, P. (1984). Replacement costs for managerial purposes. Elsevier Science Publishers: Amsterdam.
- Klap, B. (1996). New Zealand should raise retirement age. Christchurch Press, August 13.
- Krecker, M.L. (1994). Work careers and organisational careers. Work and Occupations, 21, 3, 251-283.
- Landy, F.J. (1989). Psychology of work behaviour. Pacific Grove, California: Brooks/Cole Publishing.
- Landau, J., Hammer, T.H. (1986). Clerical workers' perceptions of inter organisational career opportunities. Academy of Management Journal, 29, 385-404.
- Lau, A., & Lau, H. (1978). Some proposed approaches for writing of capitalised human resource assets. Journal of Accounting Research, Spring, 81-102.
- Lev, B., & Schwartz, A. (1971). On the use of the economic concept of human capital financial statements. The Accounting Review, January, 103-112.
- Liao, S.S. (1974) Human Assets: Human Resources and managerial decisions. Management Accounting, November, 19-22.
- Liner, G.H. (1994). Is the age 60 rule relevant ? Applied Economics, 26, 1055-1060.
- London, M. (1992). When older workers are not expendable: Organizational conditions associated with hiring and developing people over age 55. International Journal of Career Management, 4, 2, 15-25.
- Lufthans, F., & Thomas, L.T. (1989). The relationship between age and job satisfaction: Curvilinear results from an empirical study. Personnel Review, 18, 23-26.
- Luscombe, N. (1996). Most valuable asset (editorial). CA Magazine, April, 3.
- McDonald, R.B. (1988) The physiological aspects of ageing. In H Dennis (Ed.) Fourteen steps in managing an ageing workforce, 39-51.
- McEvoy, G.M., & Cascio, W.F. (1989). Cumulative evidence of the relationship between employee age and job performance. Journal of Applied Psychology, 74, 11-17.
- McNaught, W., & Barth, M.C. (1992). Are older workers "Good Buys" ? A case study of Days Inn America. Sloan Management Review, 33, 3, 53-63.

- Meyer, J.P., Panonen, S.V., Gellatly, I.R., Goffin, R.D., & Jackson, D.N. (1989). Organisational commitment and job performance: It's the nature of the commitment that counts. Journal of Applied Psychology, 74, 1, 152-156.
- Mirvis, P.H., & Macy, B.A. (1976). Human resource accounting: A measurement perspective. Academy of Management Review, 1, 74-83.
- Mitchell, O.S. (1988). The relation of age to workplace injuries. Monthly Labor Review, July, 8-13.
- Mobley, W.H., Horner, S.O., & Hollingsworth, A.T. (1978). An evaluation of precursors of hospital employee turnover. Journal of Applied Psychology, 63, 4, 408-414.
- Mowday, R.T., Steers, R.M., & Porter, L.W. (1979). The measurement of organizational commitment. Journal of Vocational Behaviour, 14, 224-247.
- Nicholson, N., Brown, C.A., & Chadwick-Jones, J.K. (1977). Absence from work and personal characteristics. Journal of Applied Psychology, 62, 319-327.
- Nisbett, R., & Ross, L. (1980). Human Inference: Strategies and short comings of judgement. Englewoof Cliffs, New Jersey: Prentice Hall.
- Ogan, P. (1976). A Human Resource Value Model for professional service organisations. The Accounting Review, April, 306-320.
- Ogan, P. (1988). Assessing the impact of HRA on managerial decision: A field experiment. Personnel Review, 17, 3, 29-35.
- Oliver, J., & Flamholtz, E.G. (1978). Human resource replacement cost numbers, cognitive information processing and personnel decisions: A laboratory experiment. Journal of Business Finance & Accounting, 5, 2, 137-157.
- O'Meara, R.J. (1977). Retirement: reward or rejection. Ontario, Canada: The Conference Board.
- Osberg, L. (1993). Is it retirement or unemployment ? Induced retirement and constrained labour supply among older workers. Applied Economics, 25, 505-519.
- Patrickson, M., & Hartmann, (1996). Older women: retailing utilizes a neglected workforce. Asia Pacific Journal of Human Resource Management, 34, 2, 88-98.
- Phillips, J.J. (1992). 13 ways to show you're worth it. A guide to human resource evaluation. The Human Resources Professional, Winter, 59-63.
- Pinder, C.C., & Pinder, P.R. (1974). Demographic correlates of managerial style. Personnel Psychology, 27, 257-270.

