

**WORK STYLES AND PERSON-ENVIRONMENT FIT:
ADJUSTING TO CHANGE AS A LATE CAREER WORKER**

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Candidate Statement

This thesis contains material that has been submitted for publication as follows:

Paper 1 (in Chapter 3) was published in 2015 with the Journal of Vocational Behavior. I am the first author, and my principal supervisor, A/Prof Barbara Griffin, is the second author of this paper. My contribution to the research paper was: Concept = 75%; Data collection = 100%; Data analysis = 100%; Writing = 80%; Total = 89%.

Paper 2 (in Chapter 4) has currently been revised and resubmitted with the Journal of Occupational and Organizational Psychology. I am the first author, and my principal supervisor, A/Prof Barbara Griffin, is the second author of this paper. My contribution to the research paper was: Concept = 80%; Data collection = 75%; Data analysis = 100%; Writing = 80%; Total = 84%.

Paper 3 (in Chapter 5) has currently been submitted with the Journal of Organizational Behaviour for the special issue, *Exploring the consequences of proactive behaviors: New Directions*. I am the first author, and my principal supervisor, A/Prof Barbara Griffin, is the second author of this paper. My contribution to the research paper was: Concept = 80%; Data collection = 100%; Data analysis = 100%; Writing = 80%; Total = 89%.

Paper 4 (in Appendix 1) was published in 2015 with Work, Aging and Retirement. My co-supervisor, Prof Beryl Hesketh, is the first author; my principal supervisor, A/Prof Barbara Griffin, is the second author; Prof Rene Dawis is the third author; and I am the fourth author of this paper. My contribution to the research paper was: Concept: 20%; Data Collection = N/A; Data Analysis = N/A; Writing = 20%; Total = 20%.

Paper 5 (in Appendix 2) is currently “in press” with MIT Press. My principal supervisor, A/Prof Barbara Griffin, is the first author; I am the second author; and, Dr

Jennifer Barbour is the third author of this paper. My contribution to the research paper was:

Concept: 33%; Data Collection = N/A; Data Analysis = N/A; Writing = 40%; Total = 37%.

Except where indicated by specific reference, the work submitted is the result of my own investigation and the views expressed are my own. No portion of the work presented has been submitted in substance for any other degrees or award at this or any other university or institution. Macquarie University Human Research Ethics Committee and University of Western Sydney Human Ethics approval was obtained for this research, and all work was conducted in line with these approvals (Reference: 5201300526; 5201300661, h7549).

Candidate: _____ Date: _____

Publications Arising From Thesis

Journal Articles

Bayl-Smith, P. H., & Griffin, B. (2015). Measuring work styles: Towards an understanding of the dynamic components of the theory of work adjustment. *Journal of Vocational Behavior, 90*, 132–144.

Bayl-Smith, P. H., & Griffin, B. (2016) Age discrimination within a P-E fit paradigm: Maintaining fit with an active work style. Revised and resubmitted at *Journal of Occupational and Organizational Psychology*.

Bayl-Smith, P. H., & Griffin, B. (2016). Maintaining D-A fit through Proactive Behaviours: The moderating effect of work style fit. Submitted for review at *Journal of Organizational Behaviour, Special Issue: Exploring the consequences of proactive behaviors: New Directions*.

Hesketh, B., Griffin, B., Dawis, R., & Bayl-Smith, P. H. (2015). Extensions to the dynamic aspects of the retirement transition and adjustment framework (RTAF): Adjustment behaviors, work styles, and identity. *Work, Aging and Retirement, 1*, 79–91.

Book Chapters

Griffin, B., Bayl-Smith, P. H., & Barbour, J. (2016). Age discrimination and older workers. In T. D. Nelson (Ed.), *Ageism: Stereotyping and prejudice against older persons* (2nd ed.), Cambridge, MA: MIT Press. In press.

Conference Papers

Bayl-Smith, P., & Griffin, B. (2014, July). *The influence of person-environment fit and adaptive work styles upon older worker outcomes*. Paper presented at 28th International Congress of Applied Psychology, Paris.

Bayl-Smith, P., & Griffin, B. (2015, July). *Moderating the effects of age discrimination: A P-E fit perspective*. Paper presented at the 11th Industrial and Organisational Psychology Conference, Melbourne.

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always a pleasure to share experiences and a laugh, especially when things were hard. I wish you all the success in the future and I look forward to our continuing friendship.

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Abstract

Utilising the theory of work adjustment (TWA), this thesis develops our understanding of the factors that contribute towards and facilitates a person's correspondence with their work environment. With modern organisations experiencing rapid change, the importance of maintaining person-environment (P-E) fit via adaptive and proactive behaviours has been widely recognised. Resulting from ageing workforces worldwide and in recognition of the unique challenges older workers face in maintaining workplace correspondence, special attention has recently been extended to late career workers. However, research has principally ignored possible antecedent factors of P-E fit, rather viewing fit as a stable construct. This thesis addressed these considerations through the development of work styles, a dynamic component of TWA responsible for the maintenance of P-E fit. Work styles was defined as an employee's typical level of activity and effort enacted across time when completing work tasks.

This thesis by publication presents three journal articles, with additional supporting papers by multiple authors in the appendices. The first paper developed a self-report work style scale suitable for longitudinal research. Three studies demonstrated support for Dawis and Lofquists (1984) conceptualisation of a four-factor model distinguishing between an individual's celerity, pace, rhythm and endurance. However, these factors are best understood to be related through a second-order factor describing an employee's typical level of activity and effort across time. The scale demonstrated good evidence for reliability and validity, and strong longitudinal measurement invariance.

Utilising two two-wave studies, the second paper examined the impact of age discrimination upon P-E fit in mid- to late- career workers. Results from Study 1 demonstrated that increased perceptions of age discrimination lead to a decrease in demands-

abilities (D-A) and needs-supplies (N-S) fit over time. In Study 2, work styles was introduced as a possible moderating variable in the prediction of D-A fit. The findings indicated that when an employee was engaged in a highly active work style, the negative effects of age discrimination upon D-A fit decreased. In consideration of discrimination, this study highlights the difficulty many older worker face in preserving an adequate correspondence with their environment. Furthermore, it highlights the importance of work styles as a factor that contributes towards the maintenance of P-E fit.

The third paper examined the impact of proactive behaviours upon D-A fit, introducing work style fit as a possible moderating variable. Work style fit expands upon the development of work styles in the previous two papers by recognising that the environment has a corresponding work style requirement. Results from a two-wave study indicate that proactive behaviours had a positive effect upon D-A fit, but only when work style fit was high. When work style fit was low, proactive behaviours had a detrimental effect upon D-A fit.

The theoretical and practical implications, along with limitations and suggestions for future research are discussed in the final chapter. The findings of this thesis provide a valuable contribution for both researchers and practitioners in understanding and measuring the dynamic component of TWA and P-E fit generally. Overall, each paper demonstrates the importance of understanding P-E fit as a dynamic construct, and recognising unique challenges individuals may face in maintaining correspondence with their work environment.

CHAPTER 1

Overview of this Thesis

From the time baby-boomers first entered the workforce, the character and content of work and career has fundamentally shifted (Wang, Olson, & Shultz, 2013). An employee's professional trajectory, from commencement to retirement, is no longer controlled by the organisation. Rather, the onus is upon the employee to engage in continual development to remain competitive in the job market. Consequently, previous emphasis on company loyalty and passive progression has been replaced with an emphasis upon active construction of one's own career (Kooij, Tims, & Kanfer, 2015). Research of late career workers has traditionally focused upon negative stereotypes and their impact upon employee decisions, or has centred on demographic differences comparing older workers relative to other individuals and groups (Perry, Dokko, & Golom, 2012). Such approaches have failed to take into account the full range of interactions between an individual's characteristics and the role of their environment (Perry et al., 2012). For example, the challenge of remaining active and motivated in the workforce is compounded for late career workers by changes in personal abilities, motivations and health, along with rapidly changing work environments and discriminatory practices (Finkelstein, 2015; Wang et al., 2013). Therefore, as expounded in this thesis, the person-environment (P-E) fit perspective, here broadly defined as the compatibility or congruence between a person and their environment, provides a unique framework through which to understand on-going success and continued activity in late career workers (Kooij, 2015; Perry et al., 2012).

Despite the importance and wide use of P-E fit theory in organisational research for over 100 years (Kristof-Brown, Zimmerman, & Johnson, 2005), its application to understanding older workers has been near non-existent, requiring further investigation

(Perry et al., 2012). Furthermore, most studies have conceived P-E fit as a constant; a dependent variable that explains individual and organisational outcomes rather than being in need of explanation itself (Caldwell, Herold, & Fedor, 2004). However, there have been recent calls to understand P-E fit as a dynamic construct and to investigate what factors influence how fit is perceived (Jansen & Shipp, 2013; Kristof-Brown & Guay, 2011). This thesis responds to these concerns by drawing upon the theory of work adjustment (TWA; Dawis, 2005; Dawis & Lofquist, 1984), a widely utilised model within the P-E fit paradigm. TWA is unique in that it provides a framework that not only examines the correspondence between the person and the work environment, but also how that correspondence is dynamically maintained through adaptive and proactive behaviours, and through the style in which work behaviours are performed. Therefore, this thesis seeks to understand what factors may assist or diminish ongoing P-E fit in older workers by developing and empirically testing the dynamic components of P-E fit, as first considered within TWA.

This is a thesis by publication where six studies are presented in three separate papers, either published or under review (Chapters 3 – 5). These papers are further supplemented by a published article and book chapter in Appendix 1 and 2. The latter, to which I have made a significant contribution, provide additional support to the assertions and arguments directly derived from this thesis. The articles in order of presentation are displayed below in Table 1. In addition to these papers, but not included here, are also 2 conference papers arising from the thesis research that have been presented at the 28th International Congress of Applied Psychology (2014, July), and the 11th Industrial and Organisational Psychology Conference (2015, July).

Table 1

Papers in order of presentation

Paper No.	Thesis Chapter	Reference
1	3	Bayl-Smith, P. H., & Griffin, B. (2015). Measuring work styles: Towards an understanding of the dynamic components of the theory of work adjustment. <i>Journal of Vocational Behavior</i> , 90, 132–144.
2	4	Bayl-Smith, P. H., & Griffin, B. (2016) Age discrimination within a P-E fit paradigm: Maintaining fit with an active work style. Revised and resubmitted at <i>Journal of Occupational and Organizational Psychology</i> .
3	5	Bayl-Smith, P. H., & Griffin, B. (2016). Maintaining D-A fit through Proactive Behaviours: The moderating effect of work styles fit. Submitted for review at <i>Journal of Organizational Behaviour, Special Issue: Exploring the consequences of proactive behaviors: New Directions</i> .
A1	Appendix 1	Hesketh, B., Griffin, B., Dawis, R., & Bayl-Smith, P. H. (2015). Extensions to the dynamic aspects of the retirement transition and adjustment framework (RTAF): Adjustment behaviors, work styles, and identity. <i>Work, Aging and Retirement</i> , 1, 79–91.
A2	Appendix 2	Griffin, B., Bayl-Smith, P. H., & Barbour, J. (In Press). Age discrimination and older workers. In T. D. Nelson (Ed.), <i>Ageism: Stereotyping and prejudice against older persons</i> (2 nd ed.), Cambridge, MA: MIT Press.

After this introductory chapter, there is a short, unpublished chapter that presents and argues for the proposition that career success of late career workers is best understood through a P-E fit framework. The three papers follow and then the thesis concludes with a final chapter (Chapter 6) that discusses the key findings from each paper along with a summary of the important theoretical and practical implications derived from this thesis. It concludes with several proposals for future research.

The first paper (Chapter 3) develops the active work styles (AWS) scale, a self-report measure validated with three separate studies. Work styles are defined as the characteristic

approach or mode towards completing work tasks and are characterised by four facets; celerity, pace, rhythm and endurance (Dawis & Lofquist, 1984; See also Appendix 1). Respectively, these describe how quickly an individual will initiate work task behaviours, the level of an individual's effort, the rhythm of effort expended across time, and how long an individual will continue in completing tasks. Despite being an integral component of TWA, work styles have been disregarded in theoretical and empirical research, perhaps due in part to the lack of a suitable measurement scale (Dawis, 2005). For example, to my knowledge there has only been one unsuccessful attempt to measure work styles in the literature (Lawson, 1993). Therefore, via three separate studies, the first paper attempts to readdress this limitation by developing and validating an effectual work styles measurement scale. To provide further clarification and discussion of work styles within a TWA model, I have included the review article (A1) on the retirement transition and adjustment framework (RTAF). Here, the RTAF (Hesketh, Griffin, & Loh, 2011) was extended to include work style variables as an important contributor towards the maintenance of P-E fit.

In two longitudinal studies, Paper 2 identifies age discrimination as a key factor impacting the maintenance of P-E fit. Given its prevalence, age discrimination is argued to be one of the most critical challenges presently facing older workers (see Appendix 2). Not only does age discrimination prevent access to key resources and opportunities necessary to meet work demands, but also decreases the sense of having one's personal needs being satisfied by the organisation. Here, work styles is proposed as a possible moderating factor that may reduce the negative effects of age discrimination upon demands-abilities fit. By engaging in a work style that is effortful, consistent and enduring over time, an employee may mitigate the negative effects of age discrimination. Paper 2 presents the first studies to examine the impact of age discrimination on P-E fit, with the second study in that paper utilising work styles as a possible moderating influence.

Proactive behaviours have been recognised as an important activity in achieving P-E fit (Kooij, 2015; Parker & Collins, 2010). However, with P-E fit having been treated within research as a stable factor, in part due to an over-reliance on cross-sectional data, no study to date has empirically examined this link over time. To address these shortcomings, Paper 3 examines the impact of proactive behaviours on demands-abilities fit, with *work styles fit* acting as a moderating variable. Developed from TWA, work styles fit expands upon the discussion of work styles to date by conceiving of a corresponding work styles requirement demanded by the environment. Work styles fit is suggested to create a potential boundary condition for the successful implementation of proactive behaviours designed to improve demands-abilities fit.

Supporting the arguments presented in each chapter, the appendices include a published journal review article expanding the retirement transition and adjustment framework (RTAF; Appendix 1), and a book chapter concerning workplace age discrimination (Appendix 2). The RTAF, as discussed in Appendix 1, elaborates upon the dynamic components of TWA, including the initial development of work styles central to this thesis. Work styles are argued to be a central component in maintaining P-E fit. In contrast, age discrimination, as discussed in Appendix 2, is viewed as a significant challenge for continuing older worker fit. This book chapter provides a foundation for what is discussed in the proceeding chapter and Paper 2 mentioned above.

Even though each paper is discrete and has been submitted to different journals, I present them here within the framework of successful and sustainable aging at work, characterised as maintaining or increasing P-E fit (de Lange, Kooij, & van der Heijden, 2015). As discussed in Chapter 2, an aging workforce has forced national governments, organisations and individuals themselves to seek a better understanding of what factors contribute to ongoing capability and motivation at work. Consistent with recent theorizing

(Kooij, 2015; Perry et al., 2012), I suggest that P-E fit provides an excellent framework through which to better understand older workers and career success. In particular, I propose that the development and empirical testing of the dynamic components of fit as expounded within TWA will provide fresh insights into how P-E fit is maintained.

Data Used Throughout This Thesis

The main body of this thesis is comprised of six studies in total, utilising five separate datasets with over 2,000 unique participants. A strength of this thesis is that multiple sources were used to obtain data, including three two-wave studies enabling the tracking of change in P-E fit over time. A summary of how each data set was used in the six studies is presented in Table 2 below. For each study, participants shared the characteristics of presently living in Australia, being employed, and working for greater than or equal to eight hours per week. Following is a summary of the five data sets used in this thesis.

Table 2

Summary of how each dataset is used within this thesis

Paper	Study	Dataset 1	Dataset 2	Dataset 3	Dataset 4	Dataset 5	No. Waves	Number of participants in analysis
1	1a	✓					1	139
	1b	✓					1	139
	2		✓				3	244
	3			✓			1	465
2	1				✓		2	1,093
	2		✓				2	406
3	1					✓	2	94

Dataset 1. Participants for the first dataset were sourced using a snowballing sample technique via social media. In total, there were 139 people who responded, of which 59.0% were female, with a mean age of 34.02 years ($SD = 15.08$ years). Of the participants 58.3% were employed as employee/team members, 20.1% middle management/team leaders, and 21.6% identified as senior managers or above. The average working hours per week for respondents was 22.53 hours ($SD = 17.09$ hours). This dataset was used in the first study of Paper 1 (Chapter 3) to generate and examine items for a work styles scale. This dataset was also used to generate and examine items for the work styles fit scale (see Appendix 4) which was then used in Paper 3 (Chapter 5).

Dataset 2. The second dataset was sourced from the Online Research Unit (ORU), an Australian research panel company that has ISO certification for market social and opinion research (ISO 20252 and ISO 26362). This study collected data in three-waves at approximately four week intervals. Participation for these surveys were restricted to those aged 45 and over. In total, there were 665 participants at Time 1, 408 participants at time 2 (61.4% response rate), and 244 participants at Time 3 (36.7% of Time 1 participants). At time 1, 57.9% of participants were male, with a mean age of 56.92 years ($SD = 6.81$). Respondents indicated that 34.4% had a bachelor's degree or higher, and 16.1% indicated that they were employed as blue collar workers. The average working hours per week was 34.41 hours ($SD = 14.16$ hours). Dataset 2 was used in Paper 1 (Chapter 3), Study 2, to test for longitudinal measurement invariance for the active work styles scale. It was also used in Paper 2 (Chapter 4) to test the relationship between age discrimination and P-E fit, with work styles acting as a moderator between age discrimination and demands-abilities fit.

Dataset 3. The third dataset was also sourced from the ORU. Participants were not restricted by age but were only required to be employed, working an average of eight hours or more per week, and not have participated in Dataset 2. In total, 465 participants were

included in this dataset, 61% of whom were male, with an average age of 42.30 years ($SD = 13.03$ years). Respondents were relatively well educated with 48.0% specifying that they had a bachelor's degree or higher. Most participants indicated they were employed as employees/team members (61.1%), with 24.5% selecting middle management/team leader and 14.2% as senior managers or above. A total of 13.8 % participants indicated that they were employed in a blue-collar job. The average hours worked per week was 37.21 hours ($SD = 15.96$ hours). Dataset 3 was used in Paper 1 (Chapter 3), Study 3, to test the construct validity and predictive capacity (cross sectional) of the AWS scale. This dataset was also used to test the validity of the proactive behaviour scales (see Appendix 4) that were then used in Paper 3 (Chapter 5).

Dataset 4. Participants for the fourth dataset were sourced from a sub-study of “The Sax Institute’s 45 & Up Study” (Banks et al., 2008). To be included in the sub-study, respondents had to be employed at the time of the original 45 & Up study and be aged 55 years or over. The sub-study, designed to examine retirement transition, was conducted via an annual survey over a four-year period (i.e., four-waves of data). The items of interest were only asked at Times 3 & 4, and therefore this data set has been restricted to only those who completed the survey at these times and were currently working at Time 3. Of the 1,347 participants who responded and were working at Time 3, 1,093 also completed Time 4 (81.1% response rate). Regarding the eligible participants, 52.4% were male with an average age of 63.86 years ($SD = 2.41$). Respondents were well educated, with 53.9% having obtained a bachelor's degree or higher, and 14.9% indicated that they were employed in a blue-collar job. The average hours worked per week was 27.69 hours ($SD = 16.91$ hours). Dataset 4 was used in Paper 2 (Chapter 4), Study 1 to examine the effect of age discrimination on P-E fit across time.

Dataset 5. The final dataset was obtained from an Australian state government emergency service provider. The dataset was part of a two-wave study conducted with a three-month interval. At Time 1 there were 169 respondents in total, 94 of which also completed Time 2 (55.6% response rate). Of these, 52.1 % were male, with an average age of 44.49 years ($SD = 10.57$ years). The participants were on average highly educated with 64.9% having completed a bachelor's degree or higher. Most respondents were employed as employees/team members (72.3%), with 24.75% indicating they were in middle management/team leader, and 2.1% indicating they were senior managers or higher. The mean hours worked per week was 45.78 hours ($SD = 7.52$ hours). This data set was used in Paper 3 (Chapter 5) to examine the effect of proactive behaviours upon demands-abilities fit across time, moderated by work styles fit.

CHAPTER 2

The Demographic Challenge: A Sustainable Career Through P-E Fit

With the largest cohort, the “baby-boomers” entering into traditional retirement age, governments and organisations alike recognise the importance of extending sustainable and profitable careers (Bal, Kooij, & Rousseau, 2015; Zacher & Griffin, 2015). This chapter introduces the proposition that a robust understanding of career success for older workers is best conceived through a person-environment (P-E) fit framework. To explore this notion, I first establish the importance of the demographic challenge presented by an aging population for governments, organisations and individuals alike. Second, I discuss the concept of career success in relation to the changing nature of the modern work environment. Here I argue that success should not simply be defined as a state of being (e.g., being productive, being satisfied), but should also concern one’s capacity to cope with age related change and pursuit of future directed goals (e.g. capacity to be adaptive, capacity to be proactive). Third, I suggest that P-E fit theory provides an appropriate paradigm through which to examine career success. In particular, I propose that the theory of work adjustment (TWA; Dawis, 2005; Dawis & Lofquist, 1984) provides a theoretical framework suitable for understanding success as a capacity to maintain continued abilities and motivation in response to personal and environmental change.

The Demographic Challenge

For government policy makers there are two primary concerns as a result of an aging population: First, insuring adequate levels of labour supply; and second, procuring funding for increased social security and pensions (Szinovacz, 2011). According to the Australian Productivity Commission (2013), governments will face considerable fiscal pressure from the provision of public health care, aged care, and the age pension. This is largely being driven

by increased dependency ratios delineated by a larger proportion of older unemployed supported by a decreased proportion of younger employed (Ilmarinen, 2001). Due to a wide assortment of causes including, normative pressures, health concerns, family responsibilities and discriminatory practices, workforce participation decreases in association with aging (Bayl-Smith & Griffin, 2014; Schalk & Desmette, 2015; Schroeder, MacDonald, & Shamian, 2011; van Solinge & Henkens, 2007). This, coupled with expectations of an increasing proportion of the population aged over 65, has required governments to confront issues associated with decreasing workforce participation and associated economic corollaries (Commonwealth of Australia, 2015). For example, in Australia the proportion of the population aged over 65 is expected to increase from 14% in 2012, to approximately 22% in 2061 (Australian Bureau of Statistics, 2013). As a direct consequence of the aging population the Australian government forecasts two economic pressures; a decline in economic growth and an increasing requisite to publicly fund health care, pensions and aged services (Commonwealth of Australia, 2015). As illustrated presently by many European economies, those nations with low levels of older worker participation are currently facing significant financial strain as a result of public spending on pension systems (Fraccaroli & Deller, 2015). Therefore, governments are actively pursuing policies geared towards increasing older workforce participation. These include such measures as increasing the eligible age for pensions and superannuation, decreasing pension benefits, providing financial incentives to individuals and organisations that employ older workers, implementing policies targeting age discrimination, and increasing access to education and training (Australian Human Rights Commission, 2015; Commonwealth of Australia, 2015; Von Nordheim, 2003).

From an organisational perspective, aged workers present two risks that need to be appropriately managed; the risk associated with retirement, and the risk with managing older workers (Strack, Baier, & Fahlander, 2008). Retirement can create a significant burden upon

organisations through the loss of knowledge, skills and relationships that have been built over an entire career resulting in either the loss of productivity, or in extreme cases, a loss of capacity (Rappaport, Bancroft, & Okum, 2003; Strack et al., 2008). Several industries with highly specialised skill sets are particularly at risk, including health care, utilities, education, defence, financial services and many blue collar industries (Rappaport et al., 2003). By encouraging higher participation rates of ageing workers, organisations are looking to protect the knowledge, skills, abilities and relationships these workers provide. Such attributes have often been built over decades, and are not easily replaced without decreasing organisational capacity or competitive advantage (Kooij & van de Voorde, 2015).

However, organisations are not looking to merely keep older workers employed, but are looking at ways to increase their motivation and productivity by engineering a positive working climate for older employees (Boehm, Kunze, & Bruch, 2014). Research has demonstrated that where older workers experience negative stereotypes and discrimination, when organisational support is withdrawn, and communication confers a status of being burdensome – the effects for older workers will be to withdraw either physically through retirement, or affectively via decreased work engagement (Griffin, Bayl-Smith, & Barbour, 2016; Kunze, Boehm, & Bruch, 2013). In contrast, when organisations acknowledge the contribution and value of aging workers, provide them with equal opportunities, and understand of their unique needs and motivational drivers, they are able to facilitate their increased participation, motivation and productivity (Boehm & Dwertmann, 2015; Boehm et al., 2014).

Notwithstanding the influence of external government and organisational factors, continued workforce participation is largely dependent upon the ability and motivation of older workers to manage within-person change as a result of the aging process. In Australia, only 18% those aged 55-59 years old are retired (Australian Bureau of Statistics, 2016). This

drastically increases to 66% for 65-69 year old's and 86% for those aged over 70. The two most commonly cited reasons for retirees ceasing work in their last job include reaching retirement age/being eligible for superannuation/pension (37% for men, 19% for women) and sickness, injury or disability (19% for men, 14% for women) (Australian Bureau of Statistics, 2016).

The figures presented above support the contention that changes in cognitive functioning, physical capability and motivational outlook as a result of the aging process can have a significant impact upon retirement intentions and workplace attitudes and output (Ilmarinen, 2001; Ng & Feldman, 2013). Regarding cognitive functioning, Kanfer and Ackerman (2004) note that fluid intelligence, responsible for working memory, abstract reasoning, attention, and processing of novel information, declines by small degrees as adults become older. In contrast, there is a levelling off or even an increase in crystallised intelligence – associated with general knowledge, vocabulary and verbal comprehension. Consequently, jobs requiring high levels of fluid intelligence may become more difficult as employees become older (e.g. air traffic controller), whereas in other occupations aging will have minimal or no effect (Kanfer & Ackerman, 2008; Salthouse, 2012). Concerning physical functioning, deterioration in health or aerobic and musculoskeletal capacity may prevent older individuals from pursuing certain jobs, especially those that require more manual labour (Kenny, Yardley, Martineau, & Jay, 2008). In relation to motivational outlook, as people age changes can occur as a result of shifting values (Ng & Feldman, 2009). For example, socioemotional selectivity theory (Carstensen, Fung, & Charles, 2003; Carstensen, Isaacowitz, & Charles, 1999) suggests that older individuals are likely to perceive the future to be more limited so will turn their focus towards meeting present short-term goals such as fulfilling emotional/social needs. In support of this contention, research (de Bilde, Vansteenkiste, & Lens, 2011; de Lange, Bal, Van der Heijden, Jong, & Schaufeli,

2011) has identified that older workers are more likely be motivated by factors that are intrinsically rewarding (i.e., deriving present satisfaction from the activity itself), whilst younger workers are more likely to be motivated by extrinsically rewarding factors (e.g. obtaining future pay or career opportunities). Each of these changes outlined above must be adequately managed if government, organisations, and individuals themselves, aspire to maintain ongoing participation and productivity at work.

Successful Aging at Work

Successful ageing at work, though variously conceived, has traditionally been concerned with the maintenance of work place functionality and the attainment of personally desired goals (Kooij, 2015). This has often drawn a distinction between objective and subjective conceptions of success (Pruchno, Wilson-Genderson, Rose, & Cartwright, 2010). Objective success relates to the achievement of physical health, cognitive functioning and continued engagement in relational and working capabilities. In contrast, subjective success is associated with the attainment of life satisfaction and psychological well-being throughout the aging process (Zacher, 2014). One potential weakness of such conceptions, as first identified by Ryff (1989), is the discounting of personal development and the pursuit of opportunities open to older workers.

Within the lifetime of the baby boomer generation, the nature of work and the notion of career has transformed substantially. Prior to the 1980's, organisations were able to provide stable and secure jobs with career and developmental paths mapped out for each individual worker (Wang, Olson, & Shultz, 2013). This was reflected by early career theories that perceived a single career trajectory from early-career growth, to mid-career maintenance, and finally to late-career decline and exit. However, with organisations now needing to compete on a global basis, weather economic uncertainties and respond rapidly to

technological advances, they are no longer able to provide working environments that provide stable and progressive employment (Wang et al., 2013). Furthermore, there are corresponding expectations that employees will be flexible within their job roles; for example, working collaboratively with others, operating across multiple time-zones and being readily available via mobile technologies. Therefore, modern career management has become more self-reliant, needing to focus on adaptability and personal growth rather than depending upon the oversight of the organisation (Savickas et al., 2009). This notion is encapsulated by the concepts of the protean career (Hall, 1996) and boundaryless career (Arthur, 1994): Careers conceived as independent of the organisation, driven by the individual and their internal values, subject to reinvention and able to transverse boundaries as change occurs within the individual or environment. From the traditional single career cycle of growth, maintenance and decline, a modern career can encompass many cycles with numerous new beginnings (Rottinghaus & Van Esbroeck, 2011).

For aging workers wishing to maintain viable careers, the challenge now lies not in only achieving the state of objective and subjective success, but also in the recognition that the process of learning and adjustment continues until retirement (Greller & Stroh, 2004). According to Wang et al. (2013), no single framework describing aging workers exists. However, several alternate models including the theory of selection, optimization, and compensation (SOC; Baltes & Rudolph, 2013), the model of assimilative and accommodative coping (Brandtstädter & Renner, 1990), and the lifespan model of control (Heckhausen & Schulz, 1995), each incorporate three overarching components that are integral for successful aging at work: First, older workers are in control of their own resources and direct them towards their own personal preferences, goals and values; second, older workers continue to be able to generate new resources through seeking change in the work environment and acquiring new skills, knowledge, and social support; third, by limiting the scope of

behaviours, utilising additional resources and implementing unique solutions, older workers are able to maintain effective functioning in the presence of age related declines (Zacher, 2014). Consistent with boundaryless and protean career models, these three components imply that the older worker are not passive agents within the workplace, but can engage in behaviours that modify the environment and/or themselves in order to continue to meet the needs of their workplace. Considering such conceptions of career, older workers can be regarded as a positive and ongoing resource, rather than being considered in a state of decline making ready for retirement. Therefore, in line with more recent notions of career, successful ageing at work should not only be conceived as an objective or subjective *state* of being (i.e., being healthy, being productive, being satisfied, etc.), but also as a *capacity* to cope with age related declines and proactively pursue personally derived goals (e.g., achieve career mobility or being able to enact career plans to suit the individual) (de Lange, Kooij, & van der Heijden, 2015; Kooij, 2015; Ouwehand, de Ridder, & Bensing, 2007).

P-E fit: A Framework to Understand Older Worker Sustainability

With no widely utilised or accepted theoretical framework examining older workers, person-environment (P-E) fit theory has been increasingly proposed as a paradigm through which to study older worker sustainability and their retirement decisions (Hesketh, Griffin, Dawis, & Bayl-Smith, 2015; Kooij, 2015; Perry, Dokko, & Golom, 2012). Broadly, P-E fit can be defined as the shared correspondence of skills, abilities and values between the individual and their work environment (Kristof-Brown & Guay, 2011). Despite P-E fit having a principal role in organisational research for over 100 years, being linked to recruitment and selection (Adkins, Russell, & Werbel, 1994; Cable & Judge, 1996; Carless, 2005), workplace attitudes (Bretz & Judge, 1994; DeRue & Morgeson, 2007), career change (Donohue, 2006; Durr II & Tracey, 2009) and career success (Erdogan & Bauer, 2005), research on older workers has largely disregarded the effects between P-E fit and ageing workers. In light of

the above discussion, I argue here that the theory of work adjustment (TWA; Dawis, 2005; Dawis & Lofquist, 1984) provides a fitting framework through which to understand how older workers maintain success within their career.

Similar to other conceptualisations of P-E fit (Kristof-Brown & Guay, 2011), TWA contends that fit is defined by the correspondence between the skills and abilities provided by the employee and that demanded by their organisation (demands-abilities (D-A) fit), as well as the correspondence between the needs and values desired by the employee and that supplied by the organisation (needs-supplies fit). When demands of the organisation can be met by the abilities of the employee, the organisation is said to be satisfied, here termed *satisfactoriness* (Dawis & Lofquist, 1984). Similarly, when an employee has their personal needs and values met by the organisation, the employee will in turn be satisfied, labelled here simply as *satisfaction* (Dawis & Lofquist, 1984). According to TWA, the consequence of achieved satisfactoriness and satisfaction is increased tenure within the organisation.

Accordingly, P-E fit can provide an account of successful ageing at work when success is simply conceived as an objective or subjective state at a point in time. When D-A fit is realised, an employee can be said to have achieved a state of objective success – that is, they have functional ability through which they can achieve workplace milestones. Likewise, when N-S fit is realised, an employee can be said to have achieved a state of subjective success – that is, they have a feeling of work satisfaction. However as noted above, such an approach to successful ageing may be limited by not considering an older worker's capacity and sustainability – that is, coping and responding to changes within the person and within the organisation. Similarly, such accounts of P-E fit have been recognised as limited by regarding correspondence as a relatively static feature, where both person and environment are conceived as stable entities rather than responsive to changing circumstances (DeRue & Morgeson, 2007; Shipp & Jansen, 2011).

One of the primary strengths of the TWA model is that it stipulates both a structural model of P-E fit, as elucidated above, along with dynamic mechanisms, labelled as *style* variables (Dawis & Lofquist, 1984). According to Dawis and Lofquist, a basic motivation for individuals is to maintain correspondence with their environment. However as both person and environment are continually transforming, individuals are required to implement behaviours to maintain or increase fit. Here, TWA distinguishes between adjustment behaviours directed towards increasing person and environment correspondence, and work styles that express an individual's characteristic way of interacting with the environment.

Dawis (2002) argues that adjustment behaviours are triggered when a person perceives low levels of correspondence with their environment, either because they are not meeting the demands of the environment or the environment is not supplying the individual with their expected needs (Dawis, 2002). In the more recent nomenclature of TWA theory, adjustment behaviours can be described as either reactive or proactive (Hesketh et al., 2015). Reactive adjustment behaviours occur when an employee attempts to increase P-E fit by effecting change to their own person. For example, in response to the introduction of new technologies, by learning new skills an individual may better meet the (changed) requirements of their job. In contrast, proactive adjustment behaviours occur when an employee attempts to increase P-E fit by effecting change upon the environment (Griffin et al., 2007)¹. For instance, in the face of increasing elder-care demands, an employee may seek more flexible working arrangements with their organisation. It should also be noted organisations too are also able to implement reactive or proactive behaviours to increase correspondence.

¹ Proactive adjustment behaviours defined here are distinct from the conventional understanding as expressed in the proactive literature, where proactivity refers to personally driven activities that aim to create change within the person or the environment (Parker, Bindl, & Strauss, 2010). For a discussion on how proactive behaviours are integrated within TWA, see Chapter 5.

Work styles on the other hand do not relate to specific behaviours, but rather to the mode or generalised approach towards the working environment, which can be broken down into four complimentary components; celerity, pace, rhythm and endurance (Dawis & Lofquist, 1984). Celerity refers to the typical speed with which one interacts with the environment and initiates work behaviour. Pace signifies the amount of effort or energy that is utilised by the individual towards completing work related tasks. Rhythm indicates the stability or instability of effort over time, with some individuals maintaining consistent loads of effort across time whilst others display a more erratic pattern. Finally, endurance concerns the amount of time an individual will maintain their effort towards work tasks or interactions with their environment. Together, they express a generalised level of active engagement in the work environment. Chapter 3 and Appendix 1 provide further discussion and development of work styles as a significant component in TWA.

Work styles are an important, yet to date all but ignored dynamic process in maintaining ongoing P-E fit (Hesketh et al., 2015). Employees are in fundamental control of how their effort and energy is expended across time (S. P. Brown & Leigh, 1996). Consequently, they may have all the skills and abilities necessary to meet the demands of their environment or have plans towards engaging in adaptive behaviours, but if an employee fails to actively engage appropriate levels of effort consistently across time, then the employee may fail to achieve a state of satisfactory correspondence. Conversely, if an employee does not have the necessary skills and abilities, or the wrong adaptive plans in motion, these deficits may be overcome by the application of more effort applied quickly and consistently across time.