- Porter, L.W., Steers, R.M., Mowday, R.T., & Boulian, P.V. (1974). Organizational commitment, job satisfaction, and turnover among psychiatric technicians. Journal of Applied Psychology, 59, 603-609.
- Reed, S., Kratchman, S.H., & Strawser, R.H. (1994) Job satisfaction, organisational commitment, and turnover intentions of United States accountants. Accounting, Auditing & Accountability Journal, 7, 1, 31-58.
- Rhode, J.G., Lawler, E.E., & Sundem, G.L. (1976). Human Resource Accounting: A critical assessment. Industrial Relations, February, 13-25.
- Rhode, J.G., Sorensen, J.E., & Lawler, E.E. (1977). Source of professional staff turnover in public accounting firms revealed by exit interview. Accounting, Organization and Society, 2, 2, 165-175.
- Rhodes, S.R. (1983) Age-related differences in work attitudes and behaviour: A review and conceptual analysis. Psychological Bulletin, 93, 328-367.
- Riely, R.R., & Smither, J.W. (1985). An examination of two alternative techniques to estimate the standard deviation of job performance in dollars. Journal of Applied Psychology, 70, 4, 651-661.
- Rosen B. & Jerdee, T (1976a). The influence of age stereotypes on managerial decisions. Journal of Applied Psychology, 61, 428-432.
- Rosen, B. & Jerdee, T (1976b). The nature of job related age stereotypes. Journal of Applied Psychology, 61, 428-432.
- Rosen, B. & Jerdee, T (1977). Too old or not too old ? Harvard Business Review, 55 November, 97-106.
- Rosenthal, R. (1979). The file drawer problem and tolerance of null results. Psychological Bulletin, 86, 638-641.
- Roser, S.R. (1983). A practical approach to the use of Human Resource Accounting. Managerial Planning, 32, 35-39.
- Roslender, R., & Dyson, J.R. (1992). Accounting for the worth of employees: A new look at an old problem. British Accounting Review, 24, 311-329.
- Rudman, R. (1995). Competencies and capabilities for effective Human Resource Management. IPMNZ, National Conference.
- Sackmann, S.A., Flamholtz, E.G., & Bullen, M.L. (1989). Human Resource Accounting: A state of the art review. Journal of Accounting Literature, 8, 235-264.
- Sadan, S., & Auerbach, L.B. (1994) A stochastic model for human resource valuation. California Management Review, 16, 4, 24-31.
- Scarpello, V., & Jones, F.F. (1996). Why justice matters in compensation. Journal of Organizational Behaviour, 17, 285-292.

- Scarpello, V., & Theeke, H.A. (1989). Human Resource Accounting: A measured critique. Journal of Accounting Literature, 8, 265-280.
- Schaie, W. (1990). Intellectual development in adulthood. In J. E. Birren & K.W (Eds.) Handbook of the psychology of ageing. New York: Van Nostrand Reinhold.
- Schaubroeck, J., May, D.R., & Brown, F.W. (1994). Procedural justice explanations and employee reactions to economic hardship: A field experiment. Journal of Applied Psychology, 79, 3, 455-460.
- Schwan, E.S. (1976). The effects of Human Resource Accounting data on financial decisions: An empirical test. Accounting, Organizations & Society, 1, 219-237.
- Siegel, S.R. (1993). Relationship between current performance and the likelihood of promotion of older versus younger workers. Human Resource Development Quarterly, 4, 1, 39-50.
- Shatto, G.M. (1972). Employment of the middle aged. Springfield: Illinois, Charles C Thomas Publishers.
- Shore, L.M., & Martin, H.J. (1989). Job satisfaction and organisational commitment in relation to work performance and turnover intentions. Human Relations, 42, 7, 625-638.
- Sims, R.L., & Kroeck, K.G. (1994). The influence of ethical fit on employee satisfaction, commitment and turnover. Journal of Business Ethics, 13, 939-947.
- Sonnenfeld, J. (1989). Dealing with the ageing workforce. In Harvard Business Review (Ed.) People: Managing your most important asset, 109-120.
- Sonnenfeld, J. (1988). Continued work contributions in late career. In H Dennis (Ed.) Fourteen steps in managing an ageing workforce, 193-211.
- Stabile, D.R. (1993). Accountants and the price system: The problem of social costs. Journal of Economic Issues, 27, 1, 171-138.
- Statistics New Zealand (1996a). March 1996 Household Labour Force Survey. Statistics New Zealand: Wellington.
- Statistics New Zealand (1996b). Key Statistics. June, Statistics New Zealand: Wellington.
- Statistics New Zealand (1996c). Hot off the press - Population estimates. December, Statistics New Zealand: Wellington.
- Statistics New Zealand (1995a). Demographic trends - December 1995, February, Statistics New Zealand: Wellington.
- Statistics New Zealand (1995b). New Zealand now. May, Statistics New Zealand: Wellington.

- Steel, R.P., & Ovalle, N.K. (1984). A review and meta analysis of research on the relationship between behavioural intentions and employee turnover. Journal of Applied Psychology, 69, 4, 673-686.
- Sterns, H.L. & Alexander, R.A. (1988). Performance Appraisal of the older worker. In H. Dennis (Ed.) Fourteen steps in managing an ageing workforce, 85-93.
- Sterns, H.L. & Miklos, S.M. (1995). The ageing worker in a changing environment: Organisational and individual issues. Journal of Vocational Behaviour, 47, 248-268.
- Stevens, S.S. (1971). Issues in psychological measurement. Psychological Research, 78, 426-450.
- Taylor, D.E., & Walker, A. (1994). The ageing workforce. Work, Employment & Society, 84, 569-591.
- Tett, R.P., & Meyer, J.P. (1993). Job satisfaction, organisation commitment, turnover intention and turnover: Path analysis based on meta analytic findings. Personnel Psychology, 46, 259-293.
- Tomassini, L.A. (1977). Assessing the impact of human resource accounting: An empirical study of managerial decision preferences. The Accounting Review, 52, 4, 904-914.
- Vroom, V.H., & Pahl, B. (1971). Age and risk taking among managers. Journal of Applied Psychology, 12, 22-28.
- Ward, E.A. (1988). Relation of job satisfaction and job knowledge and their effect on intention to turnover. Psychological Reports, 63, 611-615.
- Warr, P. (1994) Age and employment. In M.Dunnette, L. Hough, & H. Triandia (Eds.), Handbook of industrial and organisational psychology, Palo Alto, California: Consulting Psychologists Press.
- Warr, P. (1991). Age and Employment. British Psychological Society Conference, January.
- Warr, P. (1992). Age and occupational well being. Psychology and Ageing, 7, 1, 37-45.
- Waldman, D.A., & Avolio, B.J. (1986). Meta analysis of age differences in job performance. Journal of Applied Psychology, 71, 33-38.
- Weaver, C.N. (1980). Job satisfaction in the United States in the 1970's. Journal of Applied Psychology, 65, 364-367.
- Weekley, J.A., O'Conner, E.J., Frank, B., & Peters, L.W. (1985). A comparison of three methods of estimating the standard deviation of performance in dollars. Journal of Applied Psychology, 70, 122-126.

- Weiss, D.J., Dawis, R.V., England, G.W., & Lofquist, L.H. (1967). Manual for the Minnesota Satisfaction Questionnaire. The Vocational Rehabilitation Administration: University of Minnesota.
- Werbal, J.D., & Gould, S. (1984). A comparison of the relationship of commitment to turnover in recent hires and tenured employees. Journal of Applied Psychology, 69, 4, 687-690.
- Williams, L.J., & Hazer, J.T. (1986). Antecedents and consequences of satisfaction and commitment in turnover models: A re-analysis using latent variable structural equation methods. Journal of Applied Psychology, 71, 2, 219-231.
- Worsley, R. (1996). Only prejudices are old and tired. People Management, 11 January, 18-23.
- Woodruff, D.S. (1983). A review of ageing and cognitive processes. Research on Ageing, 2, 139-152.

APPENDICES

APPENDIX A

MODIFIED CASCIO and RAMOS ESTIMATE OF PERFORMANCE IN DOLLARS (CREPID)

The information contained in this appendix was derived from Cascio (1991),213-221.