Summary and Conclusion

Continued workforce participation of older workers has been advocated as a solution to concerns presented by global aging and its potential negative impact upon labour supply and funding of social security (Szinovacz, 2011). Consequently, government policy makers, organisations and individuals themselves have become progressively involved with identifying what factors impact the maintenance and sustainability of workforce participation, motivation, and performance (Bal et al., 2015; Commonwealth of Australia, 2015; Rappaport et al., 2003). Previous research suggests potential barriers for continued work capacity and productivity includes changes in cognitive functioning, physical capability and motivational outlook. These are further compounded by the significant workplace changes that have occurred during the lifetime of the current cohort of older workers (Wang et al., 2013). Careers are no longer managed within the boundaries of a single organisation, offering stable and secure employment and progression. Rather, with the advent of technological innovations, global competition and company restructuring, the ongoing maintenance of careers has become the responsibility of the individual with no promises of job security.

In response to the identification of personal and environmental change, research has begun to emphasise the importance of maintaining person-environment (P-E) fit in an ongoing capacity (Feldman, 2013; Kooij, 2015; Perry et al., 2012). That is, rather than viewing employees as passive entities subject to the environment, individuals are conceived as active participants who through the exhibition of a particular work style and via the exercise of adaptive and proactive behaviours, shape job relevant skills and abilities and facilitate the organisation in the meeting of their personal needs (de Lange et al., 2015). Through the maintenance of P-E fit, individuals are able to ensure that they have the capacity, capability and motivation to continue working across all stages of one's career (Kooij, 2015).

Chapter 3

Thesis Overview: Development and Validation of the Active Work Styles (AWS) Scale

The first paper of this thesis develops the active work styles (AWS) scale, a self-report scale intended to encapsulate an employee's style or typical approach towards their working environment. As identified in Chapter 2, work styles have been an important but long neglected component of the theory of work adjustment (TWA; Dawis, 2005; Dawis & Lofquist, 1984). According to Dawis and Lofquist (1984), a person should be described not only by what abilities and values they possess, but also by how those abilities and values are expressed in the environment. Whether an employee is engaged in fulfilling their work demands or attempting to increase fit by adjustment behaviours, they will be engaged with a particular work style. How that work style is expressed could have important consequences upon whether an employee can satisfactorily fulfil the demands of their role. Nevertheless, how work styles are conceived and measured has not satisfactorily been explored to date (Dawis, 2005; Hesketh, Griffin, Dawis, & Bayl-Smith, 2015).

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Paper 1: Measuring work styles: Towards an understanding of the dynamic components of the Theory of Work Adjustment¹

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Abstract

Work styles are an important yet largely unexplored component of the Theory of Work Adjustment (TWA), describing a dynamic component of how individuals maintain and adjust fit with their work environment. The Active Work Style Scale (AWS) is the first attempt to develop a specific self-report measure of work styles suitable for longitudinal research. Results from three studies support Dawis and Loftquist's (1984) proposed four factor structure, but these factors are related through a second-order factor describing a person's generalised level of work activity and effort across time. The AWS scale demonstrated good evidence for the reliability and validity, and strong measurement invariance across time signifying its suitability for longitudinal research. In line with expectations, overall work style was positively related to conscientiousness and work engagement yet unrelated to stress. When controlling for these variables, AWS was positively related to demands-abilities fit, but not needs-supplies fit. Limitations and possibilities for future research are also discussed.

Keywords: P-E fit; Theory of work adjustment; Work styles; Reliability; Validity

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Person-environment (P-E) fit theories have been widely utilised in industrial and organisational psychology for over 100 years (Kristof-Brown, Zimmerman, & Johnson, 2005). Contemporary research has applied this framework to examine a wide range of work domains including employee recruitment and selection (Carless, 2005), job attitudes (Verquer, Beehr, & Wagner, 2003), on-job behaviour and performance (Hoffman & Woehr, 2006; Kristof-Brown et al., 2005), and job withdrawal and tenure (Donohue, 2006). Despite the prominence of P-E fit literature, one significant limitation has been the conception of fit as a static structure (Jansen & Shipp, 2013; Kristof-Brown & Guay, 2011). P-E fit has predominantly viewed the person and the environment as relatively stable entities, the correspondence of which determines the level of fit and consequent outcomes (Caldwell, Herold, & Fedor, 2004). However, both environment and persons are increasingly recognised as being in constant transition. For example, technological change, mergers and acquisitions, and market globalisation have created organisational environments that are constantly in flux (Pulakos, Arad, Donovan, & Plamondon, 2000). Furthermore, over time individuals experience change in their cognitive processes (Bandura, 1999), abilities (Kanfer & Ackerman, 2008) and motivations (Kooij, Lange, Jansen, & Dikkers, 2008). Given the variability within the person and the environment, both need to continually enact maintenance and adjustment behaviours in order to conserve or achieve correspondence (Dawis & Lofquist, 1984). P-E fit research has predominantly neglected these processes, focusing more on snapshot measurements of fit at particular instances of time (Kristof-Brown & Jansen, 2007).

The theory of work adjustment (TWA; Dawis & Lofquist, 1984), by specifying both structural and dynamic components of P-E fit, provides an important framework through which to understand the processes of mutual adaptation and adjustment (Jansen & Shipp, 2013). To describe the structural component of fit, Dawis and Lofquist (1984) suggest that

satisfactory performance results from the correspondence between the abilities of the person and those demanded by the environment (demands-abilities fit), and that job satisfaction results from the correspondence between values supplied by the environment and those needed by the person (needs-supplies fit). Ultimately, tenure is seen as a consequence of reciprocal satisfaction. Understood as such, the structural component of TWA is not dissimilar from other general theories of P-E fit.

However, TWA is unique in that it differentiates this structural component of fit from dynamic processes, labelled as *style* variables, to explain how individuals and organisations are actively engaged in maintenance and adjustment behaviours to achieve ongoing fit (Dawis & Lofquist, 1984; Dawis, 2005). Here, adjustment behaviours aimed at decreasing misfit are further distinguished from work styles. In the presence of misfit, an individual may engage in adjustment behaviours to increase their fit by either acting upon the environment or acting upon themselves. Work styles on the other hand describe an individual's characteristic way of interacting with their work environment and operate to maintain and adjust fit. While there has been some attention given to understanding proactive and reactive adjustment behaviour, albeit largely outside the P-E fit literature (Griffin, Neal, & Parker, 2007; Pulakos et al., 2000), the work styles concept has been largely ignored in empirical research despite its being an integral part in such a key theory. The current paper highlights this lesser known aspect of TWA, providing a measure to allow ongoing research on variables that offer explanatory power for improving P-E fit over time. It is important to note that the environment likewise has style variables associated with maintaining and increasing fit, however the focus of this paper will be upon the behaviours and actions of the employee.

Work Styles

Work styles were originally conceived as stable, trait-like attributes of the employee, developing in childhood through experimentation and reinforcement, crystallised in

adulthood, and declining as a result of physiological change due to the aging process (Dawis & Lofquist, 1984). However, reflecting later developments in the field of personality (McCrae & Costa, 2008), work styles have more recently been conceived as being responsive to influences such as personal cognitions, social identities and environmental constraints (Hesketh, Griffin, Dawis, & Bayl-Smith, 2015).

Work styles are distinguished by four specific characteristics; celerity, pace, rhythm and endurance. Respectively these describe how quickly an employee typically initiates work behaviours, the usual levels of energy applied to work tasks, the characteristic patterns of effort, and the degree to which the employee will persevere in doing tasks (Dawis, 2005; Hesketh et al., 2015). Dawis and Lofquist (1984) describe work styles as an employee's skills and abilities (labelled as personality structure) in action. An individual therefore may be described as having both a structural component – their skills and abilities; as well as a dynamic component – their typical work style and adjustment behaviour. Consequently, even if an individual has a good fit with their environment structurally (i.e., they have the appropriate skills and abilities to meet the demands of their job), if the work style is inadequately expressed, there will be a decrease in actual fit and the requirements of the employer will not be satisfied. Alternatively, if fit is poor structurally, an employee may engage in a work style that maintains or even increases their actual fit to satisfy the requisites of the organisation. Work styles thus envisaged have a direct relationship with maintaining and adjusting fit, as well as moderating the relationship between fit and satisfaction (Dawis & Lofquist, 1984; Dawis, 2005).

As mentioned, there has been no research conducted upon work styles, apart from an early study by Lawson (1993) and a recent theoretical application of TWA to older workers (Hesketh et al., 2015). This in part might be resultant from a lack of a suitable measurement instrument (Dawis, 2005). It may also be due to the lack of longitudinal studies of changing

P-E fit, which is clearly integral to any study of a dynamic model. This paper goes someway in addressing this deficit by first describing work style facets, as well as validating a short self-report scale suitable for longitudinal research.

“Celerity” is defined as the typical speed of responding to the environment or of initiating work behaviours (Dawis & Lofquist, 1984). Those who have high levels of celerity are thought to start job assignments early and respond quickly to work cues. The opposite may be described as one who routinely delays performing tasks and making decisions. Stated as such, celerity may share some conceptual links with time urgency or the facet of hurriedness (Landy, Rastegary, Thayer, & Colvin, 1991). Though unlike time urgency, celerity is more focused on the latency of response in the work environment, rather than generalised speed or hurriedness whilst completing tasks (Dawis & Lofquist, 1984). Furthermore, hurriedness may indicate a level of recklessness which is not necessarily implied by celeritous individuals. Celerity at low levels also bears some similarities with procrastination; though procrastination is often represented as avoidance behaviour not purposely planned (van Eerde, 2003). Low celerity does not have this association; it merely indicates someone who does not typically start on work tasks straight away.

“Pace” refers to the habitual level of energy applied to work tasks (Dawis & Lofquist, 1984). High levels of pace are marked by an appearance of busyness and constant engagement in work activities. However, pace is not merely effort – working hard towards a desired goal or performance level (Yeo & Neal, 2004) or doing one’s best (De Cooman, De Gieter, Pepermans, Jegers, & Van Acker, 2009). Rather, pace is concerned more specifically with employee levels of activity and consumption of energy. Whilst someone who expends energy towards work tasks may describe their activity as hardworking, hardworking may also depict aspects of celerity, rhythm and endurance. Hence pace needs to be carefully

distinguished from broader conceptions and measures of effort intensity (e.g., De Cooman et al., 2009).

“Rhythm” describes the typical pattern of exerted effort at work; ranging from steady to erratic (Dawis & Lofquist, 1984). Someone who has a steady rhythm typically functions at the same level of effort or intensity, regardless of whether that level of effort is high or low. In contrast, an unstable or erratic rhythm is characterised by an employee displaying a lack of regularity or pattern in their work efforts. To date, the concept of work rhythm has been relatively unexplored (Jansen & Kristof-Brown, 2005). Gold, Park and Punnett (2006) discuss routinization, where tasks are described as routine when the work cycle varies little, and non-routine when employee activity cannot be predicted at a specified point in time. Here however, the focus is primarily upon rhythm within the environment rather than rhythm within the person. Jansen and Kristof-Brown (2005) also recognise that different work environments have different rhythms, though individual rhythms are conceived and measured as time urgency instead of characteristic patterns of effort displayed in the work place.

“Endurance” is defined as the customary amount of time applied to work tasks or interaction with one’s environment (Dawis & Lofquist, 1984). Endurance here needs to be distinguished from diligence, persistence in the face of adversity or working hard, which is more characteristic of grit (Duckworth, Peterson, Matthews, & Kelly, 2007). Those with high endurance are characterised simply by the maintenance of effort over long periods of time, often exemplified by the completion of long-term projects. In contrast, low endurance is typified by giving up on or not completing work tasks.

Together, the level of celerity, effort, rhythm and endurance describes the typical way in which a person interacts with their work environment. An individual may exhibit varying levels across different work style facets. For instance an employee with low celerity but high effort would describe someone who often delays starting their tasks, yet expends high levels

of energy once started. Even though the original conception of work styles within TWA emphasised variability amongst its facets (Dawis & Lofquist, 1984), we would argue that an employee may well exhibit uniformity across all four work style facets. This argument has two premises. First, work styles are appropriately understood to be a characteristic adaptation that occurs over time rather than something that is basic to or inherent in the person. Second, this adaptive development of work styles is influenced by a wide range of factors, such as organisational culture, personality, self-efficacy, identity and stereotyping. These are likely to impact the work style facets uniformly - such that they each correlate with these factors in a similar manner (Hesketh et al., 2015). For example, if an organisation is understood to be supportive and enabling, employees will be more likely to invest greater intensity and duration of effort over time – across all work style facets (S. P. Brown & Leigh, 1996). Likewise, if an employee has low-levels of self-efficacy it will likely have a negative impact not only upon how much effort is expended, but also upon their speed of response, rhythm of effort and level of endurance (Hesketh et al., 2015). Therefore, high levels of celerity, pace, rhythm and endurance would indicate an overarching approach to work that is continually active, whilst low levels may denote an employee who is disengaged. Such a relationship between facets would be best described by a second order factor that delineates an overall style of active and effortful interaction with one's work environment.

Construct Validity: Work Styles, Personality and Work Engagement

Two important factors likely to be significantly related to work styles that are explored in this research include personality and work engagement. The relationship of personality traits to TWA has not been extensively explored (Dawis, 2005), with several authors criticising early articulations of TWA for not adequately taking into account developments in personality theory, namely the formulation of the five-factor model or Big 5 (S. D. Brown, 1993; Tinsley, 1993). In response, Dawis and Lofquist (1993; Dawis, 1996)

endeavour to distinguish personality traits, conceived as a static structural component of the individual, from style factors, the dynamic factors within the individual that are enacted towards maintaining and adjusting fit. Dawis (1996) described the potential association with extraversion, suggesting that it may be related more to the work style facet of pace than the other styles given that extraversion is associated with being sociable, assertive and active (Barrick & Mount, 1991).

In further developing the link between TWA and personality, Hesketh (1995) notes that work styles taken together may provide an unique way of understanding conscientiousness in a work context. As work styles describe a person's response latency, intensity, pattern and endurance of effort, work styles are likely to coincide with the volitional component of conscientiousness, characterised as hardworking, persevering, and dependable (Barrick & Mount, 1991). That is, someone who is conscientious is likely to start their work tasks sooner, apply higher levels of effort consistently over time and complete required tasks. However, these personal features of the individual should not be confused with personality itself or a person's basic tendencies (McCrae & Costa, 2008); rather an individual's work styles are best conceived as characteristic adaptations influenced by multiple internal and external factors (Dawis & Lofquist, 1984; Hesketh et al., 2015). Therefore, work styles should exhibit a moderate to strong relationship with conscientiousness, but yet not be so highly correlated that they would be considered to be empirically the same construct.

Work styles should also be significantly related to work engagement. Work engagement is defined as a positive work related state of mind characterised by vigour, dedication and absorption (Schaufeli, Salanova, Bakker, & Gonzales-Roma, 2002). Together, work engagement describes an employee's willingness to invest effort at work, feel involved and enthused about work, and to experience work as enthralling and captivating (Schaufeli &

Bakker, 2006). Previous research has indicated that highly engaged employees exhibit a willingness to expend more effort at work, as well as exhibit more initiative (Hakanen, Bakker, & Schaufeli, 2006; Hakanen, Perhoniemi, & Toppinen-Tanner, 2008). Therefore, we would expect work styles to be positively related to work engagement, such that highly engaged employees will exhibit high levels of celerity, pace, constancy of rhythm and lengthy endurance.

Below, we present three studies with the aim of determining and validating a self-report measure of work styles.

Study 1A: Item Generation and Exploratory analysis

The purpose of this study was to generate a suitable pool of items to measure the four facets of work styles; celerity, pace, rhythm and endurance. In line with recommendations for scale development (e.g. DeVellis, 1991), several steps were undertaken to develop a suitable self-report instrument. First, TWA literature and extant scales tapping similar constructs were examined to create an initial pool of items. Second, this pool of items was reviewed by subject matter experts. Third, the items were administered to a development sample of working adults and responses examined to determine which items to discard or retain. Finally, the scales were analysed for reliability (using Cronbach's alpha) and scale correlations were computed.

Item Generation

Items were generated to reflect unidimensional measures of a person's typical level of celerity, pace, rhythm and endurance that discriminate the individual facets without disproportionate conflation. Therefore, items such as "I work hard" were deemed unsuitable as they could be applied to multiple work style components, and thus were avoided. As recommended (DeVellis, 1991), the initial pool of items generated by the first author were reviewed by [Name removed for blind review] and [Name removed for blind review] (who

have written extensively on the TWA; e.g. [References removed for blind review]) to evaluate the items' clarity, conciseness and relevancy to the intended construct. This process resulted in 20 items to measure the work style facets overall as defined by the TWA (six celerity items, five pace items, four rhythm items, five endurance items).

Participants

Participants were recruited using the snowballing sample technique via two social media sites (Facebook and LinkedIn). Potential participants were messaged an invitation to take part in a short online study and to share the link with others who also might be interested. The study was restricted to Australian residents currently employed and working at least 8 hours per week. Of the 139 who responded, 59.0% were female and their mean age was 34.02 years ($SD = 15.08$ years). The majority of participants (58.3%) indicated that they were employee/team members, 20.1% were employed in middle management, and the remaining 21.6% identified as senior managers or above. On average respondents worked 33.53 hours per week ($SD = 17.09$ hours).

Measures

Using a 5-point Likert-type scale (1 = *Never* to 5 = *Always*), respondents were asked how often in the last month they did each listed behaviour at work. An example item was, "I started projects and tasks straight away". The 20 work style items were presented to each participant in a random order to minimise any ordering effects.

To determine whether the created items belong to a specific scale and to identify their factor structure, a number of steps were undertaken (de Vaus, 2002). First, to determine that each item measured their intended construct, the pattern of item correlations was examined and four principal components analyses (PCA's) were conducted on items for each expected factor. PCA was chosen for this initial stage of analysis as it provides an appropriate method of screening items and summarizing sets of variables into fewer components (Fabrigar,

Wegener, MacCallum, & Strahan, 1999; Matsunaga, 2011). Items that did not load sufficiently ($>.40$) onto their respective factor were excluded from further analysis. Within each work style facet, inter-item correlation ranged from $r = .40$ to $r = .68$. Second, utilising principle axis factoring (PAF) with oblique rotation, the surviving items were subject to an exploratory factor analysis (EFA) to determine their factor structure. Unlike PCA, PAF is used to understand the association between variables with a focus upon latent factors, hence was deemed appropriate for this stage of the analysis (Fabrigar et al., 1999; Henson, 2006). Parallel analysis was used to determine the number of factors to retain in the EFA (Henson, 2006; Matsunaga, 2011). Third, items with low loading or high cross loadings were eliminated one at a time, with the parallel analysis and EFA being repeated until a satisfactory solution was acquired. All analysis in this study was conducted using SPSS version 21.

Results

From the PCA, four items were identified as not adequately loading onto their expected factor and thus were excluded from further analysis. Parallel analysis of the remaining 16 items indicated a four factor solution, which was then specified in a PAF with oblique rotation (Promax, $\kappa = 4$). Five further items were eliminated from the analysis due to low loadings ($<.40$) or high cross-loadings. In sum, three celerity, three pace, three rhythm and two endurance items were retained, each loading onto their expected factors. Parallel analysis continued to indicate the retention of four factors, which accounted for 73.9% of the total variance. Internal reliability for each work style facet, measured using Cronbach's α ranged from .71 to .83. The correlations between each component were significant ($p < .001$) ranging from $r = .43$ to $r = .58$, indicating a "substantial" relationship between work style factors (de Vaus, 2002). The wording and factor loadings of the items are shown in Table 1.

The emergence of four factors with sensible item loadings in part provides empirical corroboration of work styles as explicated in TWA. The size of correlations amongst the work style facets may also be indicative of an overall second-order work style factor as suggested above, where high levels of celerity, effort, stability and endurance describe an overarching approach to work that is continually active.

Study 1B: Post-hoc validation analysis

Following the identification of the four work style factors, a post-hoc analysis was conducted to provide a preliminary examination of construct validity with respect to the relationship between personality and work styles. As noted above, the two factors within the five factor model that have been linked to work styles (Dawis, 1996; Hesketh, 1995) are extraversion and conscientiousness, both of which are included in this study.

Measures

All means, standard deviations and reliability coefficients (Chronbach's alpha) are shown in Table 2.

Work styles. Celerity, pace, rhythm and endurance were calculated by obtaining the mean scores of their respective items developed from Study 1A.

Personality. Extroversion and conscientiousness were measured using 8-item scales from Saucier (1994). Using a 9-point Likert-type scale (1 = *Extremely inaccurate* to 9 = *Extremely accurate*), participants were asked to indicate how accurately an adjective trait generally described them. Example items for extroversion include "Energetic" and "Withdrawn" while example items for conscientiousness include "Efficient" and "Disorganised".

Results

This preliminary analysis was conducted by examining the correlations (see Table 2) between the measured constructs. All work style facets were positively related with

extroversion and conscientiousness. However, the correlations were all in the small to moderate range indicating that these are distinct constructs. Additionally, in support of Dawis (1996), extroversion was related to pace more strongly than the other work style factors. Overall, these results provide preliminary support for the construct validity of the work style items.

Study 2: CFA and Longitudinal Measurement Invariance

To further evaluate the suitability of the factor structure identified in Study 1A, two competing factor models were tested in Study 2 using confirmatory factor analyses (CFA). Furthermore, longitudinal measurement invariance was tested in order ascertain whether the meaning of the underlying constructs changed across time – and therefore whether the measures for work styles are suitable for longitudinal research (Little, Preacher, Selig, & Card, 2007).

Participants

Participants for the second study were recruited as part of a larger study examining mid to late-career workers aged 45 years and over. Respondents were sourced from the Online Research Unit (ORU), an Australian research panel company. The ORU has been rated with “Gold Standard” accreditation for the Quality Standard for Online Access Panel (QSOAP) and has ISO certification for market social and opinion research (ISO 20252 and ISO 26362). Respondents are Australian citizens recruited to the ORU primarily through offline sources including telephone, print and post. A wide range of demographic factors are used to enable a representative sample profile for the purposes of research. From their existing panel database, the ORU invited participants by email to participate in a series of online questionnaires. Participation was completely voluntary and participants could withdraw at any time without cost or penalty. A mix of incentives including vouchers and charitable donations of small value (no more than \$A 5.00) was provided to participants via

the ORU. For this study, three waves of data were collected at three to four week intervals. In total, there were 665 participants in the first wave of data collection, 408 at Time 2 (61.4% response rate) and 244 at Time 3 (36.7% of Time 1 participants). At Time 1, 57.9% were male, with a mean age of 56.92 years ($SD = 6.81$ years). Following the Australian Bureau of Statistics' (2011) categorisation of workers, 75.5% were employed as "white collar workers" (managers, professionals, community and service workers, administrative workers and sales workers), while 16.1% indicated that they were "blue collar workers" (technicians and trade workers, machinery operators and labourers). The remaining 8.4% did not provide sufficient information to determine job type. The mean work hours per week was 34.41 hours ($SD = 14.16$ hours).

In comparison to available nationwide data (Australian Bureau of Statistics, 2010, 2011, 2015), this sample is representative of the Australian population in terms of gender (54.4% males) and working hours (average of 34.1 hours worked per week). However, given the focus of this study was initially upon mid to late-career workers, this sample was much older than the average Australian worker (39.5 years). Furthermore, this sample has a slightly higher number of white collar workers than the national average (68.7%).

A one-way ANOVA was conducted to determine whether there were any significant differences between those who responded only at Time 1, at Time 1 and Time 2, and those who responded at all three times. There was no significant difference between the means for gender and working hours, however those who completed all three surveys were significantly older by 1.82 years on average than those who completed Time 1 only ($p = .01$). A Chi Square difference test also indicated no significant differences between completion pattern and type of occupation ($\chi^2(4) = 8.75, p = .068$).

Measures

The measures utilised for evaluating work styles were derived from the EFA in the first study. One celerity item from the first study was removed due to possible confounding with items measuring pace. This item was replaced with “When given a task or project I began working on it immediately.” Therefore at each wave of measurement there was a total of three celerity items, three pace items, three rhythm items, and two endurance items. All means, standard deviations and reliability coefficients across the three waves are displayed in Table 3. In the first wave, respondents were asked how often they did each listed behaviour at work over the last month; however each succeeding wave specified “three to four weeks” in line with the time between waves. All items were measured using a 5-point Likert-type scale (1 = *Never* to 5 = *Always*).

Results

Confirmatory factor analysis. To examine the factor structure of the work styles measures, the fit indices of the hypothesised four factor model was compared with a one factor model where all work style items load onto a single work style factor. Goodness of fit was assessed using comparative fit index ($CFI > .95$), Tucker-Lewis index ($TLI > .95$), root-mean-square errors of approximation ($RMSEA < .06$) and standardised root mean square residual ($SRMR < .09$), utilising the cut-off criteria provided by Hu and Bentler (1999). All analysis was conducted using M-Plus 6.12. The four factor model demonstrated acceptable levels of fit ($\chi^2(38)=83.978$, $p<.001$; $CFI=.987$, $TLI=.982$, $RMSEA=.043$, $SRMR=0.023$) and provided a significantly better fit than the one factor model ($\chi^2(44)=550.330$, $p<.001$; $CFI=.861$, $TLI=.827$, $RMSEA=.132$, $SRMR=0.058$; $\Delta\chi^2(6)=466.352$, $p<.001$). These findings suggest that four factor model as specified in Study 1 is empirically supported in Study 2.

Even though not originally hypothesised by the original TWA model, we have argued above that the work style variables may relate to each other through a second order factor

describing the generalised level of effort and activity at work across time. Empirically, study 1 supports this contention given the size of the correlations between the work style facets and the broad similarities in how they relate to other constructs. Therefore, a model containing a second-order latent factor was also examined. The benefits of including a second-order factor include appropriately accounting for the relationship between variables in the first-order, which will fashion a more parsimonious model than one that is delineated only by lower order factors. Furthermore, the use of a higher order factor may eliminate possible issues related to collinearity if the substantially correlated work style variables are used together as predictors in a regression model (Dormann et al., 2013).

Labelled here as an active work style (AWS), AWS is comprised of the four work style facets and is conjectured to measure one's generalised level of activity at work. This model was compared to the four factor model using Akaike Information Criterion (AIC), where differences less than two suggest little difference between the models (Burnham & Anderson, 2002). The specified second-order factor model demonstrated good fit ($\chi^2(40) = 89.49$; CFI = .99; TLI = .98; RMSEA = .04; SRMR = .02) and the difference in AIC was less than two ($\Delta AIC = 1.52$). These results indicate that a second-order latent factor best describes a person's generalised level of activity in their working environment and explains the relationship between the work style facets.

Longitudinal measurement invariance. To establish measurement invariance across time, we followed the steps recommended by Little et al. (2007). First, an unconstrained or form invariant model is tested where the relationship between the items and their corresponding work style factor are expected to be the same at each time of measurement. If this cannot be demonstrated, it signifies that the observed items appraise different constructs at different times. By adding constraints, weak factorial invariance and strong factorial invariance can be tested. Weak factorial invariance constrains the factor loadings across time,

indicating that across time the factors are measured in the same way or on the same scale.

Strong factorial invariance constrains both the factor loadings across time as well as the item intercepts. When demonstrated, strong factorial invariance indicates that factors are not only measured in the same way across time, but that they also do not change systematically higher or lower (Wang & Wang, 2012). This allows for factor means to be sensibly compared across time and thus is an indicator of a suitable longitudinal instrument (Little et al., 2007). As the increasingly constrained models are nested, measurement invariance is typically assessed using the change in χ^2 test, comparing fit with the previous less constrained model.

The unconstrained model had an acceptable level of fit across the three waves ($\chi^2(429) = 783.68$; CFI = .94; TLI = .92; RMSEA = .05; SRMR = .04). The weak factorial invariance model was supported ($\Delta\chi^2(14) = 16.34$, $p > .05$) indicating that the items are measured similarly across time. The strong factorial invariance model was also supported ($\Delta\chi^2(13) = 14.26$, $p > .05$) suggesting that this measure can sensibly compare means across time, and therefore is suitable for longitudinal research.

Study 3: Construct Validity and Predictive Capacity

To further test the validity of the AWS scale and the work style facets, several analyses were carried out. First, we conducted another CFA to confirm that the four factor and single second-order factor model as identified in the two previous studies accounted for the observed data appropriately. This was deemed to be suitable given the addition of an extra endurance item. This analysis was conducted in M-Plus 6.12. Convergent validity was tested by examining the correlations of AWS and its four facets with conscientiousness and work engagement. As noted above, conscientiousness is often depicted as a person's basic tendency to be hardworking, persevering and dependable (Barrick & Mount, 1991), whilst work engagement is characterised as an employee's willingness to invest effort, feel involved

and enthused at work (Schaufeli & Bakker, 2006) – features of an individual that are likely to be positively related to an active work style.

Discriminant validity was tested by examining the correlations of AWS and its facets with workplace stress. Stress has been commonly understood to result from an appraisal of a situation that threatens wellbeing, either through the taxing or exceeding of one's personal resources (Lazarus & Folkman, 1984). If people believe they have available options or resources available to cope with the situation, then the effect of the stressor is mitigated (Hobfoll, 1989; Lazarus & Folkman, 1984). However resources, whether defined as things of value to the individual (Hobfoll, 1989) or features in the work environment (Bakker & Demerouti, 2007), are conceptually distinct from work styles which describe characteristic ways an individual interacts with their environment. Therefore we would expect there to be little to no correlation between these factors.

To test the predictive capacity of the AWS scale, we examined how each work style and the overall AWS was linked to measures of perceived P-E fit. As suggested above and in line with TWA, those who exhibit an active work style, that is those who actively and consistently engage their skills and abilities in workplace tasks, are more likely to fit their environment than those who are behaviourally disengaged. If the AWS scale is to be beneficial to future research, it should be able to explain unique P-E fit variance above and beyond other related factors. This part of the analysis was conducted using SPSS 21.

Participants

Respondents for this study were sourced from the ORU, were employed for at least 8 hours of work, and had not taken part in the second study. In total, 465 respondents participated in this study, 61.0% of whom were male. Their average age was 42.30 years ($SD = 13.03$), and they worked on average 37.21 hours ($SD = 14.96$ hours) per week. The majority of participants (77.2%) worked in traditional white collar jobs, with 13.8% working

in blue collar jobs and 9.0% not providing sufficient information to determine job type.

Therefore, this sample on average exhibited slightly more males and working hours, as well as a higher age and proportion of white collar workers when compared to the national average.

Measures

The means, standard deviations and correlations for this study are reported in Table 3.

Active work style (AWS). Active work style was measured using the items developed from the previous two studies. Given that the endurance facet of work styles only contained two items and demonstrated marginal reliability in the previous studies, the item “I persevered in doing my work tasks” was added to increase the factor’s robustness. Each item was measured using a 7-point Likert type scale (1 = *Never* to 7 = *Always*). Overall AWS was calculated using the mean of the 12 work style items. The individual work style factors were also computed by calculating the mean of the three items that make up each factor. The wording of the items and factor weightings are displayed in Table 1.

Conscientiousness. Conscientiousness was measured as per Study 1B using Saucier’s (1994) 8-item scale.

Work engagement. To measure work engagement, the shortened 9-item Utrecht Work Engagement scale (UWES-9; Schaufeli & Bakker, 2006) was used with a 7-point Likert type scale (1 = *Never* to 7 = *Always*). An example item includes, “At my work, I feel bursting with energy”.

General job stress. Stress was measured using the revised 8-item Stress in General (SIG) scale (Yankelevich, Broadfoot, Gillespie, Gillespie, & Guidroz, 2012) where participants were asked to what extent each statement described their current job situation. Example items included “Demanding” and “Pressured”. All items were measured using a 4-point Likert type scale (1 = *Not at all* to 4 = *A Lot*).

Demands-abilities / Needs-supplies fit. Perceived fit was measured using the items from Cable and DeRue (2002). Both demands-abilities fit and needs-supplies fit were measured with three items using a 7-point Likert-type scale (1 = *Strongly disagree* to 7 = *Strongly agree*). An example item includes “The match is very good between the demands of my job and my personal skills.”

Results

Confirmatory factor analysis. Examination of the AWS scale revealed that the four factor model demonstrated good levels of fit with the observed data ($\chi^2(48) = 103.34$; CFI = .99; TLI = .98; RMSEA = .05; SRMR = .02). In this model, factor loadings ranged from .86 to .88 (celerity), .79 to .90 (effort), .81 to .84 (rhythm) and .71 to .79 (endurance). The second-order latent factor model, where each work style facet loaded onto an active work style factor, also demonstrated good fit ($\chi^2(50) = 109.84$; CFI = .99; TLI = .98; RMSEA = .05; SRMR = .02), and was not demonstrably inferior to the four factor model ($\Delta \text{AIC} = 2.50$). Given these findings, the four factor work style model was demonstrated to be empirically sound. However, the more parsimonious model includes a higher-order factor, an overall active work style (AWS) that explains the relationship between the lower order facets.

Convergent and discriminant validity. As hypothesized, the results (see Table) demonstrate positive significant relationships between overall AWS and the four work style factors with conscientiousness and work engagement. Nevertheless, the correlations were only of a moderate strength, suggesting that they are separate constructs. Furthermore, there was no statistically significant relationship between AWS and stress, though there was a small significant relationship between stress and the work style facet, pace.

Predictive capacity. The predictive capacity of the AWS scale was tested by examining the relationship between each work style factor and overall AWS with demands-abilities fit and needs-supplies fit, controlling for age, gender, work hours, conscientiousness

and work engagement. Due to issues with collinearity (Condition Index (CI)² >30; Belsley, Kuh, & Welsch, 2004) several multiple-regression analyses were carried out using two steps. In the first step, the fit variable was regressed on the control variables. In the second step, an individual work style facet or overall AWS was added to the regression model.

A summary of the results is presented in Table 5. The first set of regression analyses with demands-abilities fit specified as the independent variable, indicated that the control variables (Step 1) explained a significant amount of demands-abilities fit variability. Both conscientiousness and work engagement were significantly related to demands abilities fit (and remained so after the inclusion of the work style factors). The explained variance of the regression model was increased by a small but significant amount when adding an individual work style factor or the overall AWS. Therefore, controlling for all variables in Step 1, work style factors were significantly related to demands abilities fit such that on average, an increase in a work style factor or the overall AWS was associated with a corresponding increase in demands-abilities fit. These effects imply that the AWS scale is capturing variance distinct from consciousness and work engagement in the predicted direction.

Results for the second regression analysis, with needs-supplies fit specified as the dependent variable, revealed that the control variables (Step 1) explained 39.8% of the variance. Work engagement was significantly related to needs-supplies fit, though consciousness was not. When the individual work style factors and overall AWS were added to the regression model (Step 2), no additional variance was accounted for. Overall, work styles did not significantly relate to needs-supplies fit when controlling for all variables in Step 1. Note however, that the zero order correlation between needs-supplies fit and the work style factors were significant.

Discussion

The present set of studies were designed to empirically validate a self-report measure of work styles, a dynamic component of the theory of work adjustment (TWA) that has been largely overlooked yet is conceived as an important component in maintaining and adjusting person-environment fit. Across three studies, the results demonstrate that four factors, labelled as celerity, pace, rhythm and endurance, were consistently differentiated by the active work style (AWS) scale. Furthermore, given the acknowledged limitations inherent in past P-E fit research regarding “snapshot” measurement (Kristof-Brown & Jansen, 2007), it was important to generate an instrument suitable for longitudinal research. The results from Study 2 suggest that the items demonstrated strong measurement invariance across time, indicating that the AWS scale is suitable for future longitudinal research. Together, these findings provide credible evidence that the factors designating work styles are sensibly related and distinct constructs.