The Cascio-Ramos Estimate of Performance in Dollars (CREPID) was developed to determine the economic value of individual employee job performance using market related salary as a basis on which to value a position.

The modified CREPID approach:

- identifies position principal activities and competencies
- rates each principal activity and competency in terms of time/frequency and importance
- requires each activity to be rated on each principal activity.

The resulting ratings are then are translated into estimates of dollar value for each activity and competency. The sum of the dollar values assigned to each activity and competency is equal to the economic value of each employee's job performance to the company. Each of these steps will now be explained in greater detail.

1. Identify principal activities and competencies.

In order to assign a dollar value to each employee's job performance, the tasks each employee performs in terms of principal activities and competencies must be identified. These may be derived from a job analysis or position description.

Sample of Principal Activities and Competencies for an Account Manager:

- a. Develop annual business and marketing plans.
- b. Maintaining contact with customers in accordance with the call cycle plan.
- c. Provide monthly competitor reports to the Marketing Manager.
- d. Promote, to current and potential customers, the company's products and services through the delivery of effective presentations.
- e. Execute sale negotiations of products and services with customers.
- f. Conduct market analysis to identify potential customers.
- g. Implement sales strategies which enhance sales volumes.
- h. Produce annual and monthly budget forecasts for Marketing Manager to approve.
- i. Provide monthly reports to Marketing Manager relating to call cycle, sales performance and variances outside pre-determined limits.
- j. Develop positive working relationships with colleagues in the marketing and production divisions.
- k. Provide effective supervision of one Secretary and one Market Analyst.

2. Rate each principal activity and competency in terms of time/frequency and importance.

Rate job activities and competencies in terms of the time or frequency to give an indication of the overall weight to be assigned to each activity and competency.

Time/frequency: Rate each activity and competency on the 0-5 scale shown below. The rating should reflect the time/frequency activities and competencies have been performed over a 12 month period. The scale below may be used as a guide.

0	1	2	3	4	5
Not Performed	Annual / Bi-annual	Monthly	Fortnightly	Weekly	Daily / Continuous

Importance: Each activity and competency is rated on the 0-5 scale that reflects, how important each activity and competency is to overall job performance.

0	1	2	3	4	5
Unimportant	Minor	Moderate	Significant	Highly Significant	Critical

3. Multiply the numerical ratings for time/frequency and importance for each principal activity and competency to obtain a relative weighting.

At this stage an overall relative weight is assigned to assign each activity. If an activity is not performed or is unimportant, then the relative weight for that activity and competency is zero. A hypothetical rating of activities and competencies performed by the Account Manager are identified below.

Principal Activity / Competency	Time / Frequency	x	Importance	=	Total	Relative Weight (%)
a.	2		4		8	4.9
b.	5		5		25	15.4
c.	3		5		15	9.3
d.	3		5		15	9.3
e.	3		4		12	7.4
f.	2		4		8	4.9
g.	5		3		15	9.3
h.	3		4		12	7.4
i.	3		4		12	7.4
j.	5		4		20	12.3
k.	5		4		20	12.3
					162	100%

After completing the multiplication exercise, the overall ratings assigned to each activity and competency are totalled (162 in the above example). The overall rating for each activity and competency then is divided by the grand total to derive the relative weight for the activity and competency (for example $8 \div 162 = 4.9\%$). Knowing the relative weight of each activity and competency allows an allocation of salary to each activity and competency to be made. This is done in Step 4.

4. Assign dollar values to each principal activity and competency.

Take the average annual salary (normally from a job evaluation or market related salary survey and allocate the derived salary to principal activities and competencies, according to the relative weights obtained in Step 3. In this example the market rate annual salary for the Account Manager position is \$45,000,

Principal Activity / Competency	Relative Weight (%)	Dollar Value
a.	4.9	2,222
b.	15.4	6,944
c.	9.3	4,167
d.	9.3	4,167
e.	7.4	3,333
f.	4.9	2,222
g.	9.3	4,167
h.	7.4	3,333
i.	7.4	3,333
j.	12.3	5,556
k.	12.3	5,556
	100%	<u>\$45,000</u>

5. Rate performance on each principal activity and competency on a zero to two hundred scale.

Now that we know:

- what each employee does
- the relative weight of each principal activity and competency
- the dollar value of each principal activity and competency

the next task is to determine how well the employee does each principal activity and competency.

The higher the rating on each activity and competency, the greater is the economic value of that activity and competency to the organisation. The modified CREPID uses 100% as the referent level of performance.

This is the level as which performance can be considered acceptable to the organisation. A continuous 0 - 200 scale is used to rate each employee on each

activity and competency. (In reality, the scale is open ended). It will be critical that measures of performance are specific and objective.

0	50	100	150	200
No Performance	Performing at 50% of the required level	Performing at the required level	Performing at 150% of the required level	Performing at 200% of the required level

6. **Multiply the point rating (expressed as a decimal number) assigned to each activity and competency by the dollar value of each activity and competency.**

To illustrate, suppose the following point totals are assigned to the Account Manager:

Activity	Performance Rating	Dollar Value (from Step 4)	Actual Performance Value in Dollars
a.	1	2,222	2,222
b.	0.9	6,944	6,250
c.	0.8	4,167	3,333
d.	1.1	4,167	4,583
e.	1.05	3,333	3,500
f.	1	2,222	2,222
g.	1.2	4,167	5,000
h.	1	3,333	3,333
i.	1	3,333	3,333
j.	1	5,556	5,556
k.	1	5,556	5,556
			TOTAL \$44,889

7. **Compute the overall economic value of each employee's job performance by adding the results of Step 6.**

In our example, the overall economic value the Account Manager's performance is **\$44,889** or **\$111** less than he/she is currently being paid.

APPENDIX B

ORGANISATIONAL COMMITMENT QUESTIONNAIRE

(Mowday, Steers and Porter, 1979. Reprinted with the permission of the Journal of Vocational Behaviour. Copyright © 1979 by Academic Press Inc. All rights of reproduction in any form reserved).

INSTRUCTIONS	
<p>Listed below are a series of statements that represent possible feelings that individuals might have about the company or organisation for which they work. With regard to your own feelings about the organisation for which you are now working (Company Name) please indicate the degree you agree or disagree with each statement by checking one of the seven alternatives below each statement.</p>	<p>RESPONSES (1 - 7)</p>
<ol style="list-style-type: none"> 1. I am willing to put in a great deal of effort beyond that normally expected in order to help this organisation be successful 2. I talk up this organisation to my friends as a great organisation to work for. 3. I feel very little loyalty to this organisation 4. I would accept almost any job assignment in order to keep working for this organisation 5. I find that my values and the organisation's values are very similar 6. I am proud to tell others that I am part of this organisation 7. I could just as well be working for a different organisation as long as the type of work was similar 8. This organisation really inspires the very best in me in the way of job performance 9. It would take very little change in my present circumstances to cause me to leave this organisation 10. I am extremely glad that I chose this organisation to work for over others I was considering at the time I joined 11. There's not too much to be gained by sticking with this organisation indefinitely 12. Often, I find it difficult to agree with this organisation's policies on important matters relating to its employees 13. I really care about the fate of this organisation 14. For me this is the best of all possible organisations for which to work 15. Deciding to work for this organisation was a definite mistake on my part 	
<p>Responses to each item are measured on a 7-point scale with scale point anchors labelled: (1) Strongly Disagree, (2) Moderately Disagree, (3) Slightly Disagree, (4) Neither Disagree Nor Agree, (5) Slightly Agree, (6) Moderately Agree, (7) Strongly Agree.</p>	

APPENDIX C

CAREER INTENTION QUESTIONNAIRE (Landau & Hammer, 1986, p404).

KEY:

1 = Strongly Disagree

2 = Disagree

3 = Somewhat Disagree

4 = Unsure

5 = Somewhat Agree

6 = Agree

7 = Strongly Agree

	1	2	3	4	5	6	7
1. There are prospects for career growth and advancement within the Company.							
2. I feel my present job will lead to future attainment of my career goals.							
3. I am actively looking for a job outside the Company.							
4. It is important that I spend my career with this Company rather some other organisation.							
5. I am satisfied with my current working conditions including my hours of work and level of remuneration.							
6. My manager takes time to learn about my career goals and aspirations							
7. As soon as I can find a better job I will leave the Company.							
8. I am seriously thinking about quitting my job.							