However, the second and third study demonstrate that the relationship between these factors are best understood as being connected through a second-order factor, an active work style that describes a person’s generalised level of work activity and effort across time. This has not been previously conjectured in the TWA literature, but as argued is perhaps unsurprising given that work styles are understood to be influenced in similar respects by a wide range of variables including personality, self-efficacy, identity and stereotyping (Hesketh et al., 2015). For example, as demonstrated in Study 1B and 3, higher levels of conscientiousness are related to higher levels of celerity, pace, rhythm and endurance. However, despite their interconnectedness, the AWS scale has the advantage of being able to differentiate the work style facets, which may be of interest in specific contexts; for example, work environments where highly celeritous individuals are more likely to be successful or necessary (e.g., air traffic controller or emergency nurse).

In determining the convergent and discriminant validity of the AWS scale, our results demonstrate that a person's overall work style is positively related to conscientiousness and work engagement yet unrelated to stress. Conscientiousness is characterised as encompassing a basic disposition towards working hard, persevering, and being dependable (Barrick & Mount, 1991), which is likely to influence a person's levels of celerity, pace, rhythm and endurance. The correlations derived from Study 1B and Study 3 support this contention, indicating that increased levels of conscientiousness are associated with a more active work style overall, and within each facet. Work engagement, a work-related state of mind that is exemplified by a willingness to invest effort, feeling involved and being engrossed in one's work (Schaufeli et al., 2002), also was expected to be related with work styles. The results of Study 3 support this proposition indicating that those who have higher levels of work engagement on average have a higher overall active work style – a result that is repeated for each individual work style facet. Regarding conscientiousness and work engagement, it is important to note that the positive relationships found were only of moderate strength; evidence that these constructs are empirically distinct. In regards to determining discriminant validity, overall AWS did not demonstrate any significant relationship with stress, however there was a positive association with the facet pace. As employees reported engaging in increased levels of work effort and activity, perceptions of work place stress increased. This suggests that pace might be related to the consumption of personal resources which are either unable to be recouped causing stress (Bakker & Demerouti, 2007), or that such effort may be stressful in itself (Meurs & Perrewe, 2011). These findings indicate the possible value of bearing in mind the distinctions between the facets in the AWS scale and how they might uniquely relate to particular variables and situations. Overall though, the AWS scale demonstrated convergent and discriminant relationships with other measured constructs as expected.

When controlling for conscientiousness, work engagement, and several demographic variables, individual work style facets and overall AWS is positively related to demands-abilities fit. Those who report that they are more actively engaged and endure in work tasks perceive an increased ability to meet the demands of their job. Broadly, this lends initial support to the importance of understanding and measuring the dynamic components of person-environment fit. More specifically, work styles have been shown to be a significant component of demands-abilities fit, explaining a significant amount of observed variance. In line with TWA, this may suggest that those who have a more active work style feel more able to meet the requirements of their job.

Interestingly, an unambiguous relationship between work styles and needs-supplies fit was not found. Even though there was a moderate correlation between work style factors and needs-supplies fit, this relationship disappeared when controlling for conscientiousness and work engagement. One possible explanation is that work styles may target the fulfilment of work demands rather than target the meeting of needs and values from one's work place. Another possible consideration is that work engagement and needs-supplies fit are concepts overly intertwined such that when included in a regression model, other included variables such as work styles become non-significant.

These findings suggest that measuring work styles may be of practical use to human resources professionals. Employees are ultimately in control of how much of their time and energy that they expend in conducting their work tasks (S. P. Brown & Leigh, 1996). While an employee may have all the skills and abilities required to meet the demands of their work role, if they are not investing effort or are doing so inappropriately they will not likely meet the requirements of their job. Measuring work styles will allow an organisation to track how effort is being enacted over time and compare this to what is required. Furthermore, as work styles are not static but influenced by a wide range of variables; through policy, structural

change and environmental transformation, employee work styles may be positively altered. The present measures may assist in the tracking of these changes over time as a result of organizational change. Finally, work styles have been demonstrated to be positively related to P-E fit. If work styles prove to be an important component in the maintenance and adjustment of P-E fit, then tracking how employees express their engagement of effort over time will be an important consideration for all organisations.

Limitations and Future Research

One particular limitation of this study is that all results were obtained by the use of self-report measures. However, the problems associated with common method bias are to some extent alleviated by the use of three different samples in three different studies, including one three-wave longitudinal study, which consistently demonstrated a coherent factor structure across the AWS facets (Podsakoff, MacKenzie, & Podsakoff, 2012). Furthermore, the question order in all three studies were randomised and placed in a different item-context, reducing the priming effects or effects related to mood states induced by previous items, which may offset some impact of common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). However, future studies could further validate the AWS scale by examining the scales relation to other criterion such as supervisor or peer ratings and tracking project contributions and completions.

A second limitation relates to the cross-sectional nature of Study 3 which demonstrated that the AWS scale was significantly related to person-environment fit. However, the direction of causation in this study cannot be determined. Deriving theoretically from TWA, increasing the utilisation of one's skills and abilities at work consistently over time will allow for an employee to maintain or adjust their levels of person-environment fit (Dawis & Lofquist, 1984). However, it may also be possible that by fitting with one's environment, the employee is then enabled to activate their work style without physical or

psychological hindrance. Therefore, we would recommend future longitudinal studies to ascertain the causal relationship between work styles and person-environment fit.

Future longitudinal research would also benefit by exploring different time frames between data collection waves to determine how active work style influences P-E fit across time. The present paper demonstrates that the AWS scale was suitable for longitudinal study, however this was examined only over a relatively short time period (three to four week intervals). Where both person and environment are relatively constant, an employee's work style is likely to be relatively stable due to there being little need for additional maintenance and adjustment behaviours (Dawis & Lofquist, 1984). Therefore we would expect over shorter time frames, with less chance of significant workplace change, that work styles would be relatively stable. However, given that work environments do transform over time, including their interactions with the personal characteristics of the employee (Pulakos et al., 2000), work styles may alter markedly over the longer term as an employee attempts to increase or maintain their fit by adapting their behaviours to changing circumstances.

The AWS scale would also benefit from testing several formal TWA propositions as proposed by Dawis (2005, pp. 20-21) that directly relate to work styles and generally to work adjustment. Proposition X for example, suggests that work styles may moderate the relationship between P-E fit and employer/employee satisfaction. By engaging an appropriate work style an individual may be more able to meet the demands of the organisation as well as have their needs met. Propositions XIII and XIV suggest that that once satisfaction has been achieved, work styles will be maintained. However, as a result of dissatisfaction, employees may attempt to vary their work styles in order to facilitate increased levels of P-E fit. These propositions have not been empirically tested and therefore present excellent opportunities to not only understand the role of work styles in organizations, but also to meaningfully contribute to TWA. Such an endeavour would require a longitudinal design.

Another possible limitation of this study and opportunity of future research relates to the measurement of P-E fit itself. There are a variety of methods in measuring P-E fit including atomistic, molecular and molar approaches (Edwards, Cable, Williamson, Lambert, & Shipp, 2006). Edwards et al. (2006) demonstrate that these different approaches to understanding P-E fit are not interchangeable which raises interesting question regarding the nature of fit. Hesketh et al. (2015) also note that molar approaches (such as those used in this paper) may not provide useful details regarding how the person and environment interact. Regarding understanding the role of work styles in determining P-E fit, an atomistic approach that assesses the person and environment independently may provide useful insight into how a person attempts to maintain and adjust their behaviours in order to achieve fit.

In summary, the key contribution of this paper was to develop a measure of work styles, a neglected but important component of TWA describing an individual's characteristic way of interacting with their work environment. Both person and environment are understood to be constantly experiencing change, requiring the enactment of maintenance and adjustment behaviours in order to achieve or preserve correspondence. According to Dawis and Lofquist (1984), work styles are a dynamic component of fit describing the way in which a person activates or engages their skills and abilities across time. Three studies were used to develop and validate a suitable self-report measurement of work styles. The results derived from these studies support the conception of four separate work style facets; celerity, pace, rhythm and endurance. However, these facets are related through a second-order factor describing a person's generalised level of work activity and effort across time. Results also demonstrated that the AWS scale was positively related to measures of perceived P-E fit. Together, these findings suggest that work styles, as measured by the AWS scale, likely play an important role in understanding how people achieve correspondence with their working environment.

References

- Australian Bureau of Statistics (ABS). (2010). *6105.0 - Australian Labour Market Statistics, Oct 2010*. Retrieved August 27, 2015, from <http://www.abs.gov.au/ausstats/abs@.nsf/featurearticlesbytitle/67AB5016DD143FA6CA2578680014A9D9?OpenDocument>
- Australian Bureau of Statistics (ABS). (2011). *6105.0 - Australian Labour Market Statistics, Oct 2011*. Retrieved July 28, 2015, from <http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/6105.0Feature+Article1Oct2011>
- Australian Bureau of Statistics (ABS). (2015). *6291.0.55.001 - Labour Force, Australia, Detailed - Electronic Delivery, Jun 2015*. Retrieved July 27, 2015, from [http://www.abs.gov.au/AUSSTATS/ABS@Archive.nsf/log?openagent&6291009.xls&6291.0.55.001&Time Series Spreadsheet&9E5BA281B9A84351CA257E83001B2A89&0&Jun 2015&16.07.2015&Latest](http://www.abs.gov.au/AUSSTATS/ABS@Archive.nsf/log?openagent&6291009.xls&6291.0.55.001&TimeSeriesSpreadsheet&9E5BA281B9A84351CA257E83001B2A89&0&Jun2015&16.07.2015&Latest)
- Bakker, A. B., & Demerouti, E. (2007). The job demands-resources model: State of the art. *Journal of Managerial Psychology*, 22, 309–328. doi:10.1108/02683940710733115
- Bandura, A. (1999). Social cognitive theory of personality. In L. Previn & O. John (Eds.), *Handbook of Personality* (2nd ed., pp. 154–196). New York: Guilford Publications.
- Barrick, M. R., & Mount, M. K. (1991). The big five personality dimensions and job performance: A meta-analysis. *Personnel Psychology*, 44, 1–26. doi:10.1111/j.1744-6570.1991.tb00688.x
- Belsley, D. A., Kuh, E., & Welsch, R. E. (2004). *Regression Diagnostics: Identifying Influential Data Sources of Collinearity*. Hoboken: John Wiley & Sons, Inc.

- Brown, S. D. (1993). Contemporary psychological science and the theory of work adjustment: A proposal for integration and a favor returned. *Journal of Vocational Behavior*, 43, 58–66. doi:10.1006/jvbe.1993.1030
- Brown, S. P., & Leigh, T. W. (1996). A new look at psychological climate and its relationship to job involvement, effort, and performance. *The Journal of Applied Psychology*, 81, 358–368. doi:10.1037/0021-9010.81.4.358
- Burnham, K. P., & Anderson, D. R. (2002). *Model Selection and Multimodel Inference: A Practical Information-Theoretic Approach* (2nd ed.). New York: Springer.
- Cable, D. M., & DeRue, D. S. (2002). The convergent and discriminant validity of subjective fit perceptions. *Journal of Applied Psychology*, 87, 875–884. doi:10.1037//0021-9010.87.5.875
- Caldwell, S. D., Herold, D. M., & Fedor, D. B. (2004). Toward an understanding of the relationships among organizational change, individual differences, and changes in person-environment fit: a cross-level study. *The Journal of Applied Psychology*, 89, 868–882. doi:10.1037/0021-9010.89.5.868
- Carless, S. A. (2005). Person-job fit versus person-organization fit as predictors of organizational attraction and job acceptance intentions: A longitudinal study. *Journal of Occupational and Organizational Psychology*, 78, 411–429. doi:10.1348/096317905X25995
- Dawis, R. V. (1996). The Theory of Work Adjustment and Person-Environment-Correspondence Counseling. In D. Brown & L. Brooks (Eds.), *Career Choice and Development* (3rd ed., pp. 75–120). San Francisco: Jossey-Bass Inc.
- Dawis, R. V. (2005). The Minnesota theory of work adjustment. In S. D. Brown & R. W. Lent (Eds.), *Career Development and Counselling: Putting theory and research to work* (pp. 3–23). Hoboken: John Wiley & Sons, Inc.

Dawis, R. V., & Lofquist, L. H. (1984). *A Psychological Theory of Work Adjustment*.

Minneapolis: University of Minnesota Press.

Dawis, R. V., & Lofquist, L. H. (1993). From TWA to PEC. *Journal of Vocational Behavior*, 43, 113–121. doi:10.1006/jvbe.1993.1037

De Cooman, R., De Gieter, S., Pepermans, R., Jegers, M., & Van Acker, F. (2009).

Development and validation of the work effort scale. *European Journal of Psychological Assessment*, 25, 266–273. doi:10.1027/1015-5759.25.4.266

De Vaus, D. A. (2002). *Surveys in Social Research* (5th ed.). Crows Nest: Allen & Unwin.

DeVellis, R. F. (1991). *Scale Development: Theory and Applications*. Newbury Park: SAGE Publications, Inc.

Donohue, R. (2006). Person-environment congruence in relation to career change and career persistence. *Journal of Vocational Behavior*, 68, 504–515.

doi:10.1016/j.jvb.2005.11.002

Dormann, C. F., Elith, J., Bacher, S., Buchmann, C., Carl, G., Carré, G., ... Lautenbach, S.

(2013). Collinearity: A review of methods to deal with it and a simulation study evaluating their performance. *Ecography*, 36, 27–46. doi:10.1111/j.1600-0587.2012.07348.x

Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: perseverance and passion for long-term goals. *Journal of Personality and Social Psychology*, 92,

1087–1101. doi:10.1037/0022-3514.92.6.1087

Edwards, J. R., Cable, D. M., Williamson, I. O., Lambert, L. S., & Shipp, A. J. (2006). The phenomenology of fit: Linking the person and environment to the subjective experience of person-environment fit. *The Journal of Applied Psychology*, 91, 802–827.

doi:10.1037/0021-9010.91.4.802

- Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods*, 4(3), 272–299. doi:10.1037/1082-989X.4.3.272
- Gold, J. E., Park, J.-S., & Punnett, L. (2006). Work routinization and implications for ergonomic exposure assessment. *Ergonomics*, 49(1), 12–27. doi:10.1080/00140130500356643
- Griffin, M. A., Neal, A., & Parker, S. K. (2007). A new model of work role performance: Positive behaviour in uncertain and interdependent contexts. *Academy of Management Journal*, 50, 327–347. doi:10.5465/AMJ.2007.24634438
- Hakanen, J. J., Bakker, A. B., & Schaufeli, W. B. (2006). Burnout and work engagement among teachers. *Journal of School Psychology*, 43, 495–513. doi:10.1016/j.jsp.2005.11.001
- Hakanen, J. J., Perhoniemi, R., & Toppinen-Tanner, S. (2008). Positive gain spirals at work: From job resources to work engagement, personal initiative and work-unit innovativeness. *Journal of Vocational Behavior*, 73, 78–91. doi:10.1016/j.jvb.2008.01.003
- Henson, R. K. (2006). Use of exploratory factor analysis in published research common errors and some comment on improved practice. *Educational and Psychological Measurement*, 66, 393–416. doi:10.1177/0013164405282485
- Hesketh, B. (1995). Personality and adjustment styles: A theory of work adjustment approach to career enhancing strategies. *Journal of Vocational Behavior*, 46, 274–282. doi:10.1006/jvbe.1995.1020
- Hesketh, B., Griffin, B., Dawis, R. V., & Bayl-Smith, P. (2015). Extensions to the dynamic aspects of the Retirement Transition and Adjustment Framework (RTAF): Adjustment

- behaviors, work styles and identity. *Work, Aging & Retirement*, 1, 79–91.
- doi:10.1093/workar/wau004
- Hobfoll, S. E. (1989). Conservation of resources. A new attempt at conceptualizing stress. *The American Psychologist*, 44, 513–524. doi:10.1037/0003-066X.44.3.513
- Hoffman, B. J., & Woehr, D. J. (2006). A quantitative review of the relationship between person–organization fit and behavioral outcomes. *Journal of Vocational Behavior*, 68, 389–399. doi:10.1016/j.jvb.2005.08.003
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6, 1–55. doi:10.1080/10705519909540118
- Jansen, K. J., & Kristof-Brown, A. L. (2005). Marching to the beat of a different drummer: Examining the impact of pacing congruence. *Organizational Behavior and Human Decision Processes*, 97, 93–105. doi:10.1016/j.obhdp.2005.03.005
- Jansen, K. J., & Shipp, A. J. (2013). A Review and Agenda for Incorporating Time in Fit Research. In A. L. Kristof-Brown & J. Billsberry (Eds.), *Organizational Fit: Key Issues and New Directions* (pp. 195–221). Chichester: John Wiley & Sons, Ltd.
- Kanfer, R., & Ackerman, P. L. (2008). Aging and work motivation. In C. Wankel (Ed.), *21st Century Management: A Reference Handbook* (21st century management: A reference handbook (Vol 2) (pp. 160–170). Los Angeles (CA): SAGE Publications, Inc.
- Kooij, D., Lange, A. De, Jansen, P., & Dijkers, J. (2008). Older workers' motivation to continue to work: Five meanings of age: A conceptual review. *Journal of Managerial Psychology*, 23, 364–394. doi:10.1108/02683940810869015
- Kristof-Brown, A. L., & Guay, R. P. (2011). Person-Environment Fit. In S. Zedeck (Ed.), *APA Handbook of Industrial and Organizational Psychology* (Vol 3., pp. 3–50). Washington, DC: American Psychological Association. doi:10.1037/12171-001

- Kristof-Brown, A. L., & Jansen, K. J. (2007). Issues of Person-Organization Fit. In C. Ostroff & T. A. Judge (Eds.), *Perspectives on Organizational Fit* (pp. 123–154). Mahwah: Taylor & Francis Group, LLC. Retrieved from <http://books.google.com/books?hl=en&lr=&id=9jOynKk2UjUC&pgis=1>
- Kristof-Brown, A. L., Zimmerman, R. D., & Johnson, E. C. (2005). Consequences of individuals' fit at work: A meta-analysis of person-job, person-organization, person-group, and person-supervisor fit. *Personnel Psychology*, 58, 281–342.
- Landy, F. J., Rastegary, H., Thayer, J., & Colvin, C. (1991). Time urgency: The construct and its measurement. *Journal of Applied Psychology*, 76, 644–657. doi:10.1037/0021-9010.76.5.644
- Lawson, L. (1993). Theory of work adjustment personality constructs. *Journal of Vocational Behavior*, 43, 46–57. doi:10.1006/jvbe.1993.1029
- Lazarus, R. S., & Folkman, S. (1984). *Stress, Appraisal, and Coping*. New York: Springer Publishing Company, Inc.
- Little, T. D., Preacher, K. J., Selig, J. P., & Card, N. A. (2007). New developments in latent variable panel analyses of longitudinal data. *International Journal of Behavioral Development*. doi:10.1177/0165025407077757
- Matsunaga, M. (2011). How to factor-analyze your data right: Do's, don'ts, and how-to's. *International Journal of Psychological Research*, 3, 97–110.
- McCrae, R. R., & Costa, P. T. J. (2008). The five-factor theory of personality. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of Personality: Theory and Research* (3rd ed., pp. 159–181). New York: The Guilford Press.
- Meurs, J. A., & Perrewe, P. L. (2011). Cognitive Activation Theory of Stress: An Integrative Theoretical Approach to Work Stress. *Journal of Management*. doi:10.1177/0149206310387303

- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *The Journal of Applied Psychology*, 88, 879–903. doi:10.1037/0021-9010.88.5.879
- Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of Method Bias in Social Science Research and Recommendations on How to Control It. *Annual Review of Psychology*. doi:10.1146/annurev-psych-120710-100452
- Pulakos, E. D., Arad, S., Donovan, M. A., & Plamondon, K. E. (2000). Adaptability in the workplace: Development of a taxonomy of adaptive performance. *Journal of Applied Psychology*, 85, 612–624. doi:10.1037//0021-9010.85.4.612
- Saucier, G. (1994). Mini-markers: a brief version of Goldberg's unipolar big-five markers. *Journal of Personality Assessment*, 63, 506–516. doi:10.1207/s15327752jpa6303_8
- Schaufeli, W. B., & Bakker, A. B. (2006). The Measurement of Work Engagement With a Short Questionnaire: A Cross-National Study. *Educational and Psychological Measurement*, 66, 701–716. doi:10.1177/0013164405282471
- Schaufeli, W. B., Salanova, M., Bakker, A. B., & Gonzales-Roma, V. (2002). The Measurement of Engagement and Burnout : A two sample confirmatory Factor Analytic Approach. *Journal of Happiness Studies*, 3, 71–92. doi:10.1023/A:1015630930326
- Tinsley, D. J. (1993). Extensions, elaborations, and construct validation of the Theory of Work Adjustment. *Journal of Vocational Behavior*, 43, 67–74. doi:10.1006/jvbe.1993.1031
- Van Eerde, W. (2003). A meta-analytically derived nomological network of procrastination. *Personality and Individual Differences*, 35, 1401–1418. doi:10.1016/S0191-8869(02)00358-6

- Verquer, M. L., Beehr, T. a, & Wagner, S. H. (2003). A meta-analysis of relations between person–organization fit and work attitudes. *Journal of Vocational Behavior*, 63, 473–489. doi:10.1016/S0001-8791(02)00036-2
- Wang, J., & Wang, X. (2012). *Structural Equation Modeling: Applications Using Mplus*. Chichester: Higher Education Press.
- Yankelevich, M., Broadfoot, A., Gillespie, J. Z., Gillespie, M. A., & Guidroz, A. (2012). General job stress: A unidimensional measure and its non-linear relations with outcome variables. *Stress and Health*, 28, 137–148. doi:10.1002/smi.1413
- Yeo, G. B., & Neal, A. (2004). A multilevel analysis of effort, practice, and performance: Effects of ability, conscientiousness, and goal orientation. *The Journal of Applied Psychology*, 89, 231–247. doi:10.1037/0021-9010.89.2.231

Table 1

Factor Loadings with Promax Rotation for the Final Active Work Styles (AWS) Scale from Study 1 and Study 3

Variable	1	2	3	4
I started projects and tasks straight away	.82 (.72)	-.04 (-.02)	.05 (-.15)	.06 (.09)
I was quick to start my jobs	.72 (.67)	.00 (-.07)	.06 (.10)	.11 (.15)
I delay my efforts at the start of a work project or task (reversed)	- (.56)	- (.14)	- (.05)	- (-.10)
When given a task or project I began working on it immediately*	.95 (-)	.05 (-)	-.07 (-)	-.05 (-)
I put a lot of energy into my work tasks	.14 (-.10)	.58 (.60)	.15 (.19)	.08 (.40)
I expended a great deal of effort in carrying out my job	-.12 (-.01)	.83 (.79)	-.01 (.04)	.12 (-.12)
I used a high amount of effort and energy	.12 (.10)	.75 (.85)	.06 (-.03)	-.09 (-.04)
My level of effort was steady over time	-.02 (.28)	.06 (.04)	.82 (.65)	-.01 (-.14)
The levels of energy I put in was highly stable over time	.07 (-.14)	.10 (-.01)	.74 (.92)	-.03 (.03)
I was consistent in the amount of effort and energy I put into my tasks at work	.00 (-.01)	.04 (.03)	.63 (.64)	.20 (.15)
I finished whatever I began	.14 (.11)	-.09 (-.04)	.09 (.04)	.67 (.64)
I finished tasks that took a long time to complete	-.00 (.02)	.19 (-.05)	-.11 (-.00)	.68 (.78)
I persevered in doing my work tasks**	.02 (-)	.02 (-)	.11 (-)	.65 (-)

Note: Numbers in parenthesis are from study 1.

Bold-faced values indicate primary loadings.

*Item added from study 2.

**Item added to study 3.

Table 2

Study 1B: Summary of Intercorrelations, Means, Standard Deviations and Reliability Coefficient Alphas

	M	SD	1	2	3	4	5	6	7	8	9
1. Gender	.59	.49	-								
2. Age	34.02	15.08	-.20*	-							
3. Work hours/week	33.53	17.09	-.35**	.52**	-						
4. Celerity	3.73	.66	.25**	-.12	-.08	(.72)					
5. Pace	3.97	.65	.17*	.10	.17*	.43**	(.83)				
6. Rhythm	3.71	.72	.12	.01	-.07	.52**	.58**	(.82)			
7. Endurance	4.28	.61	.17*	.07	.08	.47**	.49**	.49**	(.71)		
8. Extroversion	6.24	1.38	.10	.24**	.29**	.18*	.44**	.25**	.25**	(.87)	
9. Conscientiousness	7.03	1.11	.09	.31**	.29**	.39**	.43**	.48**	.44**	.29**	(.83)

Note: Reliability coefficients (Cronbach's alpha) are in parentheses on the diagonal. Gender 0 = Male, 1 = Female.

* $p = <.05$.

** $p = <.01$.

Table 3

Study 2: Means, Standard Deviations and Reliability Coefficient Alphas for Work Style Factors

Factor	Time 1			Time 2			Time 3		
	<i>M</i>	<i>SD</i>	α	<i>M</i>	<i>SD</i>	α	<i>M</i>	<i>SD</i>	α
Celerity	4.06	.68	.84	4.06	.69	.89	3.96	.69	.89
Pace	4.03	.68	.84	4.04	.71	.86	3.91	.80	.91
Rhythm	4.09	.62	.79	4.11	.66	.87	4.02	.64	.87
Endurance	4.34	.62	.63	4.37	.64	.77	4.26	.69	.84

Table 4

Study 3: Summary of Intercorrelations, Means, Standard Deviations and Reliability Coefficient Alphas

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Gender	.61		-												
2. Age	42.30	13.03	.01	-											
3. Work Hrs/Week	37.21	14.96	-.27**	-.03	-										
4. AWS	5.43	.36	.17**	.23**	-.01	(.94)									
5. Celerity	5.42	.97	.15**	.18**	-.10*	.86**	(.90)								
6. Pace	5.36	.98	.17**	.15**	.04	.88**	.65**	(.87)							
7. Rhythm	5.40	.92	.13**	.24**	.02	.90**	.69**	.75**	(.87)						
8. Endurance	5.57	.93	.15**	.25**	-.00	.87**	.68**	.68**	.71**	(.80)					
9. Conscientiousness	6.87	1.25	.11*	.30**	-.03	.44**	.38**	.37**	.39**	.40**	(.86)				
10. Work Engagement	4.66	1.01	.09*	.14**	.11*	.45**	.34**	.42**	.48**	.35**	.26**	(.93)			
11. Stress	2.40	.70	-.01	-.19**	.25**	.03	-.03	.14**	-.00	-.00	-.19**	-.03	(.90)		
12. Demands-Abilities Fit	5.39	1.11	.11*	.25**	.12*	.45**	.33*	.40**	.45**	.40**	.33**	.52**	.01	(.90)	
13. Needs-Supplies Fit	5.02	1.36	.06	.21**	.15*	.29**	.19**	.30**	.35**	.20**	.20**	.61**	-.02	.66**	(.93)

Note: Reliability coefficients (Cronbach's alpha) are in parentheses on the diagonal. Gender: 0 = Female, 1 = Male. Occupation: 0 = White collar, 1 = Blue collar

* $p < .05$.

** $p < .01$.

Table 5

Study 3: Regression Analyses of the Relationships between Work Styles with D-A fit and N-S Fit

Variable D-A Fit	R^2	F	ΔR^2	F_{inc}	dfs_{inc}	sr	β	B	SE	95% CI	
										Lower	Upper
<i>Step 1</i>	.34	45.69	.34	45.69**	5, 446						
Gender						.08	.08	.19*	.09	.01	.38
Age						.14	.15	.01**	.00	.01	.02
Work Hrs/Week						.10	.11	.01**	.00	.00	.01
Conscientiousness						.15	.16	.15**	.04	.07	.22
Work Engagement						.41	.43	.48**	.04	.39	.57
<i>Regression Models</i>											
1. Step 2 - Celerity	.35	32.72	.01	6.13*	1, 445	.09	.11	.12*	.05	.03	.22
2. Step 2 - Pace	.36	40.66	.02	10.59**	1, 445	.12	.14	.17**	.05	.07	.27
3. Step 2 - Rhythm	.36	41.93	.02	15.62**	1, 445	.15	.18	.22**	.06	.11	.33
4. Step 2 - Endurance	.36	41.84	.02	15.29**	1, 445	.15	.05	.21**	.05	.10	.31
5. Step 2 - AWS	.36	42.16	.02	16.56**	1, 445	.15	.19	.25**	.06	.13	.38
<i>N-S Fit</i>											
<i>Step 1</i>	.40	58.94	.39	58.94**	5,446						
Gender						.03	.03	.09	.11	-.12	.30
Age						.12	.13	.01**	.00	.01	.21
Work Hrs/Week						.10	.11	.01**	.00	.00	.02
Conscientiousness						.01	.01	.01	.04	-.07	.10
Work Engagement						.54	.57	.77**	.05	.67	.87
<i>Regression Models</i>											
6. Step 2 - Celerity	.40	49.16	.00	.57	1, 445	-.03	-.03	-.04	.06	-.16	.07
7. Step 2 - Pace	.40	49.21	.00	.74	1, 445	.03	.04	.05	.06	-.07	.17
8. Step 2 - Rhythm	.40	49.47	.00	1.69	1, 445	.05	.06	.09	.07	-.04	.22
9. Step 2 - Endurance	.40	49.36	.00	1.29	1, 445	-.04	-.05	-.07	.06	-.19	.05
10. Step 2 - AWS	.40	49.00	.00	.00	1, 445	.00	.00	.00	.07	-.14	.15

Note. CI = confidence interval. AWS = Overall Active Work Style. * $p < .05$. ** $p < .01$.

Chapter 4

Thesis Overview: Age discrimination within a P-E fit paradigm

Age discrimination is wide spread, with 27% of Australians aged 50 years and over indicating that they have been subject to age discrimination in the last two years (Australian Human Rights Commission, 2015). In Paper 2, the negative effect of age discrimination upon P-E fit maintenance is examined. The active work styles (AWS) scale, as developed in Chapter 3, is utilised in the second study as a possible moderating variable reducing the deleterious effect of age discrimination. It is suggested that via a highly active work style, employees will be able to maintain their ability to fulfil their work demands in the presence of adverse conditions. As such, this study extends our appreciation of the harmful effects of age discrimination upon late career workers in maintaining career success, as well as broadening our understanding of P-E fit as a dynamic framework impacted by individual work styles.

This paper has been revised and resubmitted with the Journal of Occupational and Organizational Psychology. I am the first author, and my principal supervisor, A/Prof Barbara Griffin, is the second author of this paper. My contribution to the research paper was: Concept = 80%; Data collection = 75%; Data analysis = 100%; Writing = 80%; Total = 84%.

Paper 2: Age discrimination within a P-E fit paradigm: Maintaining fit with an active work style

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Abstract

In the context of work environment and within person change, age discrimination represents a unique additional challenge for mid to late career workers. This present research expands the current literature by examining age discrimination within a P-E fit paradigm. Utilising the theory of work adjustment, we examined the effect of perceived age discrimination upon demands-abilities (D-A) fit and needs-supplies (N-S) fit in two two-wave studies. Consistent with hypotheses, Study 1 ($N=1093$) demonstrated that as individuals perceived increasing experiences of age discrimination, both D-A and N-S fit decreased over time. Study 2 ($N=406$) included active work styles, defined as an individual's general level and pattern of workplace effort and activity, as a possible moderating variable of the relationship between age discrimination and D-A fit. As expected, the engagement of a highly active work style ameliorated the deleterious effects of age discrimination. Implications for future empirical research and possible workplace applications deriving from these studies are discussed.

Keywords: Age discrimination; Older workers; Theory of work adjustment; Active work styles

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From the time when the current cohorts of mid to late career workers first entered the workforce, organisations have undergone considerable transformation as a result of global competition, technological innovation and company restructuring (Pulakos et al., 2002; Savickas et al., 2009). Likewise, job roles have significantly changed during this time with decreasing expectations of full time nine-to-five work in a stable environment. Furthermore, the informal contractual agreement between organisation and employee has shifted; no longer is career development the responsibility of the organisation, rather employees are expected to become “life-long learners” (Savickas et al., 2009, p. 240) – adopting new technologies, remaining adjustable to organisational change and market trends, and creating their own career opportunities. Consequently, the ability to be adaptable, change and grow is now viewed as a key competency not only for career but also life success (Griffin, 2015).

Globally, with the growth in aging workforces, the need for adaptation not only occurs as a result of changing organisations and marketplaces, but also as a result of the cognitive, physical and motivational changes within individuals as they grow older (Ilmarinen, 2001; Ng & Feldman, 2013). These within-person and environmental changes create unique challenges for maintaining a successful and satisfying career (Ng & Feldman, 2013). Indeed, Wang et al. (2013) posit that the mid to late career period should be re-conceptualised as an adjustment experience with future research focused on how to maintain person-environment (P-E) fit in older workers.

Whilst on one hand mid to late career workers are being encouraged to be adaptable, technologically-minded and “life-long learners” in order to continually fit within the modern work place, they are on the other hand stereotyped as inflexible, technologically illiterate and unwilling to learn (Posthuma & Campion, 2009). Age discrimination is characterised by the expression of negative attitudes and behaviours towards an individual based merely upon their membership to an age category (Kunze, Boehm, & Bruch, 2011).

Although age discrimination can be directed towards any age group, there is evidence that older workers are particularly at risk (Australian Human Rights Commission, 2015) and imperils the globally identified need to extend career duration (Phillips & Siu, 2012). The current study therefore focuses on mid-to-late career workers (those aged 45 and over) as they are the demographic most at risk of experiencing age discrimination and its consequences.

Despite evidence of the negative effects of age discrimination upon the organisation (Goldman, Gutek, Stein, & Lewis, 2006), employee workplace attitudes (Griffin, Bayl-Smith, & Hesketh, 2016; Snape & Redman, 2003) and personal psychological well-being (Garstka, Schmitt, Branscombe, & Hummert, 2004); no study to date has examined the effect that age discrimination has on person-environment fit. We propose that when negative age stereotypes are enacted through discriminatory practices, individuals will be less able to successfully adapt to the changes in their environment and their person, indicated by lower levels of P-E fit. As a consequence of reduced fit, older workers would be less able to meet the changing demands of their role or become psychologically disengaged as organisations fail to meet their personal needs, resulting in detrimental outcomes for both the individual's psychological and financial well-being as well as for organisational productivity.

Person-Environment Fit

P-E fit, broadly defined as the compatibility between an individual and their work environment, has been a prevalent framework in understanding a wide range of issues within industrial and organisational psychology for over 100 years (Kristof-Brown, Zimmerman, & Johnson, 2005). Despite the ubiquitous application of P-E fit theory in organisational research, its utilisation to understanding late career workers has been minimal (Perry, Dokko, & Golom, 2012). Given the unique challenges experienced by mid-to-late career workers, as they strive to adjust to changes within their environment and themselves, P-E fit as an

indicator of adaptability and adjustment provides an excellent paradigm through which to better understand older workers (Perry et al., 2012).

Embedded within the framework of P-E fit, the theory of work adjustment (TWA; Dawis & Lofquist, 1984; Dawis, 2005) has a rich history of research and provides the conceptual model for the current study. TWA is unique in that it not only accounts for the measurement of fit at a particular point in time (structural model) but also includes a dynamic component explaining how employees maintain their fit over time (Dawis, 2005).

In describing the structural model, TWA focuses on two particular types of fit: Demands-abilities (D-A) fit or the correspondence between an employee's abilities and skills with that required by their job; and needs-supplies (N-S) fit, or the correspondence between the needs and values desired by the employee with those supplied by their role. When an employee, through their skills and abilities, meets the requirements of their job, the organisation will be satisfied. Likewise, when their employer fulfils the needs and values of the employee, the employee will be satisfied. The result of mutual correspondence and satisfaction is the expectation of extended tenure for the employee (Dawis & Lofquist, 1984).

In contrast to the structural model, the dynamic model recognises that person and environment are not stable entities, and therefore need to be managed in order to maintain acceptable levels of fit (Dawis, 2005; Dawis & Lofquist, 1978). In explaining the more dynamic components of P-E fit, Dawis and Lofquist (1984) first note that a basic human drive is to "...achieve and maintain correspondences with environment" (p. 54). As persons and environments change over time, incongruity can develop accompanied by feelings of dissatisfaction. In order to achieve an ongoing state of satisfaction, employees (and employers) will engage in adaptive behaviours in a process called work adjustment that attempts to either maintain or restore acceptable levels of correspondence. Dawis and Lofquist (1984) describe methods used to increase fit, including proactive adjustment

strategies (originally labelled as ‘activeness’) when the employee attempts to increase correspondence by changing aspects of the environment, and reactive strategies when the employee adjusts by changing aspects of him or herself in order to increase levels of fit. Example proactive behaviours include seeking additional pay or a change of working conditions in order that their work environment better meets their needs. Example reactive behaviours can include learning new skills and abilities through training programs and peer/manager feedback.

In the context of the present article, the threat posed by negative stereotypes and their enactment through age discrimination provides a significant challenge for aging workers and is a potential impediment to successful proactive and reactive adjustment, and therefore P-E fit. This is demonstrated by the fact that common experiences of age discrimination include the denial of training opportunities, rejection of promotions, being omitted from prime job-assignments, and adverse social interactions with peers and managers (Chiu, Chan, Snape, & Redman, 2001).

However, even though age discrimination may prevent effective work adjustment to maintain the skills and abilities required by the organisation, such deficits may be overcome by employing an engaged and active work style. TWA introduced the concept of work styles, or the general level of activity and effort enacted when completing work tasks, as another dynamic layer of understanding how people maintain and increase their levels of fit with changing environments and personal attributes (Dawis, 2005; Dawis & Lofquist, 1984; see also Bayl-Smith & Griffin, 2015). Work style is composed of four facets: *celerity*, *pace*, *rhythm*, and *endurance* (Dawis, 2005) that describe the speed at which one characteristically engages in work tasks, the typical amount of energy or effort exerted in work tasks, the constancy of effort applied to work tasks over time, and the length of time a person will maintain their efforts over time. Bayl-Smith and Griffin (2015) have recently argued that

work style facets can also be understood as a generalised second-order factor, an active work style, that describes one's typical approach and effort towards work.

The specific hypothesised relationships between age discrimination, the structural model of fit and work styles are discussed below.

The Impact of Age Discrimination upon P-E Fit

Demands-Abilities Fit. According to Dawis (1996), the critical feature of employees from the perspective of the work environment is their skills and abilities. Accordingly, the ongoing development of skills and abilities through the utilisation of proactive and reactive adjustment strategies is critical in satisfying the changing demands of the work environment. However, successful adjustment is largely dependent upon what Dawis labels as *opportunity*. Here, opportunity not only refers to availability but also to the broader conditions within the work environment that reinforce or reward development. When this opportunity is not present, the individual is restricted in their development and, consequently, their capabilities in meeting workplace demands. Dawis (1996) notes that within TWA, stereotyping and discrimination may be an important consideration when it influences the levels and types of skills that are developed. In regards to older workers, as noted above, continuous skill development and self-initiated learning are important factors in maintaining a productive career. Nevertheless, when older employees experience stereotyping and discriminatory behaviour, occasions for reactive adjustment and development via training, promotion, experience and constructive peer feedback are made unavailable. Furthermore, such prejudicial experiences fail to facilitate an environment that reinforces proactive adjustment, but rather encourages withdrawal from the work environment (Bayl-Smith & Griffin, 2014). Therefore, when older workers are deprived of their opportunity to adjust and develop their capabilities, or are in an environment that discourages the utilisation of their skills, they will

decrease in their ability to meet the demands expected of them by their organisation (Dawis, 2005).

Currently there is no direct empirical evidence that links age discrimination with demands-abilities fit. However, two recent cross-sectional studies (Furunes & Mykletun, 2010; Zaniboni, 2015) have demonstrated a negative relationship between perceived age discrimination and self-reported personal resources and abilities. For example, Furunes and Mykletun (2010) used items from the Work Ability Index (Tuomi, Ilmarinen, Jahkola, Katajarinne, & Tulkki, 1998) that asked participants to rate their current work ability “with respect to the physical (or mental) demands of your work.” While Zaniboni (2015) examined the impact of age discrimination upon desired retirement age and expected retirement adjustment using the concept of personal resources as mediating variables (e.g., efficiency, competencies, flexibility, etc.). Both studies demonstrated a negative correlation between age discrimination and abilities; an indicator of declines in D-A fit.

Therefore, consistent with the findings above and in line the detrimental effects upon adjustment behaviours, age discrimination is expected to lead to a subsequent decrease in perceived correspondence between required abilities and job demands.

Hypothesis 1: Higher levels of age discrimination at Time 1 will lead to a decrease in demands-abilities fit at Time 2.

Needs-Supplies fit. Within TWA, needs-supplies fit reflects the degree to which an individual’s biological and psychological needs, including their goals, values, desires and expectations, are being met by their working environment (Dawis, 2005). We propose that age discrimination will reduce the perception that the organisation is able or willing to meet the needs of the individual, and hence the fit between employee needs and organisation supplies will decrease across time.

According to social exchange theory (Cropanzano & Mitchell, 2005), an employee will have certain expectations or needs in regards to support and fair treatment from the organisation based upon principles of reciprocity. Reciprocity viewed as an exchange suggests that if an employee supplies a benefit to the organisation (e.g. investing energy into a work-related task), then this should be repaid in kind (e.g. pay, recognition, status, support) (Cropanzano & Mitchell, 2005). The lack of promotion opportunities, prime job assignments, support or recognition on the basis of chronological age is likely to lead to older worker perceptions that they are not receiving adequate reimbursement for their efforts and consequently, needs-supplies fit will decrease.

Similarly, age discrimination may also challenge an employee's feelings of justice, leading to the discernment that the values supplied by the organisation are not meeting their individual needs. According to Goldman, Slaughter, Schmit, Wiley and Brooks (2008), an awareness of injustice is based on three important needs that would be violated via perceived experiences of discrimination. First, discrimination violates economic fulfilment needs by creating uncertainty that efforts will be appropriately rewarded and thereby creating ongoing economic insecurity. Second, discrimination contravenes people's need for positive social standing and self-regard. Third, discrimination transgresses the need for ethical behaviour, not in regards to reimbursements, but rather as a moral principal about how humans should be treated (Goldman et al., 2008). As a consequence of these threats to need fulfilment experienced through age discrimination, we would expect needs supplies fit to decrease.

Similar to D-A fit, N-S fit has not previously been linked to age discrimination, but there is some empirical evidence to support this proposed relationship. For example, Goldman and colleagues (2008) show how perceptions of general discrimination have a direct negative relationship with economic, social, and ethical needs and associated perceptions of justice. Furthermore, studies linking age discrimination with low job

satisfaction (e.g. Griffin et al., 2016) provide indirect evidence given that, according to TWA, employees will experience decreased levels job satisfaction when an organisation does not appropriately satisfy the needs of the individual (Dawis & Lofquist, 1984).

Hypothesis 2. Higher levels of age discrimination at Time 1 will lead to a decrease in needs-supplies fit at Time 2.

Moderating Effect of an Active Work Style on the Relationship Between Age

Discrimination and P-E fit

TWA not only concerns itself with the point-in-time state of employees and what behaviour they engage in to maintain fit, but also with how they engage in behaviours at work (Dawis, 2005). We propose below that an individual's work style or general level and pattern of workplace effort and activity can be utilised to further improve our understanding and prediction of the relationship between age discrimination and P-E fit, (Dawis, 2005; Dawis & Lofquist, 1978).

As discussed above, age discrimination limits the employee's opportunities to meet their work demands by limiting reactive and proactive adjustment behaviours. The employee may therefore decide to change their general work style in order to manage a growing incongruity and to improve fit (Dawis, 2005). For example, through a lack of training and developmental opportunities, an older worker may not have an appropriate skill set to efficiently complete their role tasks. However, by applying additional, consistent, and prompt effort and persevering in their work tasks, the deficits caused by their lack of training and learning opportunities may be minimised. Broadly, this is consistent with various life-span theories such as selection, optimisation and compensation (SOC; Baltes & Rudolph, 2013; Freund & Baltes, 2002) and the life-span theory of control (Heckhausen & Schulz, 1995). These theories suggest that older workers are in control of their own personal resources and are able to utilise additional effort in order to maintain effectual function in the presence of

loss-based situations. Loss-based situations are understood to occur when an individual is compelled to change their goals due to the loss of internal or external resources (Baltes & Rudolph, 2013) – such as would occur with the experience of age discrimination.

Engaging in an active workstyle may also mitigate the effects of negative treatment by affirming to the older worker that they do justifiably belong to the work domain. That is, older employees are able to “affirm domain belongingness” at work (Steele, 1997, p. 625) by being celeritous, effortful, consistent and persevering. Therefore, the implementation of an active work style may assist in encouraging opportunities for proactive adjustment and continued development of their skills and abilities.

Hypothesis 3. Active work styles will moderate the effect of age discrimination upon D-A fit, such that the effect of age discrimination upon age D-A fit is dampened for those with a high active work style.

An active work style, as described in TWA with its focus upon how work effort and activities are enacted across time, is naturally associated with the meeting of work demands (Bayl-Smith & Griffin, 2015). By working with immediacy, high effort, consistency and perseverance, workers are able to effectively utilise their skills and abilities towards fulfilling an organisation’s requirements. Furthermore, as argued above, an active work style is likely to mitigate the relationship between age discrimination and D-A fit. However, we do not expect that active work styles will be associated with or will moderate the relationship between age discrimination and N-S fit. As explained above in relation to Hypothesis 2, age discrimination violates a person’s needs and values around the notions of reciprocity and justice. As such, it is primarily an ethical concern. In contrast, active work styles points to the execution of skills and abilities rather than the rightness or wrongness of an organisation’s actions. Therefore, regardless of the amount of work effort and energies spent, feelings of violation resultant from age discrimination are unlikely to change.

This paper explores these three hypotheses by means of two separate studies. Hypothesis 1 and 2 are tested in both studies. Hypothesis 3, which includes the dynamic component of active work styles, is only investigated in the second study. Notwithstanding the importance of establishing robust results with two separate studies and samples, the substantial difference in time lags (one-year verses four weeks) provides useful information to help determine when the hypothesized change might occur (Sonnentag, 2012). Indeed, Dorman and Griffin (2015) recommend that the common 1 year lag should be supplemented with “shortitudinal studies” (p. 11), where the shorter time lags may detect considerable change over the short-term. In regards to the present studies, TWA necessarily entails the progression of clock time as employees adjust to past levels of correspondence between the person and environment (Shipp & Jansen, 2011). However, how age discrimination might impact P-E fit at different time intervals is unknown. According to Shipp et al. (2011), individuals fashion personal narratives in order to make sense of their retrospective, current and anticipatory perceptions of fit. Events with a large temporal distance from the present moment may be forgotten and not included in current fit perceptions. This may suggest that the impact of age discrimination would decrease in effect over longer time-lags whilst being more salient in shorter time-lags. However, if experiences of age discrimination are perceived as being intense or momentous, or if they occurred over a long duration, age discrimination may be expected to be integrated into a person’s present fit narrative regardless of the distance of time. Therefore, the two studies together provide additional exploratory insight into the nature of age discrimination and how it is understood to affect perceptions of P-E fit at different points in time.

Study 1

Participants and Procedure

Participants were sourced from a sub-study of “The Sax Institute’s 45 & Up Study”, a large longitudinal cohort study ($N > 250,000$) examining healthy ageing in Australia. The “45 & Up Study” respondents were recruited from the state of New South Wales, Australia, via the Medicare Australia enrolment database (a national healthcare database that includes administrative details on all citizens and permanent residents). By means of mail, participants aged 45 and over were randomly selected and invited to participate in an initial baseline questionnaire (Banks et al., 2008), with all participants providing signed consent for follow-up. The conduct of this study was approved by the University of New South Wales Human Research Ethics Committee (HREC). Inclusion criteria for the current sub-study were being over 55 years of age and engaged in paid employment at the time of the baseline “45 & Up” survey. Respondents who met these criteria were randomly selected and invited via email to participate in a four year sub-study examining retirement transition (one online questionnaire per year). The conduct of the sub-study was approved by [Authors Affiliated University] Human Research Ethics Committee (HREC). Starting in 2010, 2,710 people in total participated in year 1, 2,030 in year 2, 1,889 at year 3 and 1,749 in year 4.

Due to the items of interest only being asked at the third and fourth years of data collection (henceforth labelled as Time 1 and Time 2), the current study has restricted the participants to those who completed the survey both times and indicated that they were employed (either full or part-time) at Time 1. At Time 1 there were 1,347 eligible participants, of which 1,093 (81.1%) also completed Time 2. To address potential concerns of sample selection bias through attrition, we assessed the possible effects of participant drop out on our data following the recommendations of Goodman and Blum (1996). Using multiple logistic regression to distinguish between those who dropped out and those who

completed at both times, no Time 1 variable demonstrated significant coefficients indicative of non-random sampling effects resulting in bias.

Of the 1,093 eligible respondents, 52.4% were male, and the average age was 63.86 years ($SD=2.41$; range 60-70 years). When compared to the Australian workforce average (Australian Bureau of Statistics, 2011, 2015a, 2015b), this sample worked less hours ($M=27.69$; $SD=16.91$ compared to 32.9 hours for the national average over 12 months in 2011), had a smaller proportion of blue collar workers (14.9% compared to 31.3% in 2011) and was more highly educated (53.9% had a university degree of higher compared to 30.6% for all employed people in 2015).

Measures

All items were measured in a 5-point Likert type scale (1=*strongly disagree* to 5=*strongly agree*).

Demands-Abilities Fit. A two item scale adapted from Cable and DeRue (2002) was used to measure demands-abilities fit. The items were, “My skills and abilities match those required by my current situation,” and “I possess the skills and abilities to cope well with this phase of my life” ($\alpha=.82$ Time 1; $.77$ Time 2).

Needs-Supplies Fit. Needs-supplies fit was also measured using a three item scale adapted from Cable and DeRue (2002). The items were, “The things that I look for in life are fulfilled very well in my present situation,” “My current situation enables me to do the kind of activities I want to do,” and “This phase of life allows me to have just about everything I want” ($\alpha=.88$ Time 1; $.89$ Time 2).

Perceived Age Discrimination. To evaluate perceived age discrimination, three items were used from Bayl-Smith & Griffin (2014). The items included, “I have fewer training opportunities than those who are younger than me,” “I have sometimes been unfairly treated

because of my age,” and “I have fewer opportunities for promotion than those who are younger than me” ($\alpha=.78$ Time 1; $.81$ Time 2).

Control Variables.

Chronological age was included as a control variable. Chronological age is intrinsically linked to age discrimination, with research indicating that older workers experience increased exposure to negative age stereotypes and discrimination (Chiu et al., 2001; Snape & Redman, 2003). Furthermore, Feldman (2013) suggests that changes in the values and skills of aging workers, as outlined above, will lead to declines in P-E fit. Therefore, we would expect chronological age to be positively related to age discrimination and negatively associated with D-A fit and N-S fit. Gender, education and work hours were not included as control variables in this analysis (Bernerth & Aguinis, 2015).

Data Analysis Strategy

As suggested by Anderson and Gerbing (1988), we conducted a two-step modelling approach where we first analysed the measurement model at the two measurement points before fitting the structural model. Model fit was assessed using TLI, CFI, RMSEA, and SRMR where values close to or greater than .95 for TLI and CFI, under .06 for RMSEA and less than .09 for SRMR were deemed to be acceptable (Hu & Bentler, 1999).

The hypothesised model was tested using a cross-lagged structural equation model with latent variables for demands-abilities fit, needs supplies fit and age discrimination. The individual items in each scale were covaried with their corresponding items across the two times (Little, Preacher, Selig, & Card, 2007).

Given that the relationship between age discrimination and P-E fit has not been previously examined, we thought it important to test possible competing cross-lagged models to determine the most appropriate causal order between variables. First, we tested a *stability* model containing only the auto-correlations with no cross-lagged effects (Model M_{STAB}).

This model assumes that the only significant relationship between waves is within the same latent-variable. Second, a causal model where a path was added from age discrimination at Time 1 to the latent P-E fit variables at Time 2 (Model M_{CAUS}). This model examines the hypothesised relationships suggesting that age discrimination causes a decrease in demands-abilities and needs-supplies fit. Third, a reverse-causal model that added a path to the stability model from the P-E fit variables at Time 1 to age discrimination at Time 2 (Model M_{REV}). Unlike the hypothesised relationships, this model proposes that perceptions of fit change the salience or incidence of age discrimination. Fourth, a reciprocal model where the paths added in both the causal model and reverse-causal model are included together (Model M_{REC}). This final model suggests that age discrimination and the fit variables are mutually influencing each other. To identify the most effective and parsimonious model, differences between the models were tested using a chi-square difference test. Analysis of the models was conducted using M-Plus 6.12 with maximum likelihood estimation.

Results

Table 1 reports the means, standard deviations and correlations. As initial support of the hypotheses, the zero order correlations suggest that a moderate negative relationship exists between age discrimination and demands-abilities fit (e.g., at Time 1, $r(1049)=-.26$, $p<.01$) and needs-supplies fit (e.g. at Time 1 $r(1049)=-.27$, $p<.01$).

At Time 1 the measurement model containing three latent factors, demands-abilities fit, needs supplies fit and age discrimination, demonstrated good levels of fit ($\chi^2_{18}=67.05$, $p<.01$; CFI=.99, TLI=.98, RMSEA=.05, SRMR=.03) unlike the two factor model where demands-abilities and needs-supplies fit variables were combined into a single P-E fit latent factor ($\chi^2_{19}=489.51$, $p<.01$; CFI=.88, TLI=.83, RMSEA=.15, SRMR=.06) or a one factor model containing all items ($\chi^2_{20}=1316.58$, $p<.01$; CFI=.68, TLI=.55, RMSEA=.24, SRMR=.14). Similarly, at Time 2, the three factor model demonstrated good levels of fit

($\chi^2_{18}=51.95$, $p<.01$; CFI=.99, TLI=.99, RMSEA=.04, SRMR =.02) in contrast to the two factor model ($\chi^2_{19}=348.22$, $p<.01$; CFI=.92, TLI=.88, RMSEA=.13, SRMR=.06) and one factor model ($\chi^2_{20}=1355.51$, $p<.01$; CFI=.68, TLI=.55, RMSEA=.25, SRMR=.14).

In testing the structural models, the fit indices and chi-square difference tests for model comparisons are displayed in Table 2. As the results indicate, the stability model demonstrated an acceptable level of fit. However, model fit was significantly improved by adding additional parameters as specified in each of the three competing models. The reciprocal model emerged as superior to the causal and reverse-causal model. However as illustrated in Figure 1, when the effects of Time 1 demands-abilities fit and needs-supplies fit were added together onto Time 2 age discrimination, neither path was significant. These results are probably indicative of shared variance between the latent fit variables influencing age discrimination. This was evidenced in a post-hoc analysis which revealed a significant relationship between needs-supplies fit and age discrimination when removing the path from demands-abilities fit, $b=-.09$, $SE_b=.03$, $p<.01$; and a significant relationship between demands-abilities fit and age discrimination when removing the path from needs-supplies fit, $b=-.10$, $SE_b=.04$, $p=.01$. In the reciprocal model, the total variance explained in the dependent variables by the latent variables was 30.7% for demands-abilities fit, 39.7% for needs supplies fit, and 40.0% for age discrimination, all at a p -value less than .001.

Therefore, the results of the first study broadly support both Hypotheses 1 and 2. As reported in Figure 1 (illustrating the results of the reciprocal model), there is evidence that increased levels of age discrimination at Time 1 will have a negative impact upon Time 2 perceptions of demands-abilities fit, and needs-supplies fit, controlling for the effect of the fit variables at Time 1. However, there also appears to be a reciprocal effect with some shared variance with P-E fit, though what effect can be attributed to demands-abilities or needs-supplies fit was not able to be determined. Overall, this suggests that those who perceive that

they fit with their environment at Time 1 will perceive less age discrimination at Time 2. The control variable, age, was not significantly related to any dependent variable.

Study 2

Participants and Procedure

The sample for the second study was recruited via an Australian research panel company, the Online Research Unit (ORU). The ORU has a “Gold Standard” accreditation for the Quality Standard for Online Access Panel (QSOAP) and ISO certification for market, social and opinion research (ISO 20252 and ISO 26362). Their online panels are primarily recruited through offline methods including telephone, mail and print media with the aim of building a representative sample on a range of demographic factors for the purposes of research. Workers aged 45 years and over in the ORU database were emailed a link to a longitudinal online study examining person-environment fit and adaptive behaviours in mid-to late-career workers. At Time 1, there were 665 participants and 406 participants at Time 2. The interval between Time 1 and Time 2 was approximately 4 weeks. As in Study 1, we examined for any effects related to participant drop out following the suggestions proposed by Goodman and Blum (1996). Using multiple logistic regression, age was identified as significant ($\chi^2_1=4.19, p=.04$), suggesting the presence of non-random sampling for this particular variable. To assess the effect of the non-random sampling on means, we conducted independent samples *t*-tests. The results indicated that age was significantly higher for those who responded at both times ($M=57.38, SD=6.68$) versus those who only responded at Time 1 ($M=56.48, SD=6.96$), $t(663)=-2.22, p=.03, d=0.18$. However, further tests did not reveal a significant increase or decrease in variances for age as a result of drop out, nor any sampling effect on the relationship between variables. Therefore, despite the difference in ages between those who completed Time 1 and Time 2 and those who only completed at Time 1, we can be confident in continuing our analysis (Goodman & Blum, 1996).

At Time 1, 57.9% were male, and on average, the sample worked 34.41 hours ($SD=14.16$), 34.4% had a bachelor degree or higher, and 16.1% indicated that they were blue collar workers. In comparison to the Australian average worker, this sample was about average for working hours and education, but had fewer blue collar workers (Australian Bureau of Statistics, 2011, 2015a, 2015b).

Measures

Demands-Abilities Fit. To measure demands-abilities fit, three items from Cable and DeRue (2002) were used. Items included, “The match is very good between the demands of my job and my personal skills,” “My abilities and training are a good fit with the requirements of my job,” and “My personal abilities and education provide a good match with the demands that my job places on me.” The items were measured using a 7-point Likert-type scale (1=*Strongly disagree* to 7=*Strongly agree*; $\alpha=.92$ Time 1; .93 Time 2)

Needs-Supplies Fit. Needs-supplies fit was evaluated by using the three item scale from the Cable and DeRue (2002). Items included, “There is a good fit between what my job offers me and what I am looking for in a job,” “The attributes that I look for in a job are fulfilled very well by my present job,” and “The job that I currently hold gives me just about everything that I want from a job.” Each item was measured using a 7-point Likert-type scale (1=*Strongly disagree* to 7=*Strongly agree*; $\alpha=.93$ Time 1 & Time 2).

Perceived Age Discrimination. Perceived age discrimination was assessed using the full six items from Bayl-Smith & Griffin (2014). All items were measured using a 5 point Likert-type scale (1=*Strongly disagree* to 5=*Strongly agree*; $\alpha=.93$ Time 1; .95 Time 2).

Active Work Styles. Active work style was measured at Time 1 using Bayl-Smith and Griffin’s (2015) 11-item scale. Participants described their work style over the last month by answering items such as, “I started projects and tasks straight away” and “I put a lot of energy

into my work tasks.” Each item was measured using a 5-point Likert-type scale (1=*Never* to 5=*Always*; $\alpha=.91$ Time 1; $.92$ Time 2).

Control Variables. As in Study 1, age was included as a control variable due to its possible relationship with age discrimination and the P-E fit variables.

Data Analysis Strategy

As in Study 1, we conducted a two-step modelling approach where we examined the measurement model at Time 1 and Time 2, before fitting the structural model (Anderson & Gerbing, 1988). The goodness of the fit was assessed using TLI, CFI, RMSEA, and SRMR with the aforementioned cut-off criteria.

To test the effect of age discrimination upon person-environment fit we created a latent moderated structural equations model (LMS; Moosbrugger, Schermelleh-Engel, Kelava, & Klein, 2009) that replicated the causal model from Study 1, with a causal pathway from Time 1 age discrimination to Time 2 demands-abilities fit and needs supplies fit, and added active workstyles and the interaction term which both loaded onto Time 2 demands-abilities fit. Due to the theorised interactive relationship, it would be nonsensical to test a stability or reverse causal model as was done in Study 1; however, we did test the conjectured causal model with a reciprocal model where we added a pathway between the P-E fit variables at Time 1 to Time 2 age discrimination. The items in each scale were covaried with their corresponding items across the two times (Little et al., 2007). The analysis was conducted using M-Plus 6.12 with maximum-likelihood estimation with robust standard errors (MLR) using a numerical integration algorithm (Muthén & Muthén, 2010). As chi-square and fit statistics have not as yet been developed for latent moderated structural models, model fit between models was compared using Akaike’s Information Criterion (AIC; Akaike, 1987), where a lower AIC value greater than two is indicative of a better fitting model (Burnham & Anderson, 2002).

Results

In initial support of support of Hypotheses 1 and 2, there were small to moderate zero-order correlations between perceived age discrimination and demands-abilities fit and needs-supplies fit (see Table 1). Furthermore, there was a moderate correlation between active work styles and the P-E fit variables, though no apparent significant correlation with age discrimination was found.

The measurement model at time 1 contained three latent factors, demands-abilities fit, needs supplies fit and age discrimination and one second order latent factor, active work styles, consisting of the work style facets celerity, pace, rhythm and endurance (Bayl-Smith & Griffin, 2015). The measurement model only demonstrated marginal levels of acceptable fit ($\chi^2_{221}=592.27$, $p<.01$; CFI=.94, TLI=.94, RMSEA=.06, SRMR=.05). Following an examination of the modification indices, correlating the residuals of two pairs of items in the age discrimination scale resulted in acceptable levels of fit ($\chi^2_{219}=458.43$, $p<.01$; CFI=.96, TLI=.96, RMSEA=.05, SRMR=.05) (Byrne, 2012). One pair of items reflects the social isolation caused by age discrimination (“I have been unfairly singled out because of my age” and “I have been socially isolated because of my age”), and the other pair focuses on the lack of opportunity caused by age discrimination (“I have had fewer training opportunities than those who are younger than me” and “I have had fewer opportunities for promotion than those who are younger than me”). At Time 2, which did not contain the second-order active work style factor, the measurement model again only demonstrated marginal levels of acceptable fit ($\chi^2_{51}=351.28$, $p<.01$; CFI=.94, TLI=.92, RMSEA=.12, SRMR=.04). As in Time 1, model fit was improved significantly by correlating the same residuals for two pairs of items in the age discrimination scale ($\chi^2_{49}=224.84$, $p<.01$; CFI=.97, TLI=.95, RMSEA=.09, SRMR=.04).

The hypothesised model without an interaction effect demonstrated a good degree of fit ($\chi^2_{630}=9886.66$, $p<.01$; CFI=.96, TLI=.96, RMSEA=.04, SRMR=.05), with AIC=31413.71. The total variance explained by the latent variables was 55.7% for demands-abilities fit, 65.3% for needs supplies fit, and 63.3% for age discrimination, all at a p -value less than .001. The hypothesised model *with* an interaction effect (AIC=31407.39) had a lower AIC value than a model without the interaction effect, signifying better model fit (Δ AIC=-6.32). However, model fit was not improved by adding the reciprocal pathways between the P-E fit variables at Time 1 and age discrimination at Time 2 (AIC=31409.45, Δ AIC=2.07).

In support of hypotheses 1 and 2, the causal model with moderation demonstrated significant relationships between Time 1 age discrimination and Time 2 demands-abilities fit, $b=-.16$, $SE_b=.06$, $p=.01$, and Time 2 needs-supplies fit, $b=-.19$, $SE_b=.06$, $p<.01$. Corroborating Hypothesis 3, the relationship between age discrimination and demands abilities fit was significantly moderated by active work styles, $b=.26$, $SE_b=.12$, $p=.03$. As illustrated by Figure 2, the negative effect of Time 1 age discrimination on Time 2 demands-abilities fit was ameliorated as active work styles increased. There was no evidence, besides that explained by the interaction term, that active work styles has a direct relationship with Time 2 demands-abilities fit. Simple slopes for the association between Time 1 age discrimination and Time 2 demands-abilities fit were examined at the mean and ± 1 SD level of active work styles. When active styles was at low ($b=-.34$, $SE_b=.12$, $p<.01$) or moderate ($b=-.157$, $SE_b=.06$, $p=.01$) levels, Time 1 age discrimination has a negative effect on Time 2 demands-abilities fit. However, when active work styles was at a high level ($b=.02$, $SE_b=.08$, $p>.05$) the effect became non-significant.

Unlike Study 1, age was significantly related to Time 2 demands-abilities fit, $b=.02$, $SE_b=.01$, $p<.01$, and Time 2 needs-supplies fit, $b=.02$, $SE_b=.01$, $p=.02$. Age and Time 2 age discrimination demonstrated no significant effect, $b=-.00$, $SE_b=.00$, $p>.05$. As summarised

by Figure 3, all three hypotheses were supported: Age discrimination had a direct negative effect upon how people sense their ongoing levels of person-environment fit, however the relationship between age discrimination and D-A fit was moderated by active work styles.

Discussion

The results of this research supports our proposal that experiences of age discrimination will prevent or discourage continued development and adaptation, thereby leading to decreases in P-E fit. Study 1 and Study 2 demonstrate that on average, as individuals perceive experiences of age discrimination, both D-A and N-S fit decreased between times. This is the first occasion these relationships have been examined and are in line with previous research demonstrating that age discrimination has a negative impact on performance based-outcomes and workplace attitudes (Bayl-Smith & Griffin, 2014; Kunze, Boehm, & Bruch, 2013; Snape & Redman, 2003).

It was suggested that age discrimination may negatively impact D-A fit through the denial of access to developmental opportunities and a reinforcing environment, restricting the employee's continued ability to meet workplace demands. Consistent with this perspective, the findings demonstrate that age discrimination ought to be conceived as a barrier to an employee's maintenance of skills and abilities necessary to successfully fulfil their job demands. In relation to N-S fit, we argued that age discrimination will negatively influence perceptions of fairness and justice in relation to the supply of needs by the organisation. The results also support these claims.

What makes these results even more compelling and robust is that the results of Study 1 were replicated in Study 2 using a different sample and timeframe. In answer to when change might occur (Sonnentag, 2012), age discrimination appears to have a relatively immediate effect upon P-E fit, but also an effect that continues over the longer-term. However, Study 1 uniquely suggests that there may be reciprocal effects over the longer term

between P-E fit and age discrimination, such that on average an increase in P-E fit will correspond to a decrease in perceived age discrimination. This may imply that age discrimination is the result, in part, of a declining fit with the work environment. Older workers who are able to maintain their abilities at work and have their needs met may experience less discriminatory behaviour as they minimise opportunities to be singled out as a result of poor performance or lack of engagement. Alternatively, given that age discrimination has a negative effect upon P-E fit, an employee may be engaged in a negative feedback loop where increases in age discrimination lead to declines in P-E fit, which prevent the employee from effectively engaging in their work, thereby creating a situation where the employee becomes predisposed to further age discrimination. This process would likely unfold over a long time series rather than occurring over the short term (Menard, 2011).

The second study expanded upon Study 1 by investigating the impact of active work styles on the relationship between age discrimination and D-A fit. Consistent with theoretically derived expectations, a more active work style ameliorated the negative effect of age discrimination. That is, those who approach their work in a quick, effortful, consistent and persistent manner perceive less decline of D-A fit across time in the presence of high age discrimination. In contrast, when active work styles is low, age discrimination is likely to have a significant negative impact upon D-A fit. Therefore, we would suggest in line with TWA theory, a highly active work style is a contributing factor in the maintenance of D-A fit over time (Dawis, 2002). As expected, there was no significant relationship between active work styles and N-S fit, confirming that work styles are associated with the completion of work tasks rather than attempting to have needs satisfied through work.

Limitations and Future Research

As the first investigation to explore age discrimination in a P-E fit framework, a number of future research opportunities present themselves – first to address the

methodological limitations and second, to explore possible theoretical implications of the present studies. Like many studies of P-E fit, we used a molar approach in examining fit where fit was measured directly by asking participants to rate their perceptions of fit between themselves and their environment. Edwards et al. (2006) note that atomistic (where a separate measure for the person and the environment are captured and then combined) and molecular approaches (where fit is assessed by directly measuring discrepancies between person and environment) are alternative means of evaluating fit that are empirically distinct. Furthermore, in line with TWA, this research has limited itself to examining only D-A fit and N-S fit. Consequently, future research could use alternative measurement strategies and perspectives (e.g., atomistic and molecular approaches).

An additional methodological limitation relates to differences in items measuring P-E fit between Study 1 and Study 2. In particular, there is no reference to work or job for the Needs-Supplies items in Study 1, whilst this was clearly explicated in Study 2. Therefore, it is possible that the effects reported in Study 1 could be confounded with other environment variables outside of work, such as family context or financial context. However, a more general approach to work as encapsulated in Study 1 is not inconsistent with more recent holistic conceptions of vocation and career (Savickas et al., 2009). Furthermore, items in Study 1 were asked in the context of being currently employed, where work is likely to form a central component of participant responses. Nevertheless, the differences in measurement instrumentation need to be noted and addressed in future studies.

A third limitation to be addressed in future studies is possible contamination of the results via common method bias resultant from the reliance upon self-report measures. However, concerns with bias are somewhat alleviated by the use of two distinct samples, longitudinal design, differences in scale properties, and assurances of anonymity (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003; Podsakoff, MacKenzie, & Podsakoff, 2012). Even

though other sources of data are not necessarily free from methodological drawbacks, future studies would benefit by seeking other sources of data, including the possibility of supervisor and peer ratings, and objective measures such as registered instances of age discrimination complaints or claims.

A further limitation that needs highlighting is that the studies only measured the variables of interest at two times. As a consequence, we are limited to only discussing change between Time 1 and Time 2 at absolute levels, rather than growth trajectories. Ployhart and Vandenberg (2010) note that change between Time 1 and Time 2 is always linear. Hence, we are not able to determine the slope or degree of change over time. Furthermore, two wave studies are not capable of distinguishing between genuine longitudinal effects or mere measurement error. However, given that we were able to replicate the results with two separate studies with two distinct samples, we can have some added confidence that the effects reported here reflect legitimate change. Whilst having two waves is superior to cross-sectional designs, true longitudinal studies with three waves or more would provide a better understanding of the direct, indirect and reciprocal effects over time (Cole & Maxwell, 2003; Ployhart & Vandenberg, 2010).

From a theoretical perspective, our studies suggest three important areas for further investigation. First, future studies should scrutinise P-E fit variables as mediating factors between age discrimination and workplace outcomes. Both P-E fit and age discrimination have been widely regarded as important components in determining workplace attitudes, psychological well-being and retirement intentions (Kristof-Brown et al., 2005; Shore & Goldberg, 2005). This research suggests that because age-discrimination influences P-E fit, P-E fit may therefore be acting as a possible mediator between perceptions of age discrimination and personal and organisational outcomes. For example, age discrimination may decrease work engagement (Bayl-Smith & Griffin, 2014) because the discriminated

individual no longer feels that they are able to fulfil the demands of their organisation and that the organisation is failing to meet their personal needs.

Second, the present studies assume that D-A fit and N-S fit are indicators of successful adjustment. Further research could specifically examine the impact of age discrimination upon specific reactive and proactive adjustment strategies. For instance, does age discrimination actually prevent individuals from the perceived opportunity to job craft (Wrzesniewski & Dutton, 2001), altering the design of the job or social environment to achieve greater correspondence between person and job? Alternatively, does feedback-seeking (Ashford, Blatt, & VandeWalle, 2003) or voicing views for change (Van Dyne & LePine, 1998) reduce perceptions of age discrimination?

Third, following from Study 2, further investigation regarding the sustainability of resource investment in the context of age discrimination is needed. Perhaps by expending more effort and energy consistently over time may lead to increased stress, exhaustion and job withdrawal (Hobfoll, 1989). Examining dynamic fit processes across different time intervals will provide insight into the ongoing effects of age discrimination and possible coping mechanisms that lead to ongoing career success.

Practical Implications

Given the deleterious effect that age discrimination has on P-E fit, the present study again demonstrates the importance of understanding and limiting age discrimination within the workplace. The formation and preservation of negative stereotypes has been proposed as the grounding factor of discriminatory behaviour (Posthuma & Campion, 2009). Therefore, beliefs that older workers are less capable, reduced in mental and physical capabilities, resistant to learning and change and technologically inept need to be directly challenged through diversity training programs and the encouragement of positive intergenerational contact (Henry, Zacher, & Desmette, 2015). Furthermore, organisations need to become more

aware of their age diversity climate, a normative framework through which employees recognise what behaviours are tolerated and rewarded (Boehm, Kunze, & Bruch, 2014). Proactive organisational strategies may include education programs that challenge entrenched employee stereotypes, or the offering of training programs designed to specifically meet the needs of older workers. Alternatively, reactive strategies might involve the development and enforcement of age diversity policies, hiring practices and targets. This may suggest an important corrective to any notion that adjustment is the sole responsibility of the individual or that attrition is an automatic outcome of a misfitting employee (Kooij, 2015).

Finally, the moderated effect obtained in this study demonstrates the importance of an employee's active work style in the presence of age discrimination and suggests that active workstyles should be encouraged. Ultimately, how an individual's work style is expressed is dependent upon perceptions of self-efficacy, personal goals and capability (Hesketh, Griffin, Dawis, & Bayl-Smith, 2015). Therefore, in order to maintain ongoing fit it is important to remove any possible barriers that may hinder a highly engaged active work style. For example, human resource policies that encourage positive age-diversity practices and compels managers to work in a fair and just manner may remove obstacles that prevent a highly active work style. Hence, besides tackling age discrimination directly, organisations should seek to support older workers by facilitating their internal resources, thereby enabling continued engagement of effort.

Conclusion

Resultant from an aging population and consequent chronological diversification of organisations, the impact of age discrimination is gaining recognition as an important issue by organisational stakeholders and researchers alike (Australian Human Rights Commission, 2015; Shore & Goldberg, 2005). In the context of work environment and within person change, age discrimination represents a unique additional challenge for mid to late career

workers. Despite the increasing awareness of the import of age discrimination, research in this field is still developing both in theoretical and empirical domains. Therefore, this present research expands the current literature by examining age discrimination within a P-E fit paradigm, utilising two separate longitudinal studies. Overall, results suggest that age discrimination has a negative impact on mid to late career workers ability to maintain their D-A and N-S fit, but for D-A fit an active work style may ameliorate this effect over the short-term.

References

- Akaike, H. (1987). Factor analysis and AIC. *Psychometrika*, 52, 317–332.
doi:10.1007/BF02294359
- Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, 103, 411–423.
doi:10.1037/0033-2909.103.3.411
- Ashford, S. J., Blatt, R., & VandeWalle, D. (2003). Reflections on the looking glass: A review of research on feedback-seeking behavior in organizations. *Journal of Management*, 29, 773–799. doi:10.1016/S0149-2063(03)00079-5
- Australian Bureau of Statistics, (ABS). (2011). 4102.0 - Australian Social Trends, Dec 2011. Retrieved April 18, 2016, from
<http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4102.0Main+Features30Dec+2011>
- Australian Bureau of Statistics, (ABS). (2015a). 6227.0 Education and Work, Australia, May 2015. Retrieved April 18, 2016, from
[http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/6227.0May 2015](http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/6227.0May+2015)
- Australian Bureau of Statistics, (ABS). (2015b). 6291.0.55.001 - Labour Force, Australia, Detailed - Electronic Delivery, Jun 2015. Retrieved July 27, 2015, from
[http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/6291.0.55.001Jun 2015?OpenDocument](http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/6291.0.55.001Jun+2015?OpenDocument)
- Australian Human Rights Commission. (2015). *National prevalence survey of age discrimination in the workplace*. Retrieved from
[https://www.humanrights.gov.au/sites/default/files/document/publication/AgePrevalence Report2015.pdf](https://www.humanrights.gov.au/sites/default/files/document/publication/AgePrevalenceReport2015.pdf)
- Baltes, B. B., & Rudolph, C. W. (2013). The theory of selection, optimization, and

- compensation. In M. Wang (Ed.), *The Oxford Handbook of Retirement* (pp. 88–101). New York: Oxford University Press.
- Banks, E., Redman, S., Jorm, L., Armstrong, B., Bauman, A., Beard, J., ... Lujic, S. (2008). Cohort profile: The 45 and Up study. *International Journal of Epidemiology*, 37, 941–947. doi:10.1093/ije/dym184
- Bayl-Smith, P., & Griffin, B. (2014). Age discrimination in the workplace: Identifying as a late-career worker and its relationship with engagement and intended retirement age. *Journal of Applied Social Psychology*, 44, 588–599. doi:10.1111/jasp.12251
- Bayl-Smith, P., & Griffin, B. (2015). Measuring work styles: Towards an understanding of the dynamic components of the theory of work adjustment. *Journal of Vocational Behavior*, 90, 132–144. doi:10.1016/j.jvb.2015.08.004
- Bernerth, J. B., & Aguinis, H. (2015). A critical review and best-practice recommendations for control variable usage. *Personnel Psychology*, 69, 1–55. doi:10.1111/peps.12103
- Boehm, S. A., Kunze, F., & Bruch, H. (2014). Spotlight on age-diversity climate: The impact of age-inclusive HR practices on firm-level outcomes. *Personnel Psychology*, 67, 667–704. doi:10.1111/peps.12047
- Burnham, K. P., & Anderson, D. R. (2002). *Model Selection and Multimodel Inference: A Practical Information-Theoretic Approach*. *Ecological Modelling* (2nd ed., Vol. 172). New York: Springer. doi:10.1016/j.ecolmodel.2003.11.004
- Byrne, B. M. (2012). *Structural Equation Modeling with M plus: Basic Concepts, Applications, and Programming*. New York: Routledge.
- Cable, D. M., & DeRue, D. S. (2002). The convergent and discriminant validity of subjective fit perceptions. *Journal of Applied Psychology*, 87, 875–884. doi:10.1037//0021-9010.87.5.875
- Chiu, W. C. K., Chan, A. W., Snape, E., & Redman, T. (2001). Age stereotypes and

- discriminatory attitudes towards older workers: An East-West comparison. *Human Relations*, 54, 629–661. doi:10.1177/0018726701545004
- Cole, D. A., & Maxwell, S. E. (2003). Testing mediational models with longitudinal data: Questions and tips in the use of structural equation modeling. *Journal of Abnormal Psychology*, 112, 558–577. doi:10.1037/0021-843X.112.4.558
- Cropanzano, R., & Mitchell, M. S. (2005). Social exchange theory: An interdisciplinary review. *Journal of Management*, 31, 874–900. doi:10.1177/0149206305279602
- Dawis, R. V. (1996). The theory of work adjustment and person-environment-correspondence counseling. In D. Brown & L. Brooks (Eds.), *Career Choice and Development* (3rd ed., pp. 75–120). San Francisco: Jossey-Bass Inc.
- Dawis, R. V. (2002). Person-Environment-Correspondence theory. In D. Brown (Ed.), *Career Choice and Development* (4th ed., pp. 427–464). San Francisco: John Wiley & Sons, Inc.
- Dawis, R. V. (2005). The Minnesota theory of work adjustment. In S. D. Brown & R. W. Lent (Eds.), *Career Development and Counselling: Putting theory and research to work* (pp. 3–23). Hoboken: John Wiley & Sons, Inc.
- Dawis, R. V., & Lofquist, L. H. (1978). A note on the dynamics of work adjustment. *Journal of Vocational Behavior*, 12, 76–79. doi:10.1016/0001-8791(78)90008-8
- Dawis, R. V., & Lofquist, L. H. (1984). *A Psychological Theory of Work Adjustment*. Minneapolis: University of Minnesota Press.
- Dormann, C., & Griffin, M. A. (2015). Optimal time lags in panel studies. *Psychological Methods*, 20, 489–505. doi:10.1037/met0000041
- Feldman, D. C. (2013). Feeling like it's time to retire: A fit perspective on early retirement decisions. In M. Wang (Ed.), *The Oxford Handbook of Retirement* (pp. 280–292). New York: Oxford University Press.

- Freund, A. M., & Baltes, P. B. (2002). Life-management strategies of selection, optimization and compensation: Measurement by self-report and construct validity. *Journal of Personality and Social Psychology*, 82, 642–662. doi:10.1037//0022-3514.82.4.642
- Furunes, T., & Mykletun, R. J. (2010). Age discrimination in the workplace: Validation of the Nordic age discrimination scale (NADS). *Scandinavian Journal of Psychology*, 51, 23–30. doi:10.1111/j.1467-9450.2009.00738.x
- Garstka, T. A., Schmitt, M. T., Branscombe, N. R., & Hummert, M. L. (2004). How young and older adults differ in their responses to perceived age discrimination. *Psychology and Aging*, 19, 326–335. doi:10.1037/0882-7974.19.2.326
- Goldman, B. M., Gutek, B. A., Stein, J. H., & Lewis, K. (2006). Employment discrimination in organizations: Antecedents and consequences. *Journal of Management*, 32, 786–830. doi:10.1177/0149206306293544
- Goldman, B. M., Slaughter, J. E., Schmit, M. J., Wiley, J. W., & Brooks, S. M. (2008). Perceptions of discrimination: A multiple needs model perspective. *Journal of Management*, 34, 952–977. doi:10.1177/0149206308318613
- Goodman, J. S., & Blum, T. C. (1996). Assessing the non-random sampling effects of subject attrition in longitudinal research. *Journal of Management*, 22, 627–652. doi:10.1016/S0149-2063(96)90027-6
- Griffin, B. (2015). Promoting the work adjustment of late-career employees. In P. J. Hartung, M. L. Savickas, & W. B. Walsh (Eds.), *APA Handbook of Career Intervention* (Vol. 2, pp. 439–451). Washington, DC: American Psychological Association.
- Griffin, B., Bayl-Smith, P., & Hesketh, B. (2016). The longitudinal effects of perceived age discrimination on the job satisfaction and work withdrawal of older employees. *Work, Aging and Retirement*, 2, 415–427. doi:10.1093/workar/waw014
- Heckhausen, J., & Schulz, R. (1995). A life-span theory of control. *Psychological Review*,

102, 284–304. doi:10.1037/0033-295X.102.2.284

Henry, H., Zacher, H., & Desmette, D. (2015). Reducing age bias and turnover intentions by enhancing intergenerational contact quality in the workplace: The role of opportunities for generativity and development. *Work, Aging and Retirement, 1*, 243–253.
doi:10.1093/workar/wav005

Hesketh, B., Griffin, B., Dawis, R., & Bayl-Smith, P. (2015). Extensions to the dynamic aspects of the retirement transition and adjustment framework (RTAF): Adjustment behaviors, work styles, and identity. *Work, Aging and Retirement, 1*, 79–91.
doi:10.1093/workar/wau004

Hobfoll, S. E. (1989). Conservation of resources. A new attempt at conceptualizing stress. *The American Psychologist, 44*, 513–524. doi:10.1037/0003-066X.44.3.513

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*, 1–55. doi:10.1080/10705519909540118

Ilmarinen, J. E. (2001). Aging workers. *Occupational and Environmental Medicine, 58*, 546–546. doi:10.1136/oem.58.8.546

Kooij, D. T. A. M. (2015). Successful aging at work: The active role of employees. *Work, Aging and Retirement, 1*, 309–319. doi:10.1093/workar/wav018

Kristof-Brown, A. L., Zimmerman, R. D., & Johnson, E. C. (2005). Consequences of individuals' fit at work: A meta-analysis of person-job, person-organization, person-group, and person-supervisor fit. *Personnel Psychology, 58*, 281–342.
doi:10.1111/j.1744-6570.2005.00672.x

Kunze, F., Boehm, S. A., & Bruch, H. (2011). Age diversity, age discrimination climate and performance consequences-a cross organizational study. *Journal of Organizational Behavior, 32*, 264–290. doi:10.1002/job.698

- Kunze, F., Boehm, S. A., & Bruch, H. (2013). Organizational performance consequences of age diversity: Inspecting the role of diversity-friendly HR policies and top managers' negative age stereotypes. *Journal of Management Studies*, 50, 413–442.
doi:10.1111/joms.12016
- Little, T. D., Preacher, K. J., Selig, J. P., & Card, N. A. (2007). New developments in latent variable panel analyses of longitudinal data. *International Journal of Behavioral Development*, 31, 357–365. doi:10.1177/0165025407077757
- Menard, S. (2011). The purposes of longitudinal research. In *Longitudinal Research* (pp. 4–24). Thousand Oaks: SAGE Publications, Inc. doi:10.4135/9781412984867.n2
- Moosbrugger, H., Schermelleh-Engel, K., Kelava, A., & Klein, A. G. (2009). Testing multiple nonlinear effects in structural equation modeling: A comparison of alternative estimation approaches. In T. Teo & M. S. Khine (Eds.), *Structural Equation Modeling in Educational Research: Concepts and Applications* (pp. 103–136). Rotterdam: Sense Publishers.
- Muthén, L. K., & Muthén, B. O. (2010). *MPlus: Statistical Analysis with Latent Variables User's Guide*. Retrieved from <https://www.statmodel.com/download/usersguide/MplusUsersGuidev6.pdf>
- Ng, T. W. H., & Feldman, D. C. (2013). How do within-person changes due to aging affect job performance? *Journal of Vocational Behavior*, 83, 500–513.
doi:10.1016/j.jvb.2013.07.007
- Perry, E. L., Dokko, G., & Golom, F. D. (2012). The aging worker and person-environment fit. In J. W. Hedge & W. C. Borman (Eds.), *The Oxford Handbook of Work and Aging* (pp. 187–212). New York: Oxford University Press. Inc.
- Ployhart, R. E., & Vandenberg, R. J. (2010). Longitudinal research: The theory, design, and analysis of change. *Journal of Management*, 36, 94–120.

doi:10.1177/0149206309352110

Podsakoff, P. M., MacKenzie, S. B., Lee, J., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *The Journal of Applied Psychology*, 88, 879–903. doi:10.1037/0021-9010.88.5.879

Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology*, 63, 539–569. doi:10.1146/annurev-psych-120710-100452

Posthuma, R. A., & Campion, M. A. (2009). Age stereotypes in the workplace: Common stereotypes, moderators, and future research directions. *Journal of Management*, 35, 158–188. doi:10.1177/0149206308318617

Pulakos, E. D., Schmitt, N., Dorsey, D. W., Arad, S., Borman, W. C., & Hedge, J. W. (2002). Predicting adaptive performance: Further tests of a model of adaptability. *Human Performance*, 15, 299–323. doi:10.1207/S15327043HUP1504_01

Savickas, M. L., Nota, L., Rossier, J., Dauwalder, J., Duarte, M. E., Guichard, J., ... van Vianen, A. E. M. (2009). Life designing: A paradigm for career construction in the 21st century. *Journal of Vocational Behavior*, 75, 239–250. doi:10.1016/j.jvb.2009.04.004

Shipp, A. J., & Jansen, K. J. (2011). Reinterpreting time in fit theory: Crafting and recrafting narratives of fit in medias res. *Academy of Management Review*, 36, 76–101. doi:10.5465/AMR.2011.55662565

Shore, L. M., & Goldberg, C. B. (2005). Age discrimination in the workplace. In R. L. Dipboye & A. Colella (Eds.), *Discrimination at Work: The Psychological and Organizational Bases* (pp. 203–225). Mahwah: Lawrence Erlbaum Associates, Publishers.

Snape, E., & Redman, T. (2003). Too old or too young? The impact of perceived age

- discrimination. *Human Resource Management Journal*, 13, 78–89. doi:10.1111/j.1748-8583.2003.tb00085.x
- Sonnentag, S. (2012). Time in organizational research: Catching up on a long neglected topic in order to improve theory. *Organizational Psychology Review*, 2, 361–368. doi:10.1177/2041386612442079
- Steele, C. M. (1997). A threat in the air: How stereotypes shape intellectual identity and performance. *American Psychologist*, 52, 613–629. doi:10.1037/0003-066X.52.6.613
- Tuomi, K., Ilmarinen, J. E., Jahkola, A., Katajarinne, L., & Tulkki, A. (1998). *Work Ability Index* (2nd revise). Helsinki: Finish Institute of Occupational Health.
- Van Dyne, L., & LePine, J. A. (1998). Helping and voice extra-role behaviors: Evidence of construct and predictive validity. *Academy of Management Journal*, 41, 108–119. doi:10.2307/256902
- Wang, M., Olson, D. A., & Shultz, K. S. (2013). *Mid and Late Career Issues: An Integrative Perspective*. New York: Taylor & Francis, LLC.
- Wrzesniewski, A., & Dutton, J. E. (2001). Crafting a job: Revisioning employees as active crafters of their work. *Academy of Management Review*, 26, 179–201. doi:10.5465/AMR.2001.4378011
- Zaniboni, S. (2015). The interaction between older workers' personal resources and perceived age discrimination affects the desired retirement age and the expected adjustment. *Work, Aging and Retirement*, 1, 266–273. doi:10.1093/workar/wav010

Table 1

Means, standard deviations, and correlations.

	<i>M</i> Study 1(2)	<i>SD</i> Study(2)	1	2	3	4	5	6	7	8	9	10
1. Age (at T1)	63.86 (57.40)	2.41 (6.60)	-	.07*	-.15**	.02	-.03	.06	.06*	-.03	-.01	-
2. Sex	0.53 (0.39)	0.50 (0.49)	-.08	-	.17**	-.03	-.06	.01	.04	-.01	.01	-
3. Work Hours	28.80 (33.99)	16.30 (14.43)	-.19**	-.25**	-	.08*	.04	-.11*	-.10**	.01	.06	-
4. T1 Demands-Abilities Fit	4.28 (5.70)	0.60 (1.07)	.08	.09	.08	-	.45**	.55**	.33**	-.24**	-.21**	-
5. T2 Demands-Abilities Fit	4.27 (5.58)	0.57 (1.16)	.16**	.05	.02	.69**	-	.35**	.55**	-.21**	-.23**	-
6. T1 Needs Supplies Fit	3.87 (5.14)	0.78 (1.39)	.15**	.05	.04	.68**	.59**	-	.60**	-.25**	-.26**	-
7. T2 Needs Supplies Fit	3.85 (5.09)	0.80 (1.38)	.19**	.03	.06	.57**	.74**	.77**	-	-.24**	-.28**	-
8. T1 Age Discrimination	2.28 (1.81)	0.87 (0.91)	-.06	-.10*	.02	-.17**	-.23**	-.25**	-.31**	-	.58**	-
9. T2 Age Discrimination	2.32 (1.75)	0.94 (0.97)	-.07	-.03	.03	-.12*	-.18**	-.22**	-.30**	.76**	-	-
10. Active Work Style	- (4.11)	- (.55)	.16**	.25**	-.05	.31**	.30**	.31**	.27**	-.05	.02	-

Note. Intercorrelations for Study 1 participants ($n=1093$) are presented above the diagonal, and intercorrelations for Study 2 participants ($n=406$) are presented below the diagonal. Means and standard deviations for Study 2 are presented in the parentheses. T1 =Time 1; T2 =Time 2.

* $p<.05$; ** $p<.01$.

Table 2

Study 1: Fit indices of competing nested factor models

Model	χ^2	df	CFI	TLI	RMSEA	SRMR	Model Comparison	Δdf	$\Delta\chi^2$
M _{STAB}	230.196**	99	.99	.98	.04	.04			
M _{CAUS}	216.403**	97	.99	.98	.03	.04	M _{STAB} - M _{CAUS}	2	13.793**
M _{REV}	220.668**	97	.99	.98	.03	.04	M _{STAB} - M _{REV}	2	9.528**
M _{REC}	207.230**	95	.98	.98	.04	.03	M _{STAB} - M _{REC}	4	22.966**
							M _{CAUS} - M _{REC}	2	9.173*
							M _{REV} - M _{REC}	2	13.438**

Note. CFI=comparative fit index; TLI=Tucker-Lewis index; RMSEA=root mean square error of approximation; SRMR=standardized root mean square residual.

* $p < .05$; ** $p < .01$.

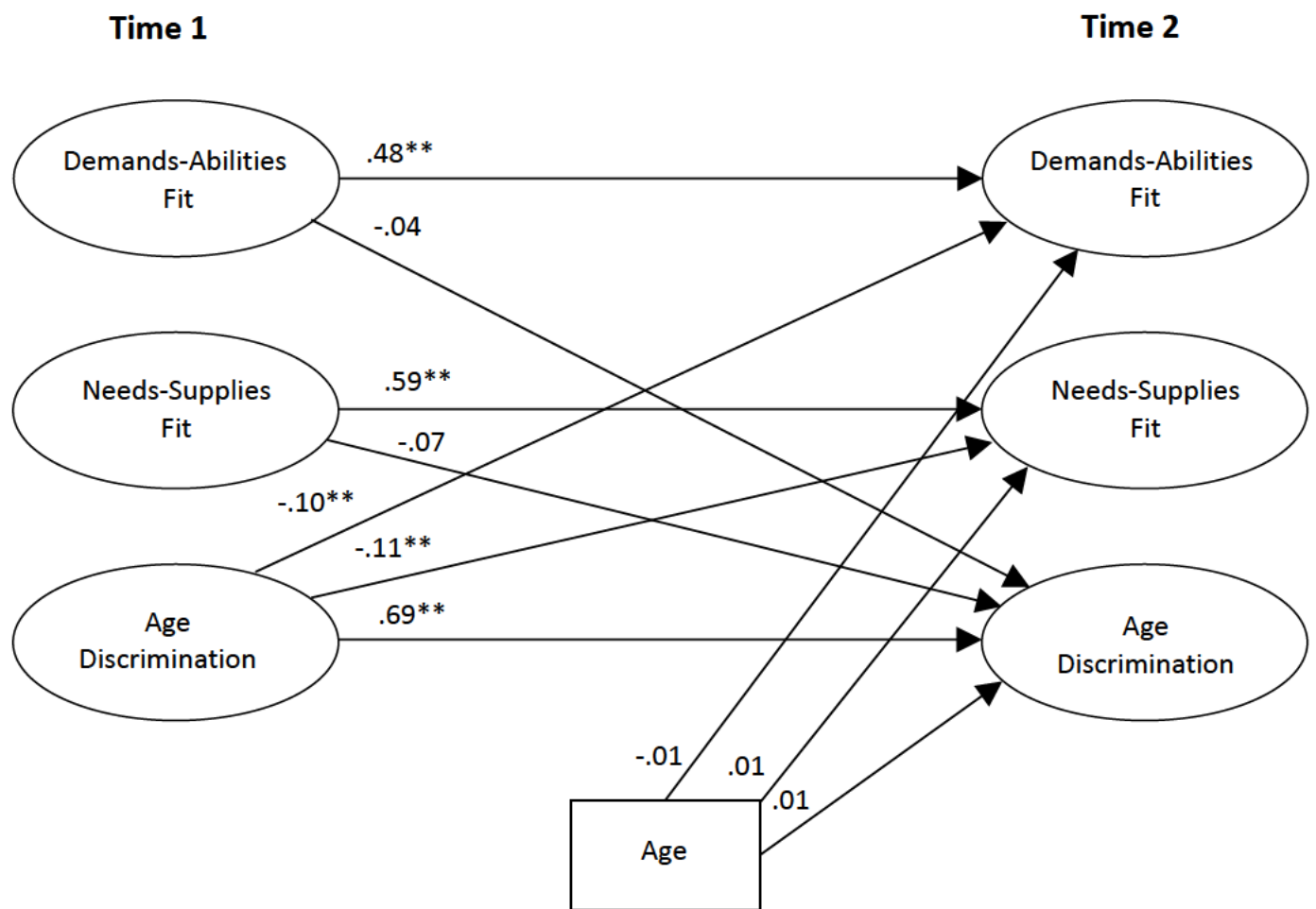


Figure 1. Study 1 reciprocal model (simplified) showing the latent cross-lagged relationship between D-A fit, N-S fit and age discrimination. * $p < .05$; ** $p < .01$.

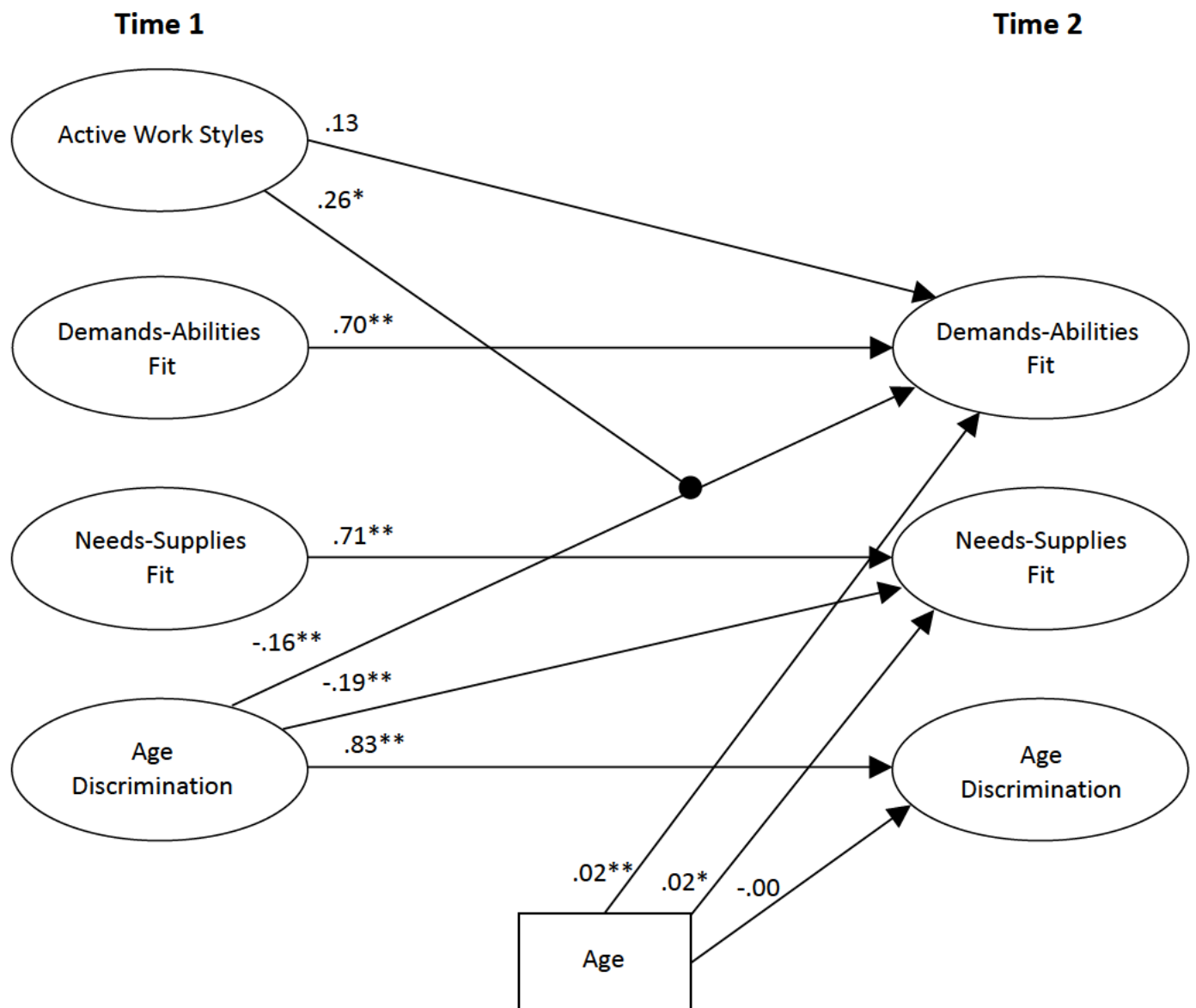


Figure 2. Study 2 final hypothesised model (simplified) showing the cross-lagged relationship between demands-abilities fit, needs-supplies fit and age discrimination, with active workstyles and interaction effect. * $p < .05$; ** $p < .01$.

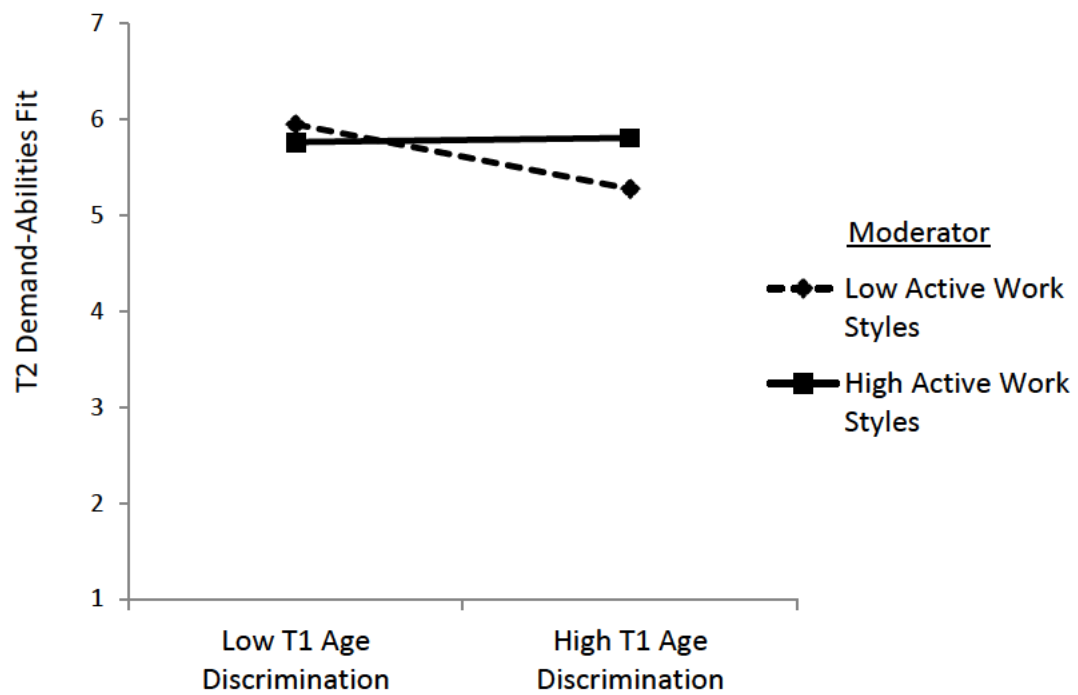


Figure 3. Interaction effect of time 1 age discrimination and active work styles on Time 2 demands-abilities fit. T1=Time 1; T2=Time 2.

Chapter 5

Thesis Overview: Maintenance of D-A fit through Proactive Behaviours

As discussed in Chapter 2, research has predominantly viewed person-environment (P-E) fit as a static construct that explains work place outcomes, rather than examining the antecedent factors that influence how fit is perceived (DeRue & Morgeson, 2007; Jansen & Shipp, 2013). Proactive behaviours have been argued to be an an important activity in achieving P-E fit, especially within older workers (Kooij, 2015; Parker & Collins, 2010). However, no research has directly examined whether proactive behaviours contribute to P-E fit, and what are the possible boundary conditions affecting this relationship. Paper 3 addresses these shortcomings by investigating how a specific set of proactive behaviours influence an employee's perceptions of demands-abilities fit. Here, we introduce work styles fit as a possible boundary condition for the efficacious application of proactivity. Work styles fit, defined as the level of correspondence between an individual's manner and approach to work and that required by their organisation, expands upon the theoretical and empirical development of work styles in chapters 3 and 4.

This paper has been submitted with the Journal of Organizational Behaviour for the special issue, *Exploring the consequences of proactive behaviors: New Directions*. I am the first author, and my principal supervisor, A/Prof Barbara Griffin, is the second author of this paper. My contribution to the research paper was: Concept = 80%; Data collection = 100%; Data analysis = 100%; Writing = 80%; Total = 89%.

**Paper 3: Maintenance of D-A fit through Proactive Behaviours: The moderating effect
of work styles fit¹**

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Abstract

In modern work environments characterised by change and uncertainty, proactive behaviours are identified as an important activity in achieving and/or maintaining person-environment (P-E) fit. Derived from the theory of work adjustment (TWA), we propose that work styles fit generates a boundary condition for the successful implementation of proactive behaviours. With respect to enacting work behaviour, work styles fit describes the level of correspondence between an individual's activity and effort as applied over time with that required by the environment. Two 2-wave hierarchical moderated regression analyses were conducted examining the effect of job change negotiation behaviours and career initiative behaviours upon demands-abilities (D-A) fit. Results demonstrate that proactive behaviours contributed to an increase in D-A fit across time, but only in the context of high work styles fit. When work styles fit was low, engagement of high career initiative behaviours resulted in a decrease of D-A fit. This negative effect was not observed for job change negotiation behaviours. The theoretical and practical implications, as well as proposals for future research regarding, dynamic conceptions of P-E fit, work styles fit and proactive behaviours are discussed.

¹ The authors thank Nicole Brown for her support and assistance in administering the survey within the participating organisation

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Keywords: Proactive Behaviours; Theory of work adjustment; Person-environment fit;

Demands-abilities fit; Work styles;

As a result of rapidly changing work environments via globalisation, rapid innovation, new production techniques and changing conceptions of career, organisations are now seeking employees who are able to remain productive and profitable by engaging in proactive work behaviours (Frese & Fay, 2001). Proactive behaviours are personally driven activities centred around taking control and facilitating change in oneself or the environment (Grant & Ashford, 2008). Broadly, they are viewed as positives in an organisation being associated with improved personal and organisational performance, job satisfaction, and greater career success (Belschak, Den Hartog, & Fay, 2010; Thomas, Whitman, & Viswesvaran, 2010). Proactive behaviours are also recognised as an important activity in achieving and/or maintaining person-environment (P-E) fit, especially in modern work environments characterised by change and uncertainty (Kooij, 2015). For example, Parker and Collins (2010) suggest that proactive P-E fit behaviour, such as feedback seeking, career planning and skill development, are directed towards ensuring continued compatibility between an individual's attributes and the requirements of their organisational environment.

Despite the strong theoretical link that has been developed between proactive behaviours and P-E fit, no empirical research to date has been conducted on how P-E fit is influenced by proactive behaviours. This is in part driven by past research conceiving of both person and environment as stable entities along with an over reliance on cross-sectional studies (DeRue & Morgeson, 2007; Shipp & Jansen, 2011). Consequently, their congruence has predominantly been used to explain workplace outcomes as an independent variable rather than being in need of explanation itself (Caldwell, Herold, & Fedor, 2004; for an example in the proactive literature see, Erdogan & Bauer, 2005). As such, P-E fit has become an important variable utilised to better understand and explain organisational recruitment and selection (Adkins, Russell, & Werbel, 1994; Carless, 2005), affective workplace attitudes (Verquer, Beehr, & Wagner, 2003) and career performance and success (Bretz & Judge,

1994; Hoffman & Woehr, 2006). However, such conceptions of P-E fit are deeply impoverished (Hesketh & Griffin, 2005); they do not reflect the original intention of P-E fit theories themselves and they ignore recent calls for a more dynamic understanding of P-E fit (Kristof-Brown & Guay, 2011; Shipp & Jansen, 2011). Rather than being stable, Caldwell et al. (2004) note that change in either the person or the environment is likely to be associated with altered fit, yet there is little understanding how such change will influence fit perceptions. Given that at their most fundamental, proactive behaviours concern the facilitation of change in the person and/or the environment, it is critical for organisations and researchers to understand the possible ramifications such behaviours have on fit.

Utilising the theory of work adjustment (TWA; Dawis, 2005; Dawis & Lofquist, 1984), this study explores the impact of proactive person-environment fit behaviours (Parker & Collins, 2010) upon the fit between a person's abilities and the demands of their job, that is demands-abilities (D-A) fit. TWA is an appropriate P-E framework, not only due to it being widely used in theoretical and practical settings, but also because it is unique in specifying a dynamic model of fit. Furthermore, by utilising TWA we are able to postulate possible boundary conditions for the success of proactive behaviours in achieving positive outcomes. Though proactive behaviours are generally perceived to be positive for the individual and the organisation, several researchers (Bolino, Valcea, & Harvey, 2010; Chan, 2006) have identified that such behaviours do not always lead to favourable or desirable outcomes. The environmental context shapes and constrains behaviours (M. A. Griffin, Neal, & Parker, 2007). Consequently some proactive behaviours could be construed as misguided or misaligned with what is required or valued by an organisation (Bolino et al., 2010). We propose that work styles fit – how an individual's working style (with regard to enacting work behaviour) corresponds to the styles required by the organisation – generates a context

that can either support or frustrate proactive behaviours, and consequently influences their impact upon P-E fit.

This study therefore has three objectives. First, given that proactive behaviours are oriented towards creating change in the person and/or environment, we examine how proactive behaviours influence P-E fit, specifically how they improve D-A fit. Second, by introducing the concept of work styles fit, we highlight additional boundary conditions for successful proactive behaviours. Third, as a partial longitudinal study with D-A fit conceived as a dependent variable, this study advances our understanding of P-E fit as a dynamic construct responsive to employee actions.

Theory of Work Adjustment and Proactive Behaviours

The theory of work adjustment, characteristic of P-E fit theories generally, is concerned with the correspondence between person and the environment (Dawis, 2005; Dawis & Lofquist, 1984). In the work environment, employees make available their skills and abilities which enable them to fulfil the demands of their organisation. When an employee successfully meets the requirements of the organisation, that is when they have achieved demands-abilities (D-A) fit, the work environment will be satisfied. Likewise, employees have certain needs (e.g., pay, safety, purpose) which the work environment can supply. When the work environment successfully meets the needs of the employee, that is needs-supplies (N-S) fit, the employee is likely to be satisfied. When the correspondence between the person and the environment is able to be sustained, as the result of mutual satisfactions, the probability of tenure is increased.

Dawis and Lofquist (1984) recognise that persons or environments are likely to change over time leading to incongruity between parties and increasingly poor adjustment. Therefore, unique in the P-E fit literature, though largely neglected to date, TWA's other

primary concern is with how person and environment maintain or increase their level of correspondence through adjustment behaviours. According to Dawis and Lofquist, when an employee seeks to improve fit they need to engage in behaviours that effect change in the environment (labelled as *activeness*), or they can engage in behaviours that effect change in their person (labelled as *reactiveness*). From the perspective of TWA, both behaviours aim to decrease the dis-correspondence between the person and their work environment.

Perhaps one criticism that can be made of TWA is that active and reactive behaviours are described principally in response to perceptions of misfit (Dawis, 2005; B. Griffin & Hesketh, 2003). That is, TWA appears to be only advocating *adaptive* behaviours with little regard for *proactive* behaviours; anticipatory behaviours directed towards the initiation of change in the environment or within oneself. (M. A. Griffin et al., 2007). We would suggest that, given these behaviours are directed towards the maintenance or establishment of fit presently or in the future, when future focused the TWA adjustment behaviours are rightly categorised as proactive. Further, it should be noted that some ambiguity resides in how certain so called adaptive behaviours are labelled. For example, Pulakos, Dorsey and White (2006) describe the dimension of learning new tasks, technologies and procedures as ‘adaptive’, yet the dimension is defined as “Anticipate, prepare for, and learn skills needed for future job requirements (p. 43),” which is clearly proactive in character. Therefore, in line with both TWA and the proactive behaviour literature, we contend that through targeted behaviours individuals can effect change in their environment or person to facilitate an increase in P-E fit.

For an employee to be successful within their organisation they are required to achieve and maintain a set of knowledge, skills, and abilities (KSA’s) desirable to the needs of their organisation. However, in modern work environments, KSA’s once reckoned appropriate can become quickly outdated as a result of global pressures, technological

innovation and company acquisitions. Consequently, employees regularly need to engage in behaviours directed towards maintaining or increasing D-A fit. Here, the locus of effort can be engaged either towards the environment or themselves. As an example of the former, we examine *job change negotiation* in the current study, and we use *career initiative* as a type of proactive behaviour that involves changing self.

In job change negotiation (Parker & Collins, 2010), employees aim to change the nature of their job so that it better fits their individual skills and abilities. By transforming the work environment, changing the way in which work tasks are done and by obtaining better equipment and tools, employees are able to ensure that they are better positioned to meet present and future work demands. For example, an architect may seek to obtain improved computer aided drafting (CAD) software, or an accountant may improve the company's record keeping processes - allowing for increased efficiencies and enablement of resources to be directed towards new organisational needs.

By engaging in career initiative an employee can seek to increase their personal skills and abilities to allow for the meeting of present and future work environment demands (Parker & Collins, 2010). These behaviours are predominantly self-directed rather than focused on creating change in the environment. Examples include upskilling via training programs, participating in new experiences and acquiring new knowledge through personal research. By engaging in such behaviours, an employee is able to increase their range of available KSA's allowing them to meet the present and future requirements demanded by the organisation.

Proactive behaviours have broadly been conceived as a positive factor in organisational and individual performance, moving from a rare curiosity to a necessary requirement in modern dynamic organisations (Thomas et al., 2010). However, proactive

behaviours have not always led to positive outcomes. For example, at the individual level Chan (2006) found that for employees who demonstrated poor situational judgements and inappropriate responses to hypothetical work scenarios, the inclination towards proactive behaviour was maladaptive for job satisfaction, organisational commitment and job performance. At the environmental level, Erdogan and Bauer (2005) note that the environmental context can play an important part in whether proactive dispositions lead to career success. In one study of college professors, proactive personality was positively associated with research output, but only for those who had high levels of person-job fit. Similarly, Bolino et al. (2010) suggests that misdirected proactive behaviours, those which do not fit the needs of the organisation, can consume limited resources leading to stress and work-overload for the employee. That is, proactive behaviours are a resource that when inappropriately utilised can lead to unforeseen consequences as a result of over extension, personal costs and job stress. We note however, that much of this research has examined proactive personality, or the disposition to behave proactively, rather than linking negative outcomes to actual proactive behaviour.

Therefore, though proactive behaviours may lead to a range of positive organisational and personal outcomes, it is necessary to consider what factors may moderate their effectiveness (Parker, Bindl, & Strauss, 2010). Here we suggest that work styles fit, a concept developed within TWA describing the compatibility of how activity and effort is applied with what is required by the environment, will be a boundary condition for the success of proactive P-E fit behaviours.

Work Styles Fit – Boundary condition of successful proactive behaviours

In specifying the dynamic model of fit, TWA is not limited to adjustment behaviours but also establishes the importance of work styles, the manner in which work behaviours are

conducted. Dawis and Lofquist (1984) suggests four work styles characterise how a person reacts to their environment: *Celerity* is defined by the speed of response or engagement with the work environment; *pace* refers to the level of effort or energy expended when completing work tasks; *rhythm* concerns the pattern or regularity of effort across time; and *endurance* expresses how long someone is willing to invest effort in completing tasks. Defined as such, work styles are characterised by dynamic processes; that is, they have an essential time-based component. Dawis (2002) suggests that work styles are essential in the maintenance of fit. However, Bayl-Smith and Griffin (2015) found that work styles is only positively related to D-A fit. A positive relationship with N-S fit became non-significant when adding conscientiousness, work engagement and demographic variables as controls, suggesting that work styles may be more characteristic of efforts directed towards the establishment of meeting work demands rather than seeking to have one's needs and values supplied.

Dawis and Lofquist (1984) observe that not only does a person have a particular work style, but that particular work environments also have a corresponding work style. Therefore, some environments, like emergency services, are likely to be characterised by an erratic work rhythm, with high levels of celerity and pace intermittently required. In contrast, a university would be less reliant on professors acting with high celerity, but rather require stable and enduring effort over long periods. Therefore, work styles fit is defined by the level of correspondence between an individual's manner and approach to work and that required by the work environment. High fit here indicates a harmonious and responsive relationship between the individual and the environment. According to TWA theory, work styles fit between the person and the environment will moderate the outcomes of the P-E fit model, including the outcomes of adjustment behaviours (Dawis & Lofquist, 1984).

The mechanism of how work styles fit influences P-E fit, adjustment behaviour and its outcomes is not explicated in any detail within TWA, however P-E fit theory has a long

tradition of recognising the importance of fit in time based variables (Francis-Smythe & Robertson, 1999; Hecht & Allen, 2005; Jansen & Shipp, 2013; Lim & Seers, 1993). For example, Kaufman, Lane and Lindquist (1991) discuss the concept of *time personality*, which includes the recognition that individuals and organisations vary in their preferences for use of time and the performance of activities. Highly corresponding time personalities are likely to result in increased performance through the effective meeting of deadlines and matching of activity patterns. In contrast, mismatch is likely to result in feelings of frustration and inefficient use of resources. In support of this contention, Jansen and Kristof-Brown (2005) identified that when employees were able to match the rhythmic pattern of effort and activity required by the organisation, employees were on average more satisfied with their job. In contrast, when the work rhythm exceeded that provided by the individual, decreased satisfaction and increased psychological strain resulted. Repeated theorising and empirical results suggest the importance of achieving fit in the timing of effort and activities, each suggesting that correspondence will lead to more co-ordination, cohesiveness and effective utilisation of resources, whilst dis-correspondence will result in increased frustration, interference of efforts and strain (e.g., Hecht & Allen, 2005; Lim & Seers, 1993).

Therefore, in regards to the specific development of the hypotheses for this study, we contend that the effect of job change negotiation behaviours (proactive behaviours directed towards changing the environment) and career initiative behaviours (proactive behaviours directed towards changing the self) on D-A fit is moderated by work styles fit. In other words, the effect of behaviour is dependent on the time based environment in which it is enacted. Given that the effect of proactive behaviours occurs over time rather than all at once, this study examines the impact of proactive behaviours upon D-A fit over time (three months).

To be effective in creating positive change over time, the proactive behaviours need to be implemented in a context where the work style of the individual corresponds to the work style required by the environment. When work styles fit is high, individuals are likely to achieve increased co-ordination and effective use of resources. Therefore, this provides an effective environment through which proactive behaviours can be effectively engaged. Specifically, compatible work styles between the individual and job role will enhance proactive behaviours, positively impacting workplace outcomes over time. In contrast, when work styles fit is low, behaviours can become un-coordinated and resources can be exhausted. In such a context, proactive behaviours can be frustrated or misdirected. That is, incompatible work styles between the individual and their job role may interfere with the successful implementation of proactive P-E fit behaviours, negatively impacting their ability to positively improve D-A fit over time.

Hypothesis 1: The effect of job change negotiation behaviours upon D-A fit over time will be moderated by work styles fit, such that when work styles fit is high, job change negotiation behaviours will have a positive effect upon D-A fit. In contrast, when work styles fit is low, job change negotiation behaviours will have a negative effect upon D-A fit.

Hypothesis 2: The effect of career initiative behaviours upon D-A fit over time will be moderated by work styles fit, such that when work styles fit is high, career initiative behaviours will have a positive effect upon D-A fit. In contrast, when work styles fit is low, career initiative behaviours will have a negative effect upon D-A fit.

Methods

Participants and Procedure

Two waves (approximately three months apart) of online survey data were collected from a state government organisation providing emergency services. Potential participants were not emailed directly, but rather the study was advertised in staff bulletins and newsletters. At Time 1, there were 169 respondents, 94 of whom also completed the survey at Time 2 (response rate of 55.62%). Only participants who provided data at both time points were included in the analysis for this study. Of these, 49 were male (52.1%) and their average age was 44.49 years ($SD = 10.57$ years), ranging from 24 to 67 years. The participants were relatively well educated, with 84.0% having non-school qualifications. In comparison, the Australian average for non-school qualifications is 61% for people aged between 15 and 65 years (Australian Bureau of Statistics, 2015). The majority of respondents were employed as “employees / team members” (72.3%), with 28.7% identifying as “middle manager / team leader” or above. The typical number of hours worked per week was on average 45.78 hours ($SD = 7.52$ hours), ranging from 24 hours to 80 hours per week.

Due to concerns of sample selection bias via attrition, we tested for the presence of non-random sampling using multiple logistic regression (Goodman & Blum, 1996). Results indicate that participants did not systematically drop out of participation based on demographic characteristics or due to the variables of interest used in this study. Therefore, we can proceed with moderate confidence that attrition has not unduly biased the analysis of this study (Goodman & Blum, 1996).

Measures

Proactive work behaviours. Proactive adjustment behaviours were measured at Time 1 using a scale developed by Bayl-Smith (2016). Items for the scale expressed characteristic behaviours of either job change negotiation or career initiative. Job change negotiation behaviour was measured using three items which included, “I have changed the way in which my job tasks are done,” “I have transformed my working environment,” and “I have obtained better equipment/tools.” Career initiative behaviour was measured using five items including, “I have engaged in training/workshops,” and “I have advanced and developed my skills.” All items were measured on a 5-point Likert-type scale (1 = Very rarely to Very often). A principal components analysis with varimax rotation was conducted on the eight proactive work behaviour items using data from all Time 1 respondents. As expected, examination of the eigenvalues and scree plot indicated two factors, with all items loading onto their respective factors accounting for 65.80% of the variance. Cronbach’s alpha for Job change negotiation behaviours was .74, and .87 for career initiative behaviours.

Work Styles Fit. Work styles fit was measured at Time 1 using eight items from Bayl-Smith (2016). Each item corresponds to a specific working style facet as described within TWA – celerity, pace, rhythm and endurance. Example items include, “The match between the speed of my decision making and that required by my job is very good”, “How hard I work in my job matches the requirements of my job,” “My rhythm of effort at work (constant or more irregular) is a good fit with my job,” and “My endurance in work tasks fits well with what is needed in my job.” Bayl-Smith (2016) presented evidence that work styles fit was a single factor construct distinct from both D-A fit and N-S fit, and the active work styles behaviours (see Appendix 5). All items were measured on a 7-point Likert-type scale (1 = Strongly Disagree to 7 = Strongly Agree). Cronbach’s alpha was .90.

Demands-Abilities fit. Demands-abilities fit was assessed at both Time 1 and Time 2 using Cable and DeRue's (2002) three-item scale. Items, such as "The match is very good between the demands of my job and my personal skills," were rated on a 7-point Likert-type scale (1 = *Strongly Disagree* to 7 = *Strongly Agree*). Cronbach's alpha was .84 at Time 1 and .85 at Time 2.

Control Variables. As individuals age, their motivations, abilities and opportunities may change. Also, work hours may influence the resources and capacity to engage in proactive behaviours and to maintain one's ability to fulfil required work tasks. Therefore, in the following analysis we have controlled for both chronological age and work hours at Time 1.

Results

The means, standard deviations and correlations are reported in Table 1. Examination of the zero-order correlations does not initially support Hypotheses 1 or 2. No significant relationship was found between job change negotiation behaviour and D-A fit (Time 1, $r(92) = .06, p = .59$; Time 2, $r(92) = .10, p = .32$), or between D-A fit and career initiative behaviour (Time 1, $r(92) = -.01, p = .90$; Time 2, $r(92) = .01, p = .95$). There was a moderate relationship between job change negotiation and career initiative behaviours ($r(92) = .48, p < .01$) and work styles fit with D-A fit (Time 1, $r(92) = .48, p < .01$; Time 2, $r(92) = .33, p < .01$). However, work styles fit exhibited no significant association with job change negotiation behaviour ($r(92) = .11, p = .32$) or career initiative behaviour ($r(92) = .00, p = 1.00$). A significant relationship between Time 1 D-A fit and Time 2 D-A fit ($r(92) = .50, p < .01$), indicated a moderate stability in the construct across time.

Test of Hypotheses

Two hierarchical moderated regression analyses were conducted to test each hypothesis. Both regression models were analysed using the PROCESS macro for SPSS, Release 2.16.2 (Hayes, 2013). In each model, Time 2 D-A fit was entered as the dependent variable, with age, work hours and Time 1 D-A fit inserted as controls. Job change negotiation or career initiative behaviour was entered as the independent variable, with work styles fit added as the moderator. In both analyses PROCESS Model 1 was used, and to aid the interpretation of results, the job change negotiation or career initiative behaviours and work styles fit scales were mean centred. The results of both analyses are summarised in Table 2.

The first hierarchical moderated regression analysis, with job change negotiation behaviour moderated by work styles fit predicting Time 2 D-A fit, was significant ($F(6,87) = 7.878, p < .001$), with an R^2 of .352. Though there was no evidence of a direct effect between job change negotiation behaviour and Time 2 D-A fit, Hypothesis 1 was partially supported; there was a significant interaction effect when adding work styles fit as a moderating variable. By adding the interaction term, the variance explained by the model was increased by 7.61% ($\Delta R^2 = .076, F(1,87) = 10.213, p = .002$). As demonstrated in Table 2 and the interaction plot in Figure 1, when work styles fit was high (+1 *SD*), job change negotiation behaviour had a positive relationship with Time 2 D-A fit. When work styles fit was low (-1 *SD*) or at the mean, job change negotiation behaviour had no significant effect upon Time 2 D-A fit.

The second model tested, with career initiative behaviour moderated by work styles fit predicting Time 2 D-A fit was also significant ($F(6,87) = 8.178, p < .001$), with an R^2 of .361. Like the first model, there was no significant direct relationship between career

initiative behaviour and Time 2 D-A fit. However, in support of Hypothesis 2, there was a significant interaction effect with career initiative behaviour being moderated by work styles fit. The addition of the interaction term increased the variance explained by 8.89% ($\Delta R^2 = .089$, $F(1,87) = 12.088$, $p < .001$) over a model with no interaction term. Examination of the conditional effects in Table 2 and interaction plot in Figure 2, revealed that when work styles fit was low ($-1 SD$), career initiative behaviour on average had a negative effect upon Time 2 D-A fit. However, when work styles fit was high ($+1 SD$), career initiative behaviour on average had a positive effect upon Time 2 D-A fit. When work styles fit was at its mean, there was no evidence of a significant relationship between the independent and dependent variables.

Inspection of the zero-order correlations demonstrated a significant relationship between chronological age and career initiative behaviour ($r(92) = -.24$, $p = .02$). However, post-hoc analyses did not reveal any additional two-way or three-way interactions involving chronological age, career initiative behaviour and T2 D-A fit.

Discussion

The purpose of this study was to examine how proactive behaviours, as actions directed towards creating change, impact an employee's ability to fulfil the requirements of their job, labelled here as D-A fit. Furthermore, we addressed recent calls to investigate possible boundary conditions for proactive behaviours by introducing work styles fit as a moderating variable (Bolino et al., 2010; Chan, 2006). In so doing, this study provided the opportunity to examine and gain insight into possible behaviours that promote or facilitate an increase in the perceptions of D-A fit (DeRue & Morgeson, 2007).

We hypothesized that enacting job change negotiation behaviours or career initiative behaviours would have a positive effect upon D-A fit, but only when work styles fit was high.

This would allow for the co-ordinated and effective use of resources when engaging in proactive behaviours. In contrast, when work styles fit was low we expected that job change negotiation and career initiative behaviours would have a negative effect on D-A fit. Here, proactive behaviours would be hampered by lack of coordination and resource exhaustion. With both hypothesised moderated effects being significant, the results of our study broadly support our original contention. When work styles fit is high, engagement in high levels of job change negotiation and career initiative behaviours leads to a positive effect on D-A fit across time. However, when work styles fit is low, the engagement of high career initiative behaviours resulted in a decrease of D-A fit across time. This negative effect was not observed for job change negotiation behaviours with there being no significant change in the relationship between the variables of interest when work styles fit was low – though with only 94 eligible participants this may be a consequence of low power.

Theoretical Contribution

In modern organisations characterised by change and uncertainty, proactive behaviours have been conceived as an important factor in maintaining an employee's present and future fit with their work environment (Kooij, 2015). In this regard, proactive behaviours have been shown to be a positive factor contributing towards personal and organisational performance (Thomas et al., 2010), though no study to date has directly investigated the relationship between proactive behaviours and P-E fit. Therefore, the results of this study provide an important caveat in drawing a simple linkage between acting proactively and increasing correspondence with one's work environment. Proactive behaviours do not necessarily result in maintaining P-E fit, rather their success is dependent upon work styles fit, or the extent a person matches their way of working to that required by their employing organisation.

Proactive behaviours have not always been associated with favourable outcomes (e.g. Chan, 2006; Erdogan & Bauer, 2005), and therefore researchers have become interested in what variables may moderate proactive behaviour success (Parker et al., 2010). Bolino et al. (2010) regard proactive behaviours as a resource that when implemented ineffectively can lead to work-overload, personal costs and stress. It was our contention, supported by the findings in the present study, that high work styles fit provides a work context that facilitates co-ordination and the efficient use of resources, thereby increasing the effectiveness of proactive behaviours in achieving their aims. In contrast, low work styles fit creates a work context characterised by un-coordination and wastage of resources, in so doing interfering and frustrating the goals of proactive behaviours. Overall, this provides support to Erdogan and Bauer's (2005) argument that the environmental context is an important component to take into account when investigating proactivity.

This study is also the first to extend TWA through the theoretical development and investigation of work styles fit. We have defined work styles fit as the correspondence between an individual's manner and mode towards completing work tasks, and that required by the environment. The lack of any significant effect between work styles fit and D-A fit suggests that any influence upon P-E fit is not direct. Rather, the results suggest that the harmonious relationship, characterised by high work styles fit, expedites adjustment and proactive behaviours by creating a context that enables their aims to be realised. In contrast, low work styles fit tempers efforts to improve P-E fit. These findings are consistent with other P-E fit time based variables that suggest correspondence is associated with positive workplace outcomes, satisfaction and cohesiveness, whilst low correspondence is linked to frustration and strain (Hecht & Allen, 2005; Jansen & Kristof-Brown, 2005; Kaufman et al., 1991).

Practical Implications

P-E fit theories, including TWA, have a long history of being used to select potential candidates for employment opportunities (Adkins et al., 1994; Carless, 2005; Hesketh, Griffin, Dawis, & Bayl-Smith, 2015). The notion is relatively intuitive and basic to most P-E fit theories – applicants who are able to match the required knowledge, skills and abilities with the demands required of the role will be best able to satisfy the needs of the organisation (Dawis & Lofquist, 1984). Furthermore, given the rapid changes in modern organisations, proactive behaviours have been identified as a key competency for career success. Therefore employers are seeking to appoint individuals with a proactive temperament with little regard to possible long term consequences (Erdogan & Bauer, 2005). The results of the present study provide an important corrective; organisations should not ignore the manner and mode in which employees engage in their work, and its correspondence with what is required. As noted by Bayl-Smith and Griffin (2015), even if an employee has all the skills and abilities required for their job, if they are investing effort inefficiently or not in a manner that suits their role, they are unlikely to continue to meet job demands over the long term. This also applies to the application of proactive behaviours, where our results suggest that work styles fit provides a boundary condition for proactive behaviour. Therefore, organisations need to be cognizant in the selection processes and beyond of the ongoing importance of achieving work styles fit.

In order to achieve and maintain work styles fit, organisations should pay particular attention to communicating temporal norms and develop effective entrainment strategies. Entrainment is here understood as the adjustment of the pace or cycle of work activities so that employee and work environment are synchronised (Ancona & Chong, 1996). According to Ancona and Chong, broad and consistent communication and modelling are valuable strategies in creating correspondence, “We not only learn *what* to do from others, we also

learn *when*, *how fast*, and *how long* to do it (p. 270).” Entrainment therefore mirrors much of what concerns work styles fit; the celerity, pace, rhythm and endurance in completing work tasks.

Effective entrainment would involve the measurement and understanding of temporal norms within the organisation, and ensuring that they are strategically aligned to the organisations goals (Schriber & Gutek, 1987). Where work styles dis-correspondence is identified, interventions such as time management training, setting of clear schedules, and goal prioritisation may prove effective in reducing ambiguity in what is required, and create structure and feelings of control (Mohammed & Nadkarni, 2011; Van Eerde, 2003).

Limitations and Future Research

Due to a reliance upon self-reported data, this study may be subject to issues related to common method bias. This concern is somewhat relieved by our use of validated scales with unambiguous and easy to understand items, different scale properties and anchors, the use of distractor variables between the items of interest, and the protection of participant anonymity (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003; Podsakoff, MacKenzie, & Podsakoff, 2012). Despite these measures, future research would be further advanced by the addition of multiple samples and/or different methods in collecting data. Suggestions include diary studies, supervisor and peer feedback, and objective measures of work styles fit.

Future research may also improve the present two-wave design by capturing additional waves of data for a true longitudinal study, as well as varying time lags to include shortitudinal studies (Dormann & Griffin, 2015). According to Dormann and Griffin, a central issue for any longitudinal research is to identify when change occurs. We selected a three-month time lag as it seems an appropriate length of time for the proactive behaviours to have their effect, whilst not too far removed temporally to be obfuscated by a range of other

factors. However, future research could attempt to identify the optimal time lag, where the effect between the independent and dependent variable is strongest, by including shorter and more frequent time lags within a longitudinal study with greater time lags. Similarly, the limitations associated with two wave longitudinal designs need addressing. When only two waves of data are captured, change can only be identified as linear (Ployhart & Vandenberg, 2010). Therefore, we are unable to comment upon growth trajectories, that is the degree of change over time. Such an analysis may be important to further understanding the effectiveness of proactive behaviours. For example, Bolino et al. (2010) suggest that the effect of proactive behaviours may be targeted towards solving particular issues in the short-term, but may cause tensions and ineffective leadership development long-term. Such a trajectory can only be tested when three or more measurement points are captured (Ployhart & Vandenberg, 2010).

As an initial investigation into the effects of proactive behaviours on P-E fit, this study has focused on specific facets with clear theoretical connections. Linking job change negotiation and career initiative behaviours with D-A fit outcomes was appropriate given that both behaviours are directed towards improving the fit between the individual's skills and abilities and their job (Parker & Collins, 2010). Nevertheless, the range of possible proactive behaviours and target outcomes is substantial (Parker & Collins, 2010), as are the conceivable areas and levels of P-E fit (Kristof, 1996). Given that proactive behaviours are directed at creating change in the person and/or the environment, we suggest that further theoretical development and empirical examination of the link between proactive behaviours and P-E fit variables is warranted.

Conclusion

This is the first study to investigate how proactive behaviours impact an employee's ability to meet the requirement of their role, that is D-A fit. By utilising TWA as a theoretical framework, we suggested that work styles fit created a boundary condition for the success of proactive behaviours. The results of our study demonstrated that job change negotiation and career initiative behaviours were moderated by work styles fit such that, when work styles fit was high, high activity in proactive behaviours leads to an increase in D-A fit over a three-month period. However, when work styles fit was low, job change negotiation behaviour did not demonstrate any significant change in D-A fit over time whilst high levels of career initiative behaviour actually lead to a decrease in D-A fit over time. This has important ramifications for practitioners and researchers who seek to simply advocate for the benefits of proactive behaviours for individuals and organisation. Rather, considering the dynamic environmental and temporal work context as exemplified by work styles fit, a more nuanced understanding of the linkages between proactive behaviours and P-E fit appears warranted in future research.

References

- Adkins, C. L., Russell, C. J., & Werbel, J. D. (1994). Judgements of fit in the selection process: The role of work value congruence. *Personnel Psychology*, 47, 605–623. <http://doi.org/10.1111/j.1744-6570.1994.tb01740.x>
- Ancona, D. G., & Chong, C. (1996). Entrainment: Pace, cycle, and rhythm in organizational behavior. In B. M. Staw & L. L. Cummings (Eds.), *Research in organizational behavior: An annual series of analytical essays and critical reviews* (Vol 18, pp. 251–284). Greenwich: JAI Press Inc.
- Australian Bureau of Statistics, (ABS). (2015). 4235.0 - Qualifications and Work, Australia, 2015. Retrieved September 23, 2016, from <http://www.abs.gov.au/ausstats/abs@.nsf/mf/4235.0>
- Bayl-Smith, P. H. (2016). *Work Styles and Person-Environment Fit: Adjusting to Change as a Late Career Worker* (Unpublished doctoral thesis). Macquarie University, Australia.
- Bayl-Smith, P. H., & Griffin, B. (2015). Measuring work styles: Towards an understanding of the dynamic components of the theory of work adjustment. *Journal of Vocational Behavior*, 90, 132–144. <http://doi.org/10.1016/j.jvb.2015.08.004>
- Belschak, F. D., Den Hartog, D. N., & Fay, D. (2010). Exploring positive, negative and context-dependent aspects of proactive behaviours at work. *Journal of Occupational and Organizational Psychology*, 83(2), 267–273. <http://doi.org/10.1348/096317910X501143>
- Bolino, M., Valcea, S., & Harvey, J. (2010). Employee, manage thyself: The potentially negative implications of expecting employees to behave proactively. *Journal of Occupational and Organizational Psychology*, 83(2), 325–345. <http://doi.org/10.1348/096317910X493134>
- Bretz, R. D., & Judge, T. A. (1994). Person–Organization fit and the theory of work adjustment: Implications for satisfaction, tenure, and career success. *Journal of*

Vocational Behavior, 44, 32–54. <http://doi.org/10.1006/jvbe.1994.1003>

Cable, D. M., & DeRue, D. S. (2002). The convergent and discriminant validity of subjective fit perceptions. *Journal of Applied Psychology*, 87, 875–884.

<http://doi.org/10.1037//0021-9010.87.5.875>

Caldwell, S. D., Herold, D. M., & Fedor, D. B. (2004). Toward an understanding of the relationships among organizational change, individual differences, and changes in person-environment fit: a cross-level study. *The Journal of Applied Psychology*, 89, 868–882. <http://doi.org/10.1037/0021-9010.89.5.868>

Carless, S. A. (2005). Person-job fit versus person-organization fit as predictors of organizational attraction and job acceptance intentions: A longitudinal study. *Journal of Occupational and Organizational Psychology*, 78, 411–429.

<http://doi.org/10.1348/096317905X25995>

Chan, D. (2006). Interactive effects of situational judgment effectiveness and proactive personality on work perceptions and work outcomes. *The Journal of Applied Psychology*, 91, 475–481. <http://doi.org/10.1037/0021-9010.91.2.475>

Dawis, R. V. (2002). Person-Environment-Correspondence theory. In D. Brown (Ed.), *Career Choice and Development* (4th ed., pp. 427–464). San Francisco: John Wiley & Sons, Inc.

Dawis, R. V. (2005). The Minnesota theory of work adjustment. In S. D. Brown & R. W. Lent (Eds.), *Career Development and Counselling: Putting theory and research to work* (pp. 3–23). Hoboken: John Wiley & Sons, Inc.

Dawis, R. V., & Lofquist, L. H. (1984). *A Psychological Theory of Work Adjustment*. Minneapolis: University of Minnesota Press.

DeRue, D. S., & Morgeson, F. P. (2007). Stability and change in person-team and person-role fit over time: The effects of growth satisfaction, performance, and general self-efficacy.

The Journal of Applied Psychology, 92, 1242–1253. <http://doi.org/10.1037/0021-9010.92.5.1242>

Dormann, C., & Griffin, M. A. (2015). Optimal time lags in panel studies. *Psychological Methods*, 20, 489–505. <http://doi.org/10.1037/met0000041>

Erdogan, B., & Bauer, T. N. (2005). Enhancing career benefits of employee proactive personality: The role of fit with jobs and organizations. *Personnel Psychology*, 58, 859–891. <http://doi.org/10.1111/j.1744-6570.2005.00772.x>

Francis-Smythe, J., & Robertson, I. (1999). Time-related individual differences. *Time & Society*, 8, 273–292. <http://doi.org/10.1177/0961463X99008002004>

Frese, M., & Fay, D. (2001). Personal initiative: An active performance concept for work in the 21st century. *Research in Organizational Behavior*, 23, 133–187. [http://doi.org/10.1016/S0191-3085\(01\)23005-6](http://doi.org/10.1016/S0191-3085(01)23005-6)

Goodman, J. S., & Blum, T. C. (1996). Assessing the non-random sampling effects of subject attrition in longitudinal research. *Journal of Management*, 22, 627–652. [http://doi.org/10.1016/S0149-2063\(96\)90027-6](http://doi.org/10.1016/S0149-2063(96)90027-6)

Grant, A. M., & Ashford, S. J. (2008). The dynamics of proactivity at work. *Research in Organizational Behavior*, 28, 3–34. <http://doi.org/10.1016/j.riob.2008.04.002>

Griffin, B., & Hesketh, B. (2003). Adaptable behaviours for successful work and career adjustment. *Australian Journal of Psychology*, 55, 65–73. <http://doi.org/10.1080/00049530412331312914>

Griffin, M. A., Neal, A., & Parker, S. K. (2007). A new model of work role performance: Positive behaviour in uncertain and interdependent contexts. *Academy of Management Journal*, 50, 327–347. <http://doi.org/10.5465/AMJ.2007.24634438>

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York: Guilford Press.

Hecht, T. D., & Allen, N. J. (2005). Exploring links between polychronicity and well-being from the perspective of person–job fit: Does it matter if you prefer to do only one thing at a time? *Organizational Behavior and Human Decision Processes*, 98, 155–178.

<http://doi.org/10.1016/j.obhdp.2005.07.004>

Hesketh, B., & Griffin, B. (2005). Work Adjustment. In W. B. Walsh & M. L. Savickas (Eds.), *Handbook of Vocational Psychology: Theory, Research and Practice* (3rd ed., pp. 245–266). Mahwah: Lawrence Erlbaum Associates, Publishers.

Hesketh, B., Griffin, B., Dawis, R., & Bayl-Smith, P. H. (2015). Extensions to the dynamic aspects of the retirement transition and adjustment framework (RTAF): Adjustment behaviors, work styles, and identity. *Work, Aging and Retirement*, 1, 79–91.

<http://doi.org/10.1093/workar/wau004>

Hoffman, B. J., & Woehr, D. J. (2006). A quantitative review of the relationship between person–organization fit and behavioral outcomes. *Journal of Vocational Behavior*, 68, 389–399. <http://doi.org/10.1016/j.jvb.2005.08.003>

Jansen, K. J., & Kristof-Brown, A. L. (2005). Marching to the beat of a different drummer: Examining the impact of pacing congruence. *Organizational Behavior and Human Decision Processes*, 97, 93–105. <http://doi.org/10.1016/j.obhdp.2005.03.005>

Jansen, K. J., & Shipp, A. J. (2013). A review and agenda for incorporating time in fit research. In A. L. Kristof-Brown & J. Billsberry (Eds.), *Organizational Fit: Key Issues and New Directions* (pp. 195–221). Chichester: John Wiley & Sons, Ltd.

Kaufman, C. F., Lane, P. M., & Lindquist, J. D. (1991). Time congruity in the organization: A proposed quality-of-life framework. *Journal of Business and Psychology*, 6(1), 79–106. <http://doi.org/10.1007/BF01013686>

Kooij, D. T. A. M. (2015). Successful aging at work: The active role of employees. *Work, Aging and Retirement*, 1, 309–319. <http://doi.org/10.1093/workar/wav018>

Kristof, A. L. (1996). Person-organization fit: An integrative review of its conceptualizations, measurement, and implications. *Personnel Psychology*, 49, 1–49.

<http://doi.org/10.1111/j.1744-6570.1996.tb01790.x>

Kristof-Brown, A. L., & Guay, R. P. (2011). Person-Environment fit. In S. Zedeck (Ed.), *APA Handbook of Industrial and Organizational Psychology* (Vol 3, pp. 3–50).

Washington, DC: American Psychological Association. <http://doi.org/10.1037/12171-001>

Lim, Y. M., & Seers, A. (1993). Time dimensions of work: Relationships with perceived organizational performance. *Journal of Business and Psychology*, 8(1), 91–102.

<http://doi.org/10.1007/BF02230395>

Mohammed, S., & Nadkarni, S. (2011). Temporal diversity and team performance: The moderating role of team temporal leadership. *Academy of Management Journal*, 54,

489–508. <http://doi.org/10.5465/AMJ.2011.61967991>

Parker, S. K., Bindl, U. K., & Strauss, K. (2010). Making things happen: A model of proactive motivation. *Journal of Management*, 36, 827–856.

<http://doi.org/10.1177/0149206310363732>

Parker, S. K., & Collins, C. G. (2010). Taking stock: Integrating and differentiating multiple proactive behaviors. *Journal of Management*, 36(3), 633–662.

<http://doi.org/10.1177/0149206308321554>

Ployhart, R. E., & Vandenberg, R. J. (2010). Longitudinal research: The theory, design, and analysis of change. *Journal of Management*, 36, 94–120.

<http://doi.org/10.1177/0149206309352110>

Podsakoff, P. M., MacKenzie, S. B., Lee, J., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *The Journal of Applied Psychology*, 88, 879–903. <http://doi.org/10.1037/0021->

9010.88.5.879

- Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology*, 63, 539–569. <http://doi.org/10.1146/annurev-psych-120710-100452>
- Pulakos, E. D., Dorsey, D. W., & White, S. S. (2006). Adaptability in the workplace: selecting an adaptive workforce. In C. S. Burke, L. G. Pierce, & E. Salas (Eds.), *Understanding adaptability: A prerequisite for effective performance within complex environments* (pp. 41–71). Oxford: Elsevier Ltd.
- Schriber, J. B., & Gutek, B. A. (1987). Some time dimensions of work: Measurement of an underlying aspect of organization culture. *Journal of Applied Psychology*, 72, 642–650. <http://doi.org/10.1037//0021-9010.72.4.642>
- Shipp, A. J., & Jansen, K. J. (2011). Reinterpreting time in fit theory: Crafting and recrafting narratives of fit in medias res. *Academy of Management Review*, 36, 76–101. <http://doi.org/10.5465/AMR.2011.55662565>
- Thomas, J. P., Whitman, D. S., & Viswesvaran, C. (2010). Employee proactivity in organizations: A comparative meta-analysis of emergent proactive constructs. *Journal of Occupational and Organizational Psychology*, 83(2), 275–300. <http://doi.org/10.1348/096317910X502359>
- Van Eerde, W. (2003). Procrastination at work and time management training. *The Journal of Psychology*, 137(5), 421–34. <http://doi.org/10.1080/00223980309600625>
- Verquer, M. L., Beehr, T. a, & Wagner, S. H. (2003). A meta-analysis of relations between person–organization fit and work attitudes. *Journal of Vocational Behavior*, 63, 473–489. [http://doi.org/10.1016/S0001-8791\(02\)00036-2](http://doi.org/10.1016/S0001-8791(02)00036-2)

Table 1

Summary of Intercorrelations, Means, Standard Deviations and Reliability Coefficient Alphas

	M	SD	1	2	3	4	5	6	7
1. Age	44.49	10.57	-						
2. Work hours/week	45.79	7.50	.01	-					
3. Job change negotiation behaviours	2.93	.92	-.11	.09	(.74)				
4. Career initiative behaviours	3.62	.88	-.24*	.17	.48**	(.87)			
5. Work Styles Fit	5.43	1.02	.10	-.04	.00	.11	(.90)		
6. Time 1 Demands-Abilities Fit	5.46	1.11	-.07	.09	-.01	.06	.48**	(.84)	
7. Time 2 Demands-Abilities Fit	5.44	1.04	-.09	-.04	.01	.10	.33*	.50**	(.85)

Note: $N = 94$. Where available, reliability coefficients (Cronbach's alpha) are in parentheses on the diagonal.

* $p < .05$; ** $p < .01$.

Table 2

Regression results for the relationship between reactive and proactive adjustment behaviours and demands-abilities fit, moderated by work styles fit

<i>Predictor</i>	Model 1			Model 2		
	DV=Time 2 Demands-Abilities Fit			DV=Time 2 Demands-Abilities Fit		
	<i>b</i>	<i>SE</i>	<i>t</i>	<i>b</i>	<i>SE</i>	<i>t</i>
Constant	4.08	.79	5.20**	3.95	.78	5.03**
Age	-.01	.01	-.87	-.01	.01	-.60
Work hours / week	-.01	.01	-1.25	-.01	.01	-1.03
Time 1 D-A Fit	.42	.09	4.39**	.41	.09	4.32**
Work styles fit	.09	.10	.90	.07	.10	.70
Job change negotiation behaviours	.13	.10	1.28			
Job change negotiation behaviours x Work styles fit	.32	.10	3.20**			
Career initiative behaviours				.08	.11	.72
Career initiative behaviours x Work styles fit				.36	.10	3.48**
Conditional effect of adjustment behaviours on D-A fit at mean and +/- 1 SD of work styles fit						
<i>Work styles fit</i>	<i>b</i>	<i>SE</i>	<i>t</i>	<i>b</i>	<i>SE</i>	<i>t</i>
-1 SD (-1.02)	-.19	.13	-1.49	-.29	.13	-2.13*
Mean	.13	.10	1.28	.08	.11	.72
+1 SD (1.02)	.45	.15	2.91**	.44	.16	2.70**

Note: *N* = 94

* $p < .05$; ** $p < .01$.

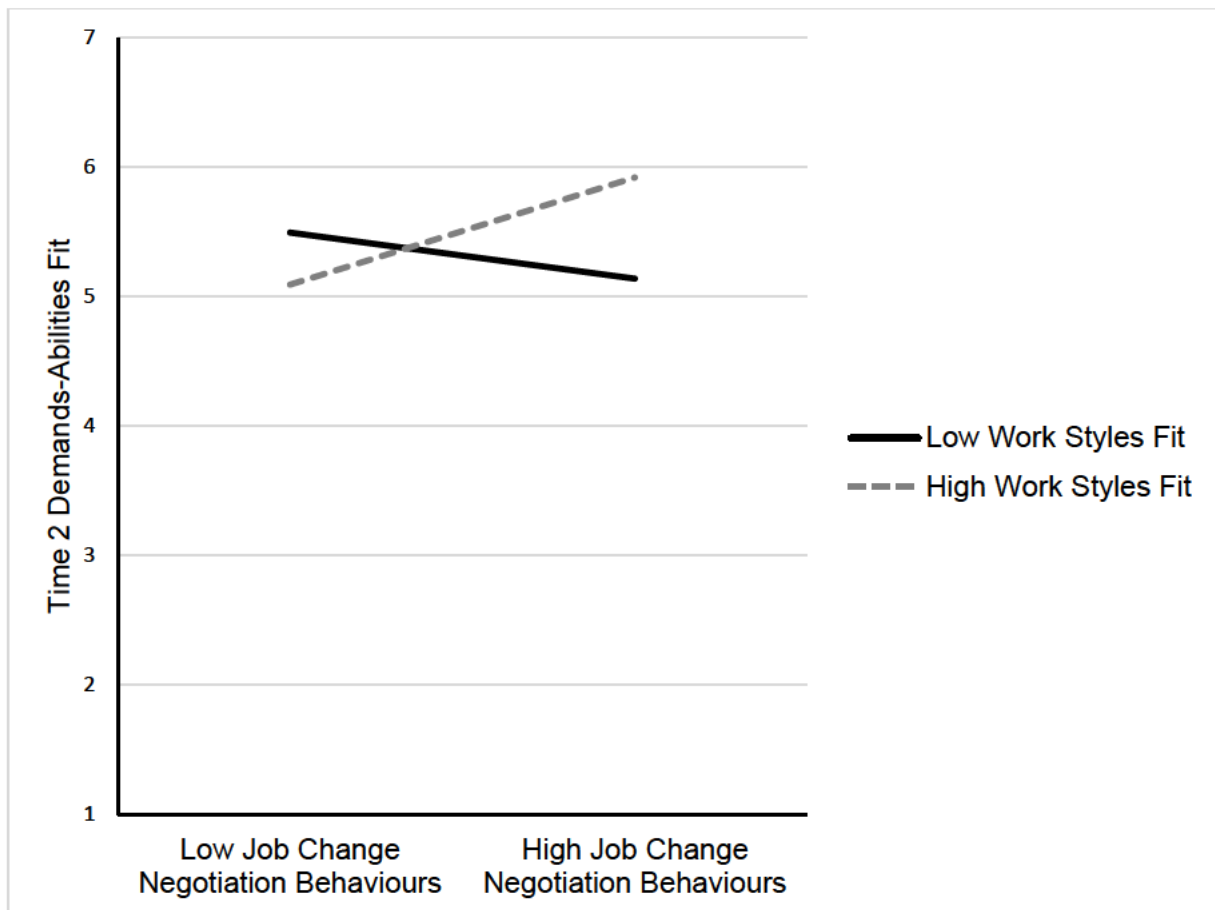


Figure 1. Interaction effect of job change negotiation behaviours on Time 2 demands-abilities fit at high and low levels (± 1 SD) of work styles fit.

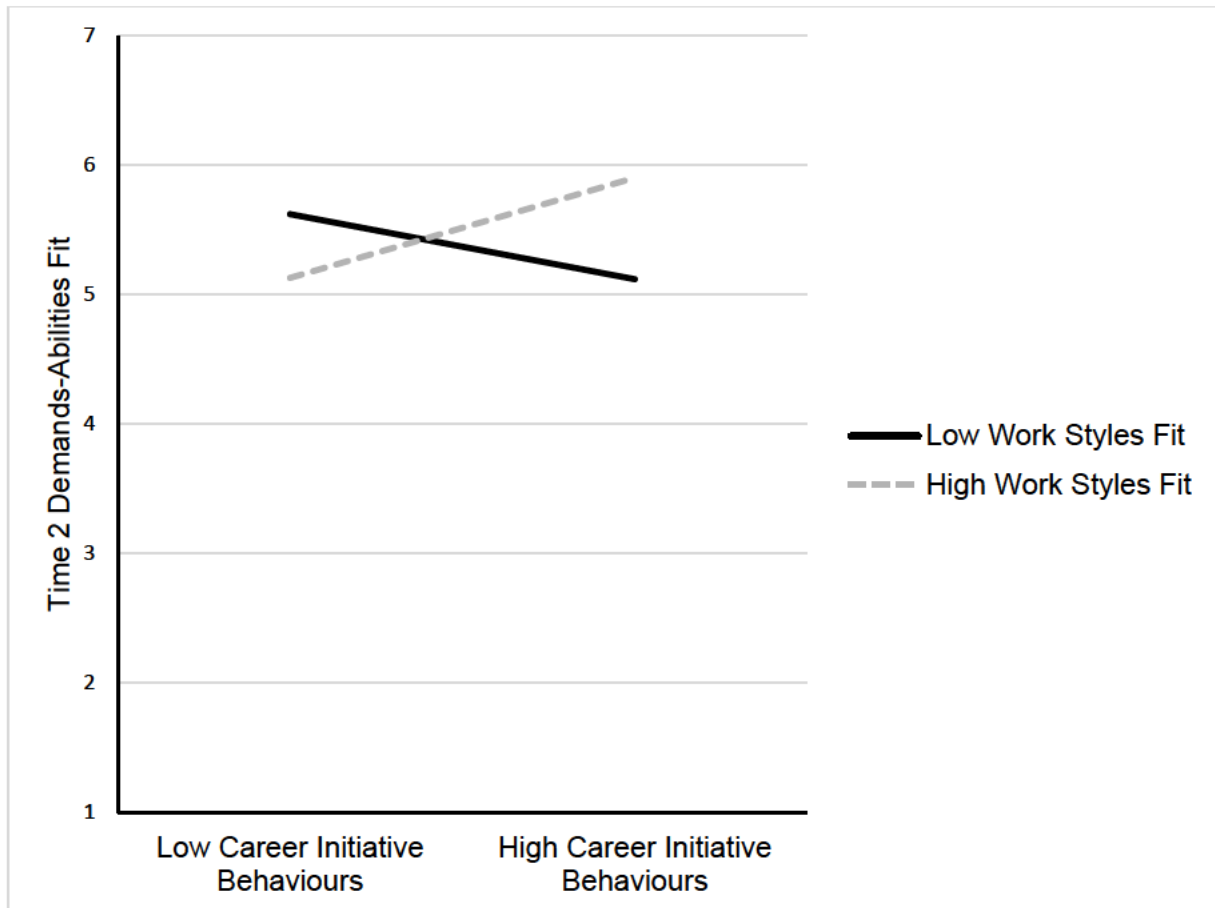


Figure 2. Interaction effect of career initiative behaviours on Time 2 demands-abilities fit at high and low levels (± 1 SD) of work styles fit.

CHAPTER 6:

Discussion of Findings and Conclusion

Through the development of work styles and incorporation of proactive behaviours into the theory of work adjustment (TWA; Dawis, 2005; Dawis & Lofquist, 1984), this thesis has identified a range of dynamic factors that support or diminish the ongoing maintenance of person-environment (P-E) fit. In the context of rapid change in the workplace via globalisation, technological innovation and organisational restructuring, researchers have identified the need for employee adaptation and proactivity to maintain job relevant skills and motivation (Frese & Fay, 2001; Grant & Ashford, 2008). For late career workers, this task has an added level of complexity due to changes within person (e.g., changes to physical capabilities) and negative workplace experiences (e.g. age discrimination) (Finkelstein, 2015; Ng & Feldman, 2013). Therefore, recent theorising has emphasised the importance of sustaining employee fit within their work environment, signifying one's ongoing ability to meet organisational demands whilst having personal needs satisfied (de Lange, Kooij, & van der Heijden, 2015; Kooij, 2015). However, little is known in regards to what factors stimulate or enhance P-E fit (DeRue & Morgeson, 2007). This is primarily due to an over reliance upon cross-sectional designs and research utilising fit as an independent variable explaining workplace outcomes. This final chapter summarises the key findings and theoretical contributions of each paper and proceeds to discuss their practical implications. The overall limitations of the thesis and suggestions for future research are then considered.

Summary of Key Findings and Theoretical Contributions

This thesis has sought to develop the long-neglected dynamic components of TWA and thereby contribute towards a better understanding of what factors may assist or diminish career maintenance. The results of all three papers involving over 2,000 participants indicate

the importance of employee behaviour in the maintenance of P-E fit, not just in what actions are performed but also in the typical mode or style of work effort over time. In addition, Papers 2 and 3 (Chapters 4 and 5) demonstrate the significance of the work environment on how P-E fit is perceived.

The first paper (Chapter 3) developed and empirically tested a measure of work styles, an oft-overlooked component of TWA associated with the maintenance of demands-abilities (D-A) and needs-supplies (N-S) fit (Dawis, 2002). Dawis (2005) suggests that the absence of empirical research on work styles is predominantly due to a distinct lack of psychometrically robust measures. Before this research, only one attempt (Lawson, 1993) had been made to operationalise work styles. Lawson unsuccessfully used pre-existing measures, concluding that future research should develop scales that specifically target the features suggested by TWA theory. Therefore, in Paper 1, a 12-item self-report work styles scale was created and empirically tested.

Consistent with the original conception proposed by Dawis and Lofquist (1984), Study 1 identified the emergence of four factors labelled here as celerity, pace, rhythm and endurance. A post-hoc analysis demonstrated a small to moderate positive relationship between each work style facet and the personality measures of extroversion and conscientiousness providing initial support that while related, work styles and personality are distinct constructs. In Study 2, a confirmatory analysis (CFA) and a test for longitudinal measurement invariance was conducted using a three-wave study with three to four week intervals. Interestingly, the CFA revealed that the model was significantly improved by adding a hypothesised second-order factor, labelled as an active work styles (AWS), measuring an employee's generalised level of activity at work across time. This finding was not originally assumed within TWA but was argued to be a result of work style facets being influenced uniformly by a wide range of variables including personality, self- efficacy,

identity and stereotyping (see Appendix 1). The second study also demonstrated the scale's measurement invariance over time demonstrating its suitability to be used in longitudinal research. Study 3 examined the construct validity and predictive capacity of the AWS scale. As expected, work styles were positively related to conscientiousness and work engagement, but not workplace stress (with the exception of pace). In testing the predictive capability of the scale, when controlling for conscientiousness and work engagement, the second-order factor and work style facets were positively associated with D-A fit, though no relationship was found with N-S fit. It was therefore conjectured that work styles may specifically target the ability to satisfy work demands rather than the fulfilment of needs and values.

The second paper (Chapter 4) examined the maintenance of P-E fit in mid- to late-career workers in the context of an age discriminatory environment. Despite such discrimination being recognised as having a deleterious effect upon the organisation and person (Garstka, Schmitt, Branscombe, & Hummert, 2004; Goldman, Gutek, Stein, & Lewis, 2006), no study had previously examined its effect on person-environment fit. Age discrimination is a prevalent feature of many organisations, identified by the expression of negative attitudes and behaviours towards an individual based solely upon membership of a specific age category (Kunze, Boehm, & Bruch, 2011). When manifested in the workplace, age discrimination necessarily restricts access to development opportunities, social support and a positively reinforcing environment (Zaniboni, 2015; See also Appendix 2). Over time, this will lead to declines in the employee's abilities to effectively fulfil their work demands. Likewise, age discrimination may have a negative impact on an employee's perceptions of equity and justice (Goldman, Slaughter, Schmit, Wiley, & Brooks, 2008). Consequently, feelings of having personal needs and values met by the organisation are likely to decrease.

These contentions were supported in two separate studies with discrete samples and different time frames. Study 1, a two-wave study with a 1 year time lag, demonstrated that

age discrimination had a negative impact on both D-A and N-S fit over time. These results were replicated in Study 2, but with a much shorter time lag. In addition, the second study also introduced active work styles as a possible moderating factor on the relationship between age discrimination and D-A fit. It was suggested that through the application of a prompt, effortful, consistent and enduring approach towards work tasks (i.e., high active work styles), deficits caused by age discrimination may be reduced. Results demonstrated that more active work styles significantly reduced the negative effect of age discrimination. However, this effect only seen for D-A fit but not N-S fit. Overall, both studies in Paper 2 contribute to the growing body of research documenting the deleterious effects of age discrimination upon older employees. However, the introduction of work styles as a moderating variable highlights a possible personally motivated response that may diminish the negative effects associated with age bias, and thereby enable the ongoing maintenance of work abilities.

The theme of examining antecedent factors of P-E fit was continued in the third paper (Chapter 5) through an investigation of the effects of proactive behaviours on D-A fit. Despite proactive behaviours being considered an essential factor in maintaining employee's present and future fit, especially in regards to late career workers (Kooij, 2015), this relationship had never previously been directly investigated. Furthermore, Paper 3 extended the conception of work styles to one embedded within the context of the organisation: *Work styles fit* was defined as the correspondence between an individual's work style and that required by their work environment (as originally discussed by TWA). Here, high fit describes a harmonious and corresponsive relationship between the employee and organisation, whilst low fit would be characterised by conflict and inefficiency. It was conjectured that work styles fit would create a boundary condition for the effective application of proactive behaviours towards maintaining D-A fit.

The results from the two-wave study revealed that proactive behaviours did contribute towards an increase in D-A fit, but only when work styles fit was high. At low levels of work styles fit, proactive behaviours may in fact lead to a decrease in D-A fit. Therefore, this study highlights the important finding that proactive behaviours do not necessarily lead to increasing P-E fit, but rather the environmental context, here exemplified by work styles fit, needs to be duly considered.

Practical Implications

P-E fit theory has been pervasive in the field of organisational psychology and human resources management, playing a prominent role in recruitment and selection, career development and the understanding of workplace attitudes, performance, and tenure (Kristof-Brown, Zimmerman, & Johnson, 2005; Saks & Ashforth, 1997). At its most broad, P-E fit is understood to represent the compatibility between a person, with their set of specific characteristics, and some specific dimension of the work environment (Kristof-Brown & Guay, 2011). Utilising this principle, organisations typically look to seek and retain individuals with a particular set of knowledge, skills and abilities (KSAs) that are expected to fulfil the demands of a particular role. The driving notion here is that P-E fit will create satisfactory performance. However, the results derived from this thesis suggest that organisations (and researchers) need to consider not just *what* characteristic features a person or environment has, but *how* these characteristic features are enacted. That is, organisations should not overlook the mode or way in which an individual completes their work tasks. Employees have ultimate volitional control over how their time and effort is expended towards meeting organisational goals (Brown & Leigh, 1996). As a consequence, an employee could have a surplus of KSA's required to meet the demands of any given role, though if they fail to invest their efforts appropriately, they will fail to meet the demands of their organisation.

Therefore, in the process of employee selection and recruitment, as well as throughout an employee's tenure, organisations should be aware of the importance of work styles. Including work styles in the recruitment process will allow organisations to appropriately select individuals who not only meet the requisite skills of the job, but can enact their skills in a manner that best suits their role. An ongoing measurement of work styles will also allow organisations to better understand how effort is being distributed by their employees, thereby identifying potential breakdowns in processes and/or motivations. As identified in Paper 3, measurement will be enhanced by creating a work styles profile for specific job roles allowing for organisations to identify areas of dis-correspondence, inefficiency and frustration to be identified and addressed.

To achieve or maintain an appropriate work style, organisations need to ensure their culture and communications are aligned to the pace and effort required by employees to complete their roles satisfactorily. Through effective entrainment strategies, organisations can look to coordinate the temporal norms and levels of activity to create a more effective working style (Ancona & Chong, 1996). Where dis-correspondence exists, setting unambiguous schedules, adjusting work cycles, implementing temporal reminders, and time management training may be helpful in raising awareness of expected temporal norms around work effort and timing, and thereby facilitate positive change towards a more effective work style (Ancona & Chong, 1996; Gevers, Rutte, & van Eerde, 2006; Van Eerde, 2003).

This thesis has also identified that environmental features need to be understood and managed by organisations in order to maintain ongoing P-E fit. Paper 2 in particular demonstrates that age discrimination has a detrimental impact upon P-E fit for mid- to late-career workers. Therefore, organisations need to take seriously the risk posed by discriminatory behaviours if they desire to maintain an employee's ability to meet the demands of their role and ongoing motivation. With no credible evidence suggesting that

older workers cannot cope with change, suffer from significant mental and physical declines, are marked by poor performance and productivity, and are just making ready for retirement, organisations need to directly challenge the negative stereotypes of older workers (McCann & Giles, 2002). This can be primarily achieved through communication strategies, diversity training programs and encouragement of positive intergenerational contact (Henry, Zacher, & Desmette, 2015; Kunze et al., 2011). In this regard, organisations need be aware of their age diversity climate; that is, what norms are conveyed by senior management and human resources (HR) management regarding accepted and rewarded behaviours (Boehm, Kunze, & Bruch, 2014). HR recruitment policies, education programs, implementation of performance management systems and communication practices, can promote a positive age-diversity climate where late career workers are valued for their contribution, and inequitable treatment is duly penalised (Boehm et al., 2014). Such strategies should also remove potential barriers for older workers to engage in a highly active work style, the benefit of which has been discussed above.

Finally, by understanding ongoing career success through a P-E fit framework, this thesis should encourage late career workers to conceive of themselves as adaptable, “life-long learners” (Savickas et al., 2009, p. 240) in control of their own careers. As discussed in Chapter 2, careers were traditionally managed by the organisation and considered to be relatively linear; from early-career growth, mid-career stability, to late-career decline (Wang, Olson, & Shultz, 2013). However, modern careers are driven more by an individual’s internal values, and are subject to reinvention as individual or environmental changes occur (Greller & Stroh, 2004; Hall, 1996). P-E, when viewed as a relatively static model, may lead to the view that employees either fit with their work environment, or they do not – thereby leading to performance declines and eventual exit (Hesketh & Griffin, 2005). By focusing on the dynamic components of TWA, and viewing P-E fit as a dependent variable in need of

explanation, this thesis directly contests the view that employees are victims of their circumstance. Rather, through enacting a highly active work styles that enables the meeting of organisational requirements, through the engagement of adaptive and proactive behaviours, individuals are able to maintain viable careers, regardless of age and adverse experiences. According to Greller and Stroh (2004), organisations can assist the employee in career reinvention by offering career counselling and assistance programs, opportunities for coaching and mentoring, advancing age specific training, providing bridging jobs, and again, challenging negative stereotypes and discrimination.

Limitations and Directions for Future Research

Given that each paper investigated a range of unique relationships through the framework of TWA, there are a number of common methodological limitations that should be addressed in future investigations. Perhaps foremost is a reliance upon self-report survey data which may lead to common method bias. Throughout each paper there was a deliberate attempt to control for such biases through several means, including, assurances of anonymity, use of multiple sample groups, longitudinal designs, use of validated scales with unambiguous and easy to understand items, presentation of item-sets in different orders to reduce priming effects, using different scale properties and anchors, and the use of different distractor items between variables of interest (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003; Podsakoff, MacKenzie, & Podsakoff, 2012). Nevertheless, despite this range of measures and also recognising that other sources of data are by no means free from methodological shortcomings (Conway & Lance, 2010), future studies could benefit by including different methodologies. Possible examples include diary studies, seeking supervisor and peer feedback, and the inclusion of objective performance measures such as project contributions and completions. Hesketh, Griffin, and Loh (2011) suggest that with the advent of new technologies, novel sources of data may become available through real time

data collection, virtual reality, and data mining. Such sources may provide interesting and unique insights into the ongoing maintenance of P-E fit not presently available.

A second limitation concerns how data in Papers 2 and 3 are only measured at two discrete times. Jansen and Shipp (2013) recognise that perceptions of P-E fit are not temporally isolated, but are considered in light of adjustment to past fit and anticipation of future fit. Events that were momentous in the past may have long reaching effects into present perceptions of P-E fit, whilst other events may have a strong immediate impact but be of little consequence at a later date. Such a nuanced view of P-E fit is not necessarily captured with a two-wave longitudinal panel design. Whilst two-wave studies do have significant advantages over cross-sectional designs, conclusions can only be drawn regarding the linear change between Time 1 and Time 2 (Ployhart & Vandenberg, 2010). If we want to examine possible growth trajectories, whether change is steady, levels off, or experiences change in direction, a multi-wave study with at least three repeated measures would be necessary. Furthermore, Dormann and Griffin (2015) suggest that multi-wave studies should be accompanied by additional shorter time lagged studies to identify long and short term effects, and when the effects are strongest. This will provide indispensable information to both the researcher and practitioner regarding the optimal time lag to investigate our variables of interest, and identify when the strongest causal effects occur.

A final limitation to highlight relates to the conceptualisation and measurement of P-E fit. Utilising TWA, fit in this thesis has been quite narrowly defined to person-job fit; the correspondence between employee's abilities and job demands, as well as employee needs and organisational supply (Kristof-Brown et al., 2005). However, P-E fit may be characterised as a multi-dimensional concept, operating at different levels within the organisation (Jansen & Kristof-Brown, 2006; Perry, Dokko, & Golom, 2012; Tak, 2011). Jansen and Kristof-Brown (2006) for example identify fit at the vocational, organisational,

job, group, and person levels, each with unique insights and research emphasis. Future research could be expanded to investigate the dynamic components identified in TWA, work styles and adaptive/proactive behaviours, at different levels of P-E fit. The thesis also examined P-E fit by using a molar approach, where fit is measured by directly asking participants to rate their own perceptions. Hesketh, Griffin, Dawis, and Bayl-Smith (2015; Appendix 1) suggest such approaches may not fully uncover the range of interactions between the person and environment. Additionally, Edwards, Cable, Williamson, Lambert and Shipp (2006) note that alternative methods of P-E fit measurement, including atomistic (where discrete measures for the person and environment are captured then combined) and molecular (where differences between the person and environment are directly measured), are empirically distinct. Therefore, utilising different measurement approaches may add valuable insight into how employees attempt to actively maintain P-E fit in interaction with the environment.

Apart from addressing methodological limitations, future research may continue to explore some of the theoretical considerations and implications that have been raised by this thesis. For example, having identified the importance of work styles and proactive behaviours in maintaining correspondence with the environment, future research should identify what factors trigger change in the engagement of such behaviours. According to Dawis and Lofquist (1984), it is the perception of misfit itself that prompts the engagement of adjustment. However an intriguing suggestion is proposed by Shipp and Jansen (2011), in consideration of their notion of *fit narratives*. Fit narratives are the storied structure that individuals craft and impose upon past, present and future P-E fit experiences. By comparing present levels of fit with anticipated future levels of fit, the individual may be motivated towards behavioural change in response to anticipated threats that may have a negative impact upon person-environment correspondence. Yet, also to be taken into account is the

notion that present and anticipated fit are not temporally isolated, but are rather influenced by past P-E fit narratives. So, past workplace experiences can have a significant impact upon future P-E fit narratives, and therefore present behaviours.

Conclusion

In Chapters 1 and 2 I framed the present research in consideration of the growing proportion of older workers in the context of a rapidly changing environment. From an organisational perspective, businesses are wanting to manage the risks associated with the loss of knowledge, skills and key relationship through retirement, as well manage late career workers so that they remain motivated and productive. From an individual's perspective, employees are wanting to maintain viable careers where they have the capacity to cope with personal and environmental change and can pursue self-directed goals that suit their own personal objectives. In this context, P-E fit has been proposed as a framework through which to understand late career maintenance (Kooij, 2015), however very little is known regarding the processes that engender and encourage ongoing perceptions of fit (DeRue & Morgeson, 2007). Therefore, utilising TWA the three papers in the present thesis have examined how ongoing correspondence is effected by dynamic features of the person and environment. Through theoretical and empirical development of work styles, the findings highlight the importance of not just what characteristic features a person or environment can supply, but also how these characteristic features are enacted in completing work tasks. Through the implementation of an appropriate work style employees are able to overcome adverse environments and facilitate proactive behaviours, thereby maintain or increase their levels of fit. For the late career worker, the significance of focusing on the dynamic components of P-E fit and conceptualising fit as an outcome is to recognise that they are not passive objects dependent upon environmental dictates, but rather are active members of organisations, able

to guide and develop their own careers and goals, and ultimately, in control of their own success.

Full Reference List

- Adkins, C. L., Russell, C. J., & Werbel, J. D. (1994). Judgements of fit in the selection process: The role of work value congruence. *Personnel Psychology*, 47, 605–623. doi:10.1111/j.1744-6570.1994.tb01740.x
- Akaike, H. (1987). Factor analysis and AIC. *Psychometrika*, 52, 317–332. doi:10.1007/BF02294359
- Ancona, D. G., & Chong, C. (1996). Entrainment: Pace, cycle, and rhythm in organizational behavior. In B. M. Staw & L. L. Cummings (Eds.), *Research in organizational behavior: An annual series of analytical essays and critical reviews* (Vol 18, pp. 251–284). Greenwich: JAI Press Inc.
- Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, 103, 411–423. doi:10.1037/0033-2909.103.3.411
- Arthur, M. B. (1994). The boundaryless career: A new perspective for organizational inquiry. *Journal of Organizational Behavior*, 15, 295–306. doi:10.1002/job.4030150402
- Ashford, S. J., Blatt, R., & VandeWalle, D. (2003). Reflections on the looking glass: A review of research on feedback-seeking behavior in organizations. *Journal of Management*, 29, 773–799. doi:10.1016/S0149-2063(03)00079-5
- Australian Bureau of Statistics, (ABS). (2010). 6105.0 - Australian Labour Market Statistics, Oct 2010. Retrieved August 27, 2015, from <http://www.abs.gov.au/ausstats/abs@.nsf/featurearticlesbytitle/67AB5016DD143FA6CA2578680014A9D9?OpenDocument>

Australian Bureau of Statistics, (ABS). (2011a). 4102.0 - Australian Social Trends, Dec 2011.

Retrieved April 18, 2016, from

<http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4102.0Main+Features30Dec+2011>

1

Australian Bureau of Statistics, (ABS). (2011b). 6105.0 - Australian Labour Market

Statistics, Oct 2011. Retrieved July 28, 2015, from

<http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/6105.0Feature+Article1Oct 2011>

Australian Bureau of Statistics, (ABS). (2013). 3222.0 - Population Projections, Australia,

2012 (base) to 2101. Retrieved June 23, 2016, from

[http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/3222.0main+features52012 \(base\) to 2101](http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/3222.0main+features52012 (base) to 2101)

2101

Australian Bureau of Statistics, (ABS). (2015). 4235.0 - Qualifications and Work, Australia,

2015. Retrieved September 23, 2016, from

<http://www.abs.gov.au/ausstats/abs@.nsf/mf/4235.0>

Australian Bureau of Statistics, (ABS). (2015). 6227.0 Education and Work, Australia, May

2015. Retrieved April 18, 2016, from

[http://www.abs.gov.au/AUSSTATS/subscriber.nsf/log?openagent&62270do001_201505.xls&6227.0&Data Cubes&34BC8298CA95409DCA257F090013737A&0&May](http://www.abs.gov.au/AUSSTATS/subscriber.nsf/log?openagent&62270do001_201505.xls&6227.0&Data Cubes&34BC8298CA95409DCA257F090013737A&0&May 2015&27.11.2015&Latest)

[2015&27.11.2015&Latest](http://www.abs.gov.au/AUSSTATS/subscriber.nsf/log?openagent&62270do001_201505.xls&6227.0&Data Cubes&34BC8298CA95409DCA257F090013737A&0&May 2015&27.11.2015&Latest)

2015&27.11.2015&Latest

Australian Bureau of Statistics, (ABS). (2015). 6291.0.55.001 - Labour Force, Australia,

Detailed - Electronic Delivery, Jun 2015. Retrieved July 27, 2015, from

<http://www.abs.gov.au/AUSSTATS/ABS@Archive.nsf/log?openagent&6291009.xls&6291.0.55.001&Time Series>

291.0.55.001&Time Series

Spreadsheet&9E5BA281B9A84351CA257E83001B2A89&0&Jun

2015&16.07.2015&Latest

Australian Bureau of Statistics, (ABS). (2016). 6238.0 - Retirement and Retirement Intentions, Australia, July 2014 to June 2015. Retrieved June 23, 2016, from [http://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/6238.0Main Features3July 2014 to June 2015](http://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/6238.0Main+Features3July+2014+to+June+2015)

Australian Human Rights Commission. (2015). *National prevalence survey of age discrimination in the workplace*. Retrieved from [https://www.humanrights.gov.au/sites/default/files/document/publication/AgePrevalence Report2015.pdf](https://www.humanrights.gov.au/sites/default/files/document/publication/AgePrevalenceReport2015.pdf)

Bakker, A. B., & Demerouti, E. (2007). The job demands-resources model: State of the art. *Journal of Managerial Psychology*, 22, 309–328. doi:10.1108/02683940710733115

Bal, P. M., Kooij, D. T. A. M., & Rousseau, D. M. (2015). *Aging Workers and the Employee-Employer Relationship*. Cham: Springer.

Baltes, B. B., & Rudolph, C. W. (2013). The theory of selection, optimization, and compensation. In M. Wang (Ed.), *The Oxford Handbook of Retirement* (pp. 88–101). New York: Oxford University Press.

Bandura, A. (1999). Social cognitive theory of personality. In L. Previn & O. John (Eds.), *Handbook of Personality* (2nd ed., pp. 154–196). New York: Guilford Publications.

Banks, E., Redman, S., Jorm, L., Armstrong, B., Bauman, A., Beard, J., ... Lujic, S. (2008). Cohort profile: The 45 and Up study. *International Journal of Epidemiology*, 37, 941–947. doi:10.1093/ije/dym184

- Barrick, M. R., & Mount, M. K. (1991). The big five personality dimensions and job performance: A meta-analysis. *Personnel Psychology*, 44, 1–26. doi:10.1111/j.1744-6570.1991.tb00688.x
- Bayl-Smith, P. H., & Griffin, B. (2014). Age discrimination in the workplace: Identifying as a late-career worker and its relationship with engagement and intended retirement age. *Journal of Applied Social Psychology*, 44, 588–599. doi:10.1111/jasp.12251
- Bayl-Smith, P. H., & Griffin, B. (2015). Measuring work styles: Towards an understanding of the dynamic components of the theory of work adjustment. *Journal of Vocational Behavior*, 90, 132–144. doi:10.1016/j.jvb.2015.08.004
- Belschak, F. D., Den Hartog, D. N., & Fay, D. (2010). Exploring positive, negative and context-dependent aspects of proactive behaviours at work. *Journal of Occupational and Organizational Psychology*, 83, 267–273. doi:10.1348/096317910X501143
- Belsley, D. A., Kuh, E., & Welsch, R. E. (2004). *Regression Diagnostics: Identifying Influential Data Sources of Collinearity*. Hoboken: John Wiley & Sons, Inc.
- Bernerth, J. B., & Aguinis, H. (2015). A critical review and best-practice recommendations for control variable usage. *Personnel Psychology*, 69, 1–55. doi:10.1111/peps.12103
- Boehm, S. A., & Dwertmann, D. J. G. (2015). Forging a single-edged sword: Facilitating positive age and disability diversity effects in the workplace through leadership, positive climates, and HR practices. *Work, Aging and Retirement*, 1, 41–63. doi:10.1093/workar/wau008
- Boehm, S. A., Kunze, F., & Bruch, H. (2014). Spotlight on age-diversity climate: The impact of age-inclusive HR practices on firm-level outcomes. *Personnel Psychology*, 67, 667–704. doi:10.1111/peps.12047

- Bolino, M., Valcea, S., & Harvey, J. (2010). Employee, manage thyself: The potentially negative implications of expecting employees to behave proactively. *Journal of Occupational and Organizational Psychology*, 83, 325–345.
doi:10.1348/096317910X493134
- Brandtstädter, J., & Renner, G. (1990). Tenacious goal pursuit and flexible goal adjustment: Explication and age-related analysis of assimilative and accommodative strategies of coping. *Psychology and Aging*, 5, 58–67. doi:10.1037/0882-7974.5.1.58
- Bretz, R. D., & Judge, T. A. (1994). Person–Organization fit and the theory of work adjustment: Implications for satisfaction, tenure, and career success. *Journal of Vocational Behavior*, 44, 32–54. doi:10.1006/jvbe.1994.1003
- Brown, S. D. (1993). Contemporary psychological science and the theory of work adjustment: A proposal for integration and a favor returned. *Journal of Vocational Behavior*, 43, 58–66. doi:10.1006/jvbe.1993.1030
- Brown, S. P., & Leigh, T. W. (1996). A new look at psychological climate and its relationship to job involvement, effort, and performance. *The Journal of Applied Psychology*, 81, 358–368. doi:10.1037/0021-9010.81.4.358
- Burnham, K. P., & Anderson, D. R. (2002). *Model Selection and Multimodel Inference: A Practical Information-Theoretic Approach*. *Ecological Modelling* (2nd ed., Vol. 172). New York: Springer. doi:10.1016/j.ecolmodel.2003.11.004
- Byrne, B. M. (2012). *Structural Equation Modeling with M plus: Basic Concepts, Applications, and Programming*. New York: Routledge.
- Cable, D. M., & DeRue, D. S. (2002). The convergent and discriminant validity of subjective fit perceptions. *Journal of Applied Psychology*, 87, 875–884. doi:10.1037//0021-

9010.87.5.875

Cable, D. M., & Judge, T. A. (1996). Person–Organization fit, job choice decisions, and organizational entry. *Organizational Behavior and Human Decision Processes*, 67, 294–311. doi:10.1006/obhd.1996.0081

Caldwell, S. D., Herold, D. M., & Fedor, D. B. (2004). Toward an understanding of the relationships among organizational change, individual differences, and changes in person-environment fit: a cross-level study. *The Journal of Applied Psychology*, 89, 868–882. doi:10.1037/0021-9010.89.5.868

Carless, S. A. (2005). Person-job fit versus person-organization fit as predictors of organizational attraction and job acceptance intentions: A longitudinal study. *Journal of Occupational and Organizational Psychology*, 78, 411–429. doi:10.1348/096317905X25995

Carstensen, L. L., Fung, H. H., & Charles, S. T. (2003). Socioemotional selectivity theory and the regulation of emotion in the second half of life. *Motivation and Emotion*, 27, 103–123. doi:10.1023/A:1024569803230

Carstensen, L. L., Isaacowitz, D. M., & Charles, S. T. (1999). Taking time seriously: A theory of socioemotional selectivity. *American Psychologist*, 54, 165–181. doi:10.1037/0003-066X.54.3.165

Chan, D. (2006). Interactive effects of situational judgment effectiveness and proactive personality on work perceptions and work outcomes. *The Journal of Applied Psychology*, 91, 475–481. doi:10.1037/0021-9010.91.2.475

Chiu, W. C. K., Chan, A. W., Snape, E., & Redman, T. (2001). Age stereotypes and discriminatory attitudes towards older workers: An East-West comparison. *Human*

Relations, 54, 629–661. doi:10.1177/0018726701545004

Cole, D. A., & Maxwell, S. E. (2003). Testing mediational models with longitudinal data:

Questions and tips in the use of structural equation modeling. *Journal of Abnormal Psychology*, 112, 558–577. doi:10.1037/0021-843X.112.4.558

Commonwealth of Australia. (2015). *2015 Intergenerational Report: Australia in 2055*.

Retrieved from [http://www.treasury.gov.au/~media/Treasury/Publications and Media/Publications/2015/2015 Intergenerational Report/Downloads/PDF/2015_IGR.ashx](http://www.treasury.gov.au/~media/Treasury/Publications%20and%20Media/Publications/2015/2015%20Intergenerational%20Report/Downloads/PDF/2015_IGR.ashx)

Conway, J. M., & Lance, C. E. (2010). What reviewers should expect from authors regarding common method bias in organizational research. *Journal of Business and Psychology*, 25, 325–334. doi:10.1007/s10869-010-9181-6

Cropanzano, R., & Mitchell, M. S. (2005). Social exchange theory: An interdisciplinary review. *Journal of Management*, 31, 874–900. doi:10.1177/0149206305279602

Dawis, R. V. (1996). The theory of work adjustment and person-environment-correspondence counseling. In D. Brown & L. Brooks (Eds.), *Career Choice and Development* (3rd ed., pp. 75–120). San Francisco: Jossey-Bass Inc.

Dawis, R. V. (2002). Person-Environment-Correspondence theory. In D. Brown (Ed.), *Career Choice and Development* (4th ed., pp. 427–464). San Francisco: John Wiley & Sons, Inc.

Dawis, R. V. (2005). The Minnesota theory of work adjustment. In S. D. Brown & R. W. Lent (Eds.), *Career Development and Counselling: Putting theory and research to work* (pp. 3–23). Hoboken: John Wiley & Sons, Inc.

Dawis, R. V., & Lofquist, L. H. (1978). A note on the dynamics of work adjustment. *Journal of Vocational Behavior*, 12, 76–79. doi:10.1016/0001-8791(78)90008-8

Dawis, R. V., & Lofquist, L. H. (1984). *A Psychological Theory of Work Adjustment*. Minneapolis: University of Minnesota Press.

Dawis, R. V., & Lofquist, L. H. (1993). From TWA to PEC. *Journal of Vocational Behavior*, 43, 113–121. doi:10.1006/jvbe.1993.1037

de Bilde, J., Vansteenkiste, M., & Lens, W. (2011). Understanding the association between future time perspective and self-regulated learning through the lens of self-determination theory. *Learning and Instruction*, 21, 332–344. doi:10.1016/j.learninstruc.2010.03.002

De Cooman, R., De Gieter, S., Pepermans, R., Jegers, M., & Van Acker, F. (2009). Development and validation of the work effort scale. *European Journal of Psychological Assessment*, 25, 266–273. doi:10.1027/1015-5759.25.4.266

de Lange, A. H., Bal, P. M., Van der Heijden, B. I. J. M., Jong, N. D., & Schaufeli, W. B. (2011). When I'm 64: Psychological contract breach, work motivation and the moderating roles of future time perspective and regulatory focus. *Work & Stress*, 25, 338–354. doi:10.1080/02678373.2011.632610

de Lange, A. H., Kooij, D. T. A. M., & van der Heijden, B. I. J. M. (2015). Human resource management and sustainability at work across the lifespan: An integrative perspective. In L. M. Finkelstein, D. M. Truxillo, F. Fraccaroli, & R. Kanfer (Eds.), *Facing the Challenges of a Multi-Age Workforce: A Use-Inspired Approach* (pp. 50–79). New York: Routledge.

de Vaus, D. A. (2002). *Surveys in Social Research* (5th ed.). Crows Nest: Allen & Unwin.

- DeRue, D. S., & Morgeson, F. P. (2007). Stability and change in person-team and person-role fit over time: The effects of growth satisfaction, performance, and general self-efficacy. *The Journal of Applied Psychology, 92*, 1242–1253. doi:10.1037/0021-9010.92.5.1242
- DeVellis, R. F. (1991). *Scale Development: Theory and Applications*. Newbury Park: SAGE Publications, Inc.
- Donohue, R. (2006). Person-environment congruence in relation to career change and career persistence. *Journal of Vocational Behavior, 68*, 504–515. doi:10.1016/j.jvb.2005.11.002
- Dormann, C. F., Elith, J., Bacher, S., Buchmann, C., Carl, G., Carré, G., ... Lautenbach, S. (2013). Collinearity: A review of methods to deal with it and a simulation study evaluating their performance. *Ecography, 36*, 27–46. doi:10.1111/j.1600-0587.2012.07348.x
- Dormann, C., & Griffin, M. A. (2015). Optimal time lags in panel studies. *Psychological Methods, 20*, 489–505. doi:10.1037/met0000041
- Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: perseverance and passion for long-term goals. *Journal of Personality and Social Psychology, 92*, 1087–1101. doi:10.1037/0022-3514.92.6.1087
- Durr II, M. R., & Tracey, T. J. G. (2009). Relation of person–environment fit to career certainty. *Journal of Vocational Behavior, 75*, 129–138. doi:10.1016/j.jvb.2009.05.003
- Edwards, J. R., Cable, D. M., Williamson, I. O., Lambert, L. S., & Shipp, A. J. (2006). The phenomenology of fit: Linking the person and environment to the subjective experience of person-environment fit. *The Journal of Applied Psychology, 91*, 802–827. doi:10.1037/0021-9010.91.4.802

- Erdogan, B., & Bauer, T. N. (2005). Enhancing career benefits of employee proactive personality: The role of fit with jobs and organizations. *Personnel Psychology*, 58, 859–891. doi:10.1111/j.1744-6570.2005.00772.x
- Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods*, 4, 272–299. doi:10.1037/1082-989X.4.3.272
- Feldman, D. C. (2013). Feeling like it's time to retire: A fit perspective on early retirement decisions. In M. Wang (Ed.), *The Oxford Handbook of Retirement* (pp. 280–292). New York: Oxford University Press.
- Finkelstein, L. M. (2015). Older workers, stereotypes, and discrimination in the context of the employment relationship. In P. M. Bal, D. T. A. M. Kooij, & D. M. Rousseau (Eds.), *Aging Workers and the Employee-Employer Relationship* (pp. 13–32). Cham: Springer International Publishing.
- Fraccaroli, F., & Deller, J. (2015). Work, aging, and retirement in Europe: Introduction to the special issue. *Journal of Work, Aging and Retirement*, 1, 237–242. doi:10.1093/workar/wav017
- Francis-Smythe, J., & Robertson, I. (1999). Time-related individual differences. *Time & Society*, 8, 273–292. doi:10.1177/0961463X99008002004
- Frese, M., & Fay, D. (2001). Personal initiative: An active performance concept for work in the 21st century. *Research in Organizational Behavior*, 23, 133–187. doi:10.1016/S0191-3085(01)23005-6
- Freund, A. M., & Baltes, P. B. (2002). Life-management strategies of selection, optimization and compensation: Measurement by self-report and construct validity. *Journal of*

Personality and Social Psychology, 82, 642–662. doi:10.1037//0022-3514.82.4.642

Furunes, T., & Mykletun, R. J. (2010). Age discrimination in the workplace: Validation of the Nordic age discrimination scale (NADS). *Scandinavian Journal of Psychology*, 51, 23–30. doi:10.1111/j.1467-9450.2009.00738.x

Garstka, T. A., Schmitt, M. T., Branscombe, N. R., & Hummert, M. L. (2004). How young and older adults differ in their responses to perceived age discrimination. *Psychology and Aging*, 19, 326–335. doi:10.1037/0882-7974.19.2.326

Gevers, J. M. P., Rutte, C. G., & van Eerde, W. (2006). Meeting deadlines in work groups: Implicit and explicit mechanisms. *Applied Psychology*, 55, 52–72. doi:10.1111/j.1464-0597.2006.00228.x

Gold, J. E., Park, J., & Punnett, L. (2006). Work routinization and implications for ergonomic exposure assessment. *Ergonomics*, 49, 12–27. doi:10.1080/00140130500356643

Goldman, B. M., Gutek, B. A., Stein, J. H., & Lewis, K. (2006). Employment discrimination in organizations: Antecedents and consequences. *Journal of Management*, 32, 786–830. doi:10.1177/0149206306293544

Goldman, B. M., Slaughter, J. E., Schmit, M. J., Wiley, J. W., & Brooks, S. M. (2008). Perceptions of discrimination: A multiple needs model perspective. *Journal of Management*, 34, 952–977. JOUR. doi:10.1177/0149206308318613

Goodman, J. S., & Blum, T. C. (1996). Assessing the non-random sampling effects of subject attrition in longitudinal research. *Journal of Management*, 22, 627–652. doi:10.1016/S0149-2063(96)90027-6

Grant, A. M., & Ashford, S. J. (2008). The dynamics of proactivity at work. *Research in*

Organizational Behavior, 28, 3–34. doi:10.1016/j.riob.2008.04.002

Greller, M. M., & Stroh, L. K. (2004). Making the most of “late-career” for employers and workers themselves: Becoming elders not relics. *Organizational Dynamics*, 33, 202–214. doi:10.1016/j.orgdyn.2004.01.007

Griffin, B. (2015). Promoting the work adjustment of late-career employees. In P. J. Hartung, M. L. Savickas, & W. B. Walsh (Eds.), *APA Handbook of Career Intervention* (Vol. 2, pp. 439–431). American Psychological Association.

Griffin, B., Bayl-Smith, P., & Barbour, J. (2016). Age discrimination and older workers. In T. D. Nelson (Ed.), *Ageism: Stereotyping and Prejudice Against Older Persons* (2nd ed.). Cambridge, MA: MIT Press.

Griffin, B., Bayl-Smith, P. H., & Hesketh, B. (2016). The longitudinal effects of perceived age discrimination on the job satisfaction and work withdrawal of older employees. *Work, Aging and Retirement*, 2, 415–427. doi:10.1093/workar/waw014

Griffin, B., & Hesketh, B. (2003). Adaptable behaviours for successful work and career adjustment. *Australian Journal of Psychology*, 55, 65–73. doi:10.1080/00049530412331312914

Griffin, M. A., Neal, A., & Parker, S. K. (2007). A new model of work role performance: Positive behaviour in uncertain and interdependent contexts. *Academy of Management Journal*, 50, 327–347. doi:10.5465/AMJ.2007.24634438

Hakanen, J. J., Bakker, A. B., & Schaufeli, W. B. (2006). Burnout and work engagement among teachers. *Journal of School Psychology*, 43, 495–513. doi:10.1016/j.jsp.2005.11.001

Hakanen, J. J., Perhoniemi, R., & Toppinen-Tanner, S. (2008). Positive gain spirals at work:

From job resources to work engagement, personal initiative and work-unit

innovativeness. *Journal of Vocational Behavior*, 73, 78–91.

doi:10.1016/j.jvb.2008.01.003

Hall, D. T. (1996). Protean careers of the 21st century. *Academy of Management*

Perspectives, 10, 8–16. doi:10.5465/AME.1996.3145315

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process*

analysis: A regression-based approach. New York: Guilford Press.

Hecht, T. D., & Allen, N. J. (2005). Exploring links between polychronicity and well-being

from the perspective of person–job fit: Does it matter if you prefer to do only one thing

at a time? *Organizational Behavior and Human Decision Processes*, 98, 155–178.

doi:10.1016/j.obhdp.2005.07.004

Heckhausen, J., & Schulz, R. (1995). A life-span theory of control. *Psychological Review*,

102, 284–304. doi:10.1037/0033-295X.102.2.284

Henry, H., Zacher, H., & Desmette, D. (2015). Reducing age bias and turnover intentions by

enhancing intergenerational contact quality in the workplace: The role of opportunities

for generativity and development. *Work, Aging and Retirement*, 1, 243–253.

doi:10.1093/workar/wav005

Henson, R. K. (2006). Use of exploratory factor analysis in published research common

errors and some comment on improved practice. *Educational and Psychological*

Measurement, 66, 393–416. doi:10.1177/0013164405282485

Hesketh, B. (1995). Personality and adjustment styles: A theory of work adjustment approach

to career enhancing strategies. *Journal of Vocational Behavior*, 46, 274–282.

doi:10.1006/jvbe.1995.1020

Hesketh, B., & Griffin, B. (2005). Work Adjustment. In W. B. Walsh & M. L. Savickas (Eds.), *Handbook of Vocational Psychology: Theory, Research and Practice* (3rd ed., pp. 245–266). Mahwah: Lawrence Erlbaum Associates, Publishers.

Hesketh, B., Griffin, B., Dawis, R., & Bayl-Smith, P. H. (2015). Extensions to the dynamic aspects of the retirement transition and adjustment framework (RTAF): Adjustment behaviors, work styles, and identity. *Work, Aging and Retirement, 1*, 79–91.
doi:10.1093/workar/wau004

Hesketh, B., Griffin, B., & Loh, V. (2011). A future-oriented Retirement Transition Adjustment Framework. *Journal of Vocational Behavior, 79*, 303–314.
doi:10.1016/j.jvb.2011.03.008

Hobfoll, S. E. (1989). Conservation of resources. A new attempt at conceptualizing stress. *The American Psychologist, 44*, 513–524. doi:10.1037/0003-066X.44.3.513

Hoffman, B. J., & Woehr, D. J. (2006). A quantitative review of the relationship between person–organization fit and behavioral outcomes. *Journal of Vocational Behavior, 68*, 389–399. doi:10.1016/j.jvb.2005.08.003

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*, 1–55. doi:10.1080/10705519909540118

Ilmarinen, J. E. (2001). Aging workers. *Occupational and Environmental Medicine, 58*, 546–546. doi:10.1136/oem.58.8.546

Jansen, K. J., & Kristof-Brown, A. L. (2005). Marching to the beat of a different drummer:

Examining the impact of pacing congruence. *Organizational Behavior and Human Decision Processes*, 97, 93–105. doi:10.1016/j.obhdp.2005.03.005

Jansen, K. J., & Kristof-Brown, A. L. (2006). Toward a multidimensional theory of person-environment fit. *Journal of Managerial Issues*, 18, 193–212.

Jansen, K. J., & Shipp, A. J. (2013). A review and agenda for incorporating time in fit research. In A. L. Kristof-Brown & J. Billsberry (Eds.), *Organizational Fit: Key Issues and New Directions* (pp. 195–221). Chichester: John Wiley & Sons, Ltd.

Kanfer, R., & Ackerman, P. L. (2004). Aging, adult development, and work motivation. *Academy of Management Review*, 29, 440–458. doi:10.5465/AMR.2004.13670969

Kanfer, R., & Ackerman, P. L. (2008). Aging and work motivation. In C. Wankel (Ed.), *21st Century Management: A Reference Handbook 21st century management: A reference handbook (Vol 2)* (pp. 160–170). Los Angeles (CA): SAGE Publications, Inc.

Kaufman, C. F., Lane, P. M., & Lindquist, J. D. (1991). Time congruity in the organization: A proposed quality-of-life framework. *Journal of Business and Psychology*, 6, 79–106. doi:10.1007/BF01013686

Kenny, G. P., Yardley, J. E., Martineau, L., & Jay, O. (2008). Physical work capacity in older adults: Implications for the aging worker. *American Journal of Industrial Medicine*, 51, 610–625. doi:10.1002/ajim.20600

Kooij, D. T. A. M. (2015). Successful aging at work: The active role of employees. *Work, Aging and Retirement*, 1, 309–319. doi:10.1093/workar/wav018

Kooij, D. T. A. M., Lange, A. De, Jansen, P., & Dijkers, J. (2008). Older workers' motivation to continue to work: Five meanings of age: A conceptual review. *Journal of*

Managerial Psychology, 23, 364–394. doi:10.1108/02683940810869015

Kooij, D. T. A. M., & van de Voorde, K. (2015). Strategic HRM for older workers. In P. M. Bal, D. T. A. M. Kooij, & M. Rousseau, Denise (Eds.), *Aging Workers and the Employee-Employer Relationship* (pp. 57–72). Cham: Springer International Publishing.

Kristof, A. L. (1996). Person-organization fit: An integrative review of its conceptualizations, measurement, and implications. *Personnel Psychology*, 49, 1–49. doi:10.1111/j.1744-6570.1996.tb01790.x

Kristof-Brown, A. L., & Guay, R. P. (2011). Person-Environment fit. In S. Zedeck (Ed.), *APA Handbook of Industrial and Organizational Psychology* (Vol 3, pp. 3–50). Washington, DC: American Psychological Association. doi:10.1037/12171-001

Kristof-Brown, A. L., & Jansen, K. J. (2007). Issues of person-organization fit. In C. Ostroff & T. A. Judge (Eds.), *Perspectives on Organizational Fit* (pp. 123–154). Mahwah: Taylor & Francis Group, LLC.

Kristof-Brown, A. L., Zimmerman, R. D., & Johnson, E. C. (2005). Consequences of individuals' fit at work: A meta-analysis of person-job, person-organization, person-group, and person-supervisor fit. *Personnel Psychology*, 58, 281–342.

Kunze, F., Boehm, S. A., & Bruch, H. (2011). Age diversity, age discrimination climate and performance consequences-a cross organizational study. *Journal of Organizational Behavior*, 32, 264–290. doi:10.1002/job.698

Kunze, F., Boehm, S. A., & Bruch, H. (2013). Organizational performance consequences of age diversity: Inspecting the role of diversity-friendly HR policies and top managers' negative age stereotypes. *Journal of Management Studies*, 50, 413–442.
doi:10.1111/joms.12016

- Landy, F. J., Rastegary, H., Thayer, J., & Colvin, C. (1991). Time urgency: The construct and its measurement. *Journal of Applied Psychology*, 76, 644–657. doi:10.1037/0021-9010.76.5.644
- Lawson, L. (1993). Theory of work adjustment personality constructs. *Journal of Vocational Behavior*, 43, 46–57. doi:10.1006/jvbe.1993.1029
- Lazarus, R. S., & Folkman, S. (1984). *Stress, Appraisal, and Coping*. New York: Springer Publishing Company, Inc.
- Lim, Y. M., & Seers, A. (1993). Time dimensions of work: Relationships with perceived organizational performance. *Journal of Business and Psychology*, 8, 91–102. doi:10.1007/BF02230395
- Little, T. D., Preacher, K. J., Selig, J. P., & Card, N. A. (2007). New developments in latent variable panel analyses of longitudinal data. *International Journal of Behavioral Development*, 31, 357–365. doi:10.1177/0165025407077757
- Matsunaga, M. (2011). How to factor-analyze your data right: Do's, don'ts, and how-to's. *International Journal of Psychological Research*, 3, 97–110.
- McCann, R., & Giles, H. (2002). Ageism in the workplace: A communication perspective. In T. D. Nelson (Ed.), *Ageism: Stereotyping and Prejudice against Older Persons* (1st ed., pp. 163–199). Cambridge, MA: MIT Press.
- McCrae, R. R., & Costa, P. T. J. (2008). The five-factor theory of personality. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of Personality: Theory and Research* (3rd ed., pp. 159–181). New York: The Guilford Press.
- Menard, S. (2011). The purposes of longitudinal research. In *Longitudinal Research* (pp. 4–

24). Thousand Oaks: SAGE Publications, Inc. doi:10.4135/9781412984867.n2

Meurs, J. A., & Perrewe, P. L. (2011). Cognitive activation theory of stress: An integrative theoretical approach to work stress. *Journal of Management*. doi:10.1177/0149206310387303

Mohammed, S., & Nadkarni, S. (2011). Temporal diversity and team performance: The moderating role of team temporal leadership. *Academy of Management Journal*, 54, 489–508. doi:10.5465/AMJ.2011.61967991

Moosbrugger, H., Schermelleh-Engel, K., Kelava, A., & Klein, A. G. (2009). Testing multiple nonlinear effects in structural equation modeling: A comparison of alternative estimation approaches. In T. Teo & M. S. Khine (Eds.), *Structural Equation Modeling in Educational Research: Concepts and Applications* (pp. 103–136). Rotterdam: Sense Publishers.

Muthén, L. K., & Muthén, B. O. (2010). *MPlus: Statistical Analysis with Latent Variables User's Guide*. Retrieved from <https://www.statmodel.com/download/usersguide/MplusUsersGuidev6.pdf>

Ng, T. W. H., & Feldman, D. C. (2009). Age, work experience, and the psychological contract. *Journal of Organizational Behavior*, 30, 1053–1075. doi:10.1002/job.599

Ng, T. W. H., & Feldman, D. C. (2013). How do within-person changes due to aging affect job performance? *Journal of Vocational Behavior*, 83, 500–513. doi:10.1016/j.jvb.2013.07.007

Ouwehand, C., de Ridder, D. T. D., & Bensing, J. M. (2007). A review of successful aging models: Proposing proactive coping as an important additional strategy. *Clinical Psychology Review*, 27, 873–884. doi:10.1016/j.cpr.2006.11.003

- Parker, S. K., Bindl, U. K., & Strauss, K. (2010). Making things happen: A model of proactive motivation. *Journal of Management*, 36, 827–856.
doi:10.1177/0149206310363732
- Parker, S. K., & Collins, C. G. (2010). Taking stock: Integrating and differentiating multiple proactive behaviors. *Journal of Management*, 36, 633–662.
doi:10.1177/0149206308321554
- Perry, E. L., Dokko, G., & Golom, F. D. (2012). The aging worker and person-environment fit. In J. W. Hedge & W. C. Borman (Eds.), *The Oxford Handbook of Work and Aging* (pp. 187–212). New York: Oxford University Press. Inc.
- Ployhart, R. E., & Vandenberg, R. J. (2010). Longitudinal research: The theory, design, and analysis of change. *Journal of Management*, 36, 94–120.
doi:10.1177/0149206309352110
- Podsakoff, P. M., MacKenzie, S. B., Lee, J., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *The Journal of Applied Psychology*, 88, 879–903. doi:10.1037/0021-9010.88.5.879
- Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology*, 63, 539–569. doi:10.1146/annurev-psych-120710-100452
- Posthuma, R. A., & Campion, M. A. (2009). Age stereotypes in the workplace: Common stereotypes, moderators, and future research directions. *Journal of Management*, 35, 158–188. doi:10.1177/0149206308318617
- Productivity Commission. (2013). *An Ageing Australia: Preparing for the Future*.

Commission Research Paper, Canberra. Retrieved from

<http://www.pc.gov.au/research/completed/ageing-australia/ageing-australia.pdf>

Pruchno, R. A., Wilson-Genderson, M., Rose, M., & Cartwright, F. (2010). Successful aging: Early influences and contemporary characteristics. *The Gerontologist*, 50, 821–833.
doi:10.1093/geront/gnq041

Pulakos, E. D., Arad, S., Donovan, M. A., & Plamondon, K. E. (2000). Adaptability in the workplace: Development of a taxonomy of adaptive performance. *Journal of Applied Psychology*, 85, 612–624. doi:10.1037//0021-9010.85.4.612

Pulakos, E. D., Dorsey, D. W., & White, S. S. (2006). Adaptability in the workplace: selecting an adaptive workforce. In C. S. Burke, L. G. Pierce, & E. Salas (Eds.), *Understanding adaptability: A prerequisite for effective performance within complex environments* (pp. 41–71). Oxford: Elsevier Ltd.

Pulakos, E. D., Schmitt, N., Dorsey, D. W., Arad, S., Borman, W. C., & Hedge, J. W. (2002). Predicting adaptive performance: Further tests of a model of adaptability. *Human Performance*, 15, 299–323. doi:10.1207/S15327043HUP1504_01

Rappaport, A., Bancroft, E., & Okum, L. (2003). The aging workforce raises new talent management issues for employers. *Journal of Organizational Excellence*, 23, 55–66.
doi:10.1002/npr.10101

Rottinghaus, P. J., & Van Esbroeck, R. (2011). Improving person-environment fit and self-knowledge. In P. J. Hartung & L. M. Subich (Eds.), *Developing self in work and career: Concepts, cases, and contexts* (pp. 35–52). Washington: American Psychological Association.

Ryff, C. D. (1989). Beyond Ponce de Leon and life satisfaction: New directions in quest of

successful ageing. *International Journal of Behavioral Development*, 12, 35–55.

doi:10.1177/016502548901200102

Saks, A. M., & Ashforth, B. E. (1997). A longitudinal investigation of the relationships between job information sources, applicant perceptions of fit, and work outcomes.

Personnel Psychology, 50, 395–426. doi:10.1111/j.1744-6570.1997.tb00913.x

Salthouse, T. (2012). Consequences of age-related cognitive declines. *Annual Review of Psychology*, 63, 201–226. doi:10.1146/annurev-psych-120710-100328

Saucier, G. (1994). Mini-markers: A brief version of Goldberg's unipolar big-five markers.

Journal of Personality Assessment, 63, 506–516. doi:10.1207/s15327752jpa6303_8

Savickas, M. L., Nota, L., Rossier, J., Dauwalder, J., Duarte, M. E., Guichard, J., ... van

Vianen, A. E. M. (2009). Life designing: A paradigm for career construction in the 21st century. *Journal of Vocational Behavior*, 75, 239–250. doi:10.1016/j.jvb.2009.04.004

Schalk, R., & Desmette, D. (2015). Intentions to continue working and its predictors. In P. M.

Bal, D. T. A. M. Kooij, & D. M. Rousseau (Eds.), *Aging Workers and the Employee-Employer Relationship* (pp. 187–202). Cham: Springer International Publishing.

Schaufeli, W. B., & Bakker, A. B. (2006). The measurement of work engagement with a short questionnaire: A cross-national study. *Educational and Psychological*

Measurement, 66, 701–716. doi:10.1177/0013164405282471

Schaufeli, W. B., Salanova, M., Bakker, A. B., & Gonzales-Roma, V. (2002). The

measurement of engagement and burnout : A two sample confirmatory factor analytic approach. *Journal of Happiness Studies*, 3, 71–92. doi:10.1023/A:1015630930326

Schriber, J. B., & Gutek, B. A. (1987). Some time dimensions of work: Measurement of an

underlying aspect of organization culture. *Journal of Applied Psychology*, 72, 642–650.

doi:10.1037//0021-9010.72.4.642

Schroeder, B., MacDonald, J., & Shamian, J. (2011). Older workers with caregiving responsibilities: A Canadian perspective on corporate caring. *Ageing International*, 37, 39–56. doi:10.1007/s12126-011-9134-z

Shipp, A. J., & Jansen, K. J. (2011). Reinterpreting time in fit theory: Crafting and recrafting narratives of fit in medias res. *Academy of Management Review*, 36, 76–101.

doi:10.5465/AMR.2011.55662565

Shore, L. M., & Goldberg, C. B. (2005). Age discrimination in the workplace. In R. L. Dipboye & A. Colella (Eds.), *Discrimination at Work: The Psychological and Organizational Bases* (pp. 203–225). Mahwah: Lawrence Erlbaum Associates, Publishers.

Snape, E., & Redman, T. (2003). Too old or too young? The impact of perceived age discrimination. *Human Resource Management Journal*, 13, 78–89. doi:10.1111/j.1748-8583.2003.tb00085.x

Sonnentag, S. (2012). Time in organizational research: Catching up on a long neglected topic in order to improve theory. *Organizational Psychology Review*, 2, 361–368.

doi:10.1177/2041386612442079

Steele, C. M. (1997). A threat in the air: How stereotypes shape intellectual identity and performance. *American Psychologist*, 52, 613–629. doi:10.1037/0003-066X.52.6.613

Strack, R., Baier, J., & Fahlander, A. (2008). Managing demographic risk. *Harvard Business Review*, 86, 119–128. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/18314640>

- Szinovacz, M. E. (2011). Introduction: The aging workforce: Challenges for societies, employers, and older workers. *Journal of Aging & Social Policy*, 23, 95–100.
doi:10.1080/08959420.2011.555185
- Tak, J. (2011). Relationships between various person–environment fit types and employee withdrawal behavior: A longitudinal study. *Journal of Vocational Behavior*, 78, 315–320. doi:10.1016/j.jvb.2010.11.006
- Thomas, J. P., Whitman, D. S., & Viswesvaran, C. (2010). Employee proactivity in organizations: A comparative meta-analysis of emergent proactive constructs. *Journal of Occupational and Organizational Psychology*, 83, 275–300.
doi:10.1348/096317910X502359
- Tinsley, D. J. (1993). Extensions, elaborations, and construct validation of the Theory of Work Adjustment. *Journal of Vocational Behavior*, 43, 67–74.
doi:10.1006/jvbe.1993.1031
- Tuomi, K., Ilmarinen, J., Jahkola, A., Katajarinne, L., & Tulkki, A. (1998). *Work Ability Index* (2nd revise). Helsinki: Finish Institute of Occupational Health.
- Van Dyne, L., & LePine, J. A. (1998). Helping and voice extra-role behaviors: Evidence of construct and predictive validity. *Academy of Management Journal*, 41, 108–119.
doi:10.2307/256902
- van Eerde, W. (2003). A meta-analytically derived nomological network of procrastination. *Personality and Individual Differences*, 35, 1401–1418. doi:10.1016/S0191-8869(02)00358-6
- Van Eerde, W. (2003). Procrastination at work and time management training. *The Journal of Psychology*, 137, 421–34. doi:10.1080/00223980309600625

- van Solinge, H., & Henkens, K. (2007). Involuntary retirement: The role of restrictive circumstances, timing, and social embeddedness. *The Journals of Gerontology Series B: Social Sciences*, 62, S295–S303. doi:10.1093/geronb/62.5.S295
- Verquer, M. L., Beehr, T. a, & Wagner, S. H. (2003). A meta-analysis of relations between person–organization fit and work attitudes. *Journal of Vocational Behavior*, 63, 473–489. doi:10.1016/S0001-8791(02)00036-2
- Von Nordheim, F. (2003). EU policies in support of Member State efforts to retain, reinforce, and re-integrate older workers in employment. In H. Buck & B. Dworschak (Eds.), *Ageing and work in Europe: Strategies at company level and public policies in selected European countries* (pp. 9–26). Stuttgart: Federal Ministry of Education and Research. Retrieved from http://www.demotrans.de/documents/BR_DE_BR15.pdf
- Wang, J., & Wang, X. (2012). *Structural Equation Modeling: Applications Using Mplus*. Chichester: Higher Education Press.
- Wang, M., Olson, D. A., & Shultz, K. S. (2013). *Mid and Late Career Issues: An Integrative Perspective*. New York: Taylor & Francis, LLC.
- Wrzesniewski, A., & Dutton, J. E. (2001). Crafting a job: Revisioning employees as active crafters of their work. *Academy of Management Review*, 26, 179–201. doi:10.5465/AMR.2001.4378011
- Yankelevich, M., Broadfoot, A., Gillespie, J. Z., Gillespie, M. A., & Guidroz, A. (2012). General job stress: A unidimensional measure and its non-linear relations with outcome variables. *Stress and Health*, 28, 137–148. doi:10.1002/smi.1413
- Yeo, G. B., & Neal, A. (2004). A multilevel analysis of effort, practice, and performance: Effects of ability, conscientiousness, and goal orientation. *The Journal of Applied*

Psychology, 89, 231–247. doi:10.1037/0021-9010.89.2.231

Zacher, H. (2014). Successful Aging at Work. *Work, Aging and Retirement*, 1, 4–25.

doi:10.1093/workar/wau006

Zacher, H., & Griffin, B. (2015). Work, aging, and retirement in Australia: Introduction to the special issue. *Work, Aging and Retirement*, 1, 129–132. doi:10.1093/workar/wau011

Zaniboni, S. (2015). The interaction between older workers' personal resources and perceived age discrimination affects the desired retirement age and the expected adjustment. *Work, Aging and Retirement*, 1, 266–273. doi:10.1093/workar/wav010

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APPENDIX

This thesis is supplemented by two articles located in Appendix 1 and Appendix 2.

Appendix 1, *Extensions to the dynamic aspects of the Retirement Transition and Adjustment Framework (RTAF): Adjustment behaviors, work styles and identity*, expands the RTAF framework first developed by Hesketh, Griffin and Loh (2011). This model highlights the importance of person-environment fit in maintaining a successful late career and transition into retirement, with a strong emphasis upon the dynamic components necessary to maintain mutual correspondence. This article was important in establishing the importance of a long neglected concept in the theory of work adjustment (TWA), namely work styles. Work styles are identified as playing a crucial role in