APPENDIX D

INFORMATION SHEET - INDIVIDUAL

University of Canterbury

Department of Psychology

EMPLOYEE Information Sheet - «Title» «FirstName» «LastName»

You are invited to participate as a participant in the research project “**The Comparative Value of Older versus Younger Employees.**”

The aim of this project is to: **investigate the comparative value of older and younger employees.**

Your participation in this project will involve:

- i. completing three questionnaires relating to:
 - a. Job Satisfaction
 - b. Organisational Commitment
 - c. Career Intentions

Some examples of the questions that will be asked are as follows:

“I am actively looking for a job outside «Company»”

“I would accept almost any job assignment in order to keep working for this organisation “

“I could just as well be working for a different organisation as long as the type of work was similar”

- ii. validating a performance rating schedule which has been completed by your manager

Information relating to replacement costs, should you leave your current position, salary and job evaluation information will also be obtained from your employer. **This information will be kept absolutely confidential and will only be used for the purposes outlined in this study.**

On completion and return of the questionnaires to the researcher, feedback will be provided to you once the tests you completed have been scored and interpreted. (If you give your consent to participating in this project, details of replacement costs and performance value will also be made available to you and to your employer after all relevant information has been analysed.

There is a possibility that you may disagree with some ratings which your manager has made when rating your performance. Where this occurs, the manager and yourself will be asked to reconsider any significant differences to arrive at a mutually agreeable rating level.

The results of the project may be published, but you may be assured of complete confidentiality of data gathered in this investigation. Your identity will not be made public without your consent. To ensure anonymity and confidentiality, all information will be kept secure. Only the researcher and the researcher's supervisor will have access to the information you have supplied. The only exceptions are that, as previously specified, your employer will be provided with details relating to replacement costs and performance value and the initial ratings of your performance will be made by your manager. Your employer will have no access to the questionnaire results.

The project is being carried out by Michael Jamieson, who can be contacted at 3797-101 (business) or 322-9985 (home). He will be pleased to discuss any concerns you may have about participating in the project.

The project has been reviewed and approved by the University of Canterbury Human Ethics Committee.

APPENDIX E

EMPLOYEE CONSENT FORM - «Title» «FirstName» «LastName»

I have read and signed a copy of the information sheet outlining the proposed study “**The Comparative Value of Older versus Younger Employees.**” I agree to participate in the research and am aware that I will participate in approximately two one hour sessions. I also agree to complete a number of assessments relating to my perceptions of my job and to validate a performance assessment, which will initially be completed by my manager.

I understand that I am free to withdraw from the study at any time and that such a decision would not prejudice my current or future job, career or promotion prospects, or future education prospects at the University of Canterbury.

I also understand that I will receive feedback following completion of the questionnaires and that I will receive information relating to my position replacement costs and performance value, from the researcher, following analysis of the data collected.

By agreeing to participate in this study, I also give my consent for the «**Company**» to give information relating to a job evaluation exercise, salary details, performance assessment and replacement cost exercises and for the researcher to provide information to my employer relating to replacement costs and performance value. Otherwise, all information obtained from the study will be kept confidential and will not be made available to any other party which could potentially identify me or the «Company».

Name: «Title» «FirstName» «LastName»

Signature:

Date:

Witness:

Signature:

Date:

Researcher: Michael Jamieson

Signature:

Date:

Witness:

Signature:

Date:

APPENDIX F

University of Canterbury

Department of Psychology

COMPANY Information Sheet - «Company»

You are invited to participate in the research project “**The Comparative Value of Older versus Younger Employees.**”

The aim of this project is to: **investigate the comparative value of older and younger employees.**

Your participation this project will involve:

- i. providing details of replacement costs of employees who participate the study,
- ii. participating in a job evaluation exercise. The job evaluation will be used to rate the extent participants in the older and younger groups, on average, hold equivalent positions. Your involvement will be identify and rate critical job dimensions. These relate to: inputs (skills, knowledge, job responsibilities); parameters (autonomy, responsibility for resources); and outputs (impact on the Company, including the impact of potential errors),
- iii. providing employee salary details,
- iv. ensuring employees who participate in the study have their performance rated by their immediate manager.

The employees participating in the study will also be required to:

- i. complete three questionnaires,
 - a. Job Satisfaction
 - b. Organisational Commitment
 - c. Career Intentions

Some examples of the questions that will be asked are as follows:

“I am actively looking for a job outside «Company»”

“I would accept almost any job assignment in order to keep working for this organisation “

“I could just as well be working for a different organisation as long as the type of work was similar”

- ii. validate a performance rating schedule which has been completed by their manager,

Details of replacement costs and performance value will also be made available to you and to your employee after all information has been analysed.

There is a possibility some manager and employee ratings may result in disagreement. Where this occurs, the manager and the employee will be asked to reconsider any significant differences to arrive at a mutually agreeable rating level.

The results of the project may be published, but you may be assured of the complete confidentiality of data gathered in this investigation. Your identity and that of the Company will not be made public without your consent. To ensure confidentiality, all information will be kept secure. Only the researcher and the researcher's supervisor will have access to the information you and the participants have supplied. The only exception is that, as previously specified, employees participating in the study will be provided with details relating to replacement costs and performance value, and will be given feedback relating to the questionnaires they have completed.

The project is being carried out by Michael Jamieson, who can be contacted at 3797-101 (business) or 322-9985 (home). He will be pleased to discuss any concerns you may have about the participation in the project.

The project has been reviewed and approved by the University of Canterbury Human Ethics Committee.

APPENDIX G

COMPANY CONSENT FORM A - «Company»

(Employees participate complete questionnaires)

I have read and signed a copy of the information sheet outlining the proposed study “**The Comparative Value of Older versus Younger Employees.**” I agree to participate in the research which will require a job evaluation exercise to be completed, having a performance rating of each employee who consents to participate in the study made by their respective manager, and replacement costs for each position obtained. Salary details for each position will also be sought. The time commitment will be approximately one hour for the job evaluation exercise, a half hour for the performance rating exercise plus additional time to obtain relevant replacement costs.

I understand that I am free to withdraw from the study at any time and that such a decision will not prejudice current or future education prospects at the University of Canterbury.

I understand that I will receive information relating to the replacement costs and performance value from the researcher following analysis of the data collected and that the employee(s) participating the study will also be supplied with information relating to replacement cost and positional value.

Otherwise, all information will be kept confidential and will not be made available to any other party which could potentially identify me or the «Company».

Company: «Company»

Signature :
On behalf of «Company»

Date:

Witness:

Signature:

Date:

Researcher: Michael Jamieson

Signature:

Date:

Witness:

Signature:

Date:

COMPANY CONSENT FORM B - «Company»

(Employees do not complete questionnaires)

I have read and signed a copy of the information sheet outlining the proposed study “**The Comparative Value of Older versus Younger Employees.**” I agree to participate in the research which will require a job evaluation exercise to be completed, providing a performance rating of employees employed in sales or production positions and replacement costs for each position. Salary details for each position will also be sought.

I understand that I am free to withdraw from the study at any time and that such a decision will not prejudice current or future education prospects at the University of Canterbury.

I understand that I will receive information relating to the replacement costs and performance value from the researcher following analysis of the data collected and a full copy of thesis at the conclusion of the study.

All information will be kept confidential and will not be made available to any other party which could potentially identify the employees or «Company».

Company: «Company»

Signature :
On behalf of «Company»

Date:

Witness:

Signature:

Date:

Researcher: Michael Jamieson

Signature:

Date:

Witness:

Signature:

Date:

APPENDIX H JOB EVALUATION QUESTIONNAIRE - Interview Outline (with Employer)

Position:

Date:

Overview of Organisation:

Purpose of Position:

Reporting Relationships:

Financial Responsibilities:

Person Specification:

The requirements necessary to perform the job competently:

- Skills & abilities
- Knowledge & experience
- Personal attributes & qualities
- Educational qualifications and / or special training
- Typical career path before & after appointment

Development:

Relationships: inside & outside the organisation

Authority

The level of authority the job holder has, both to make decisions and act

Staffing

Financial

Budgetary

Key Result Areas:

The impact of the position on the organisation and the consequence of error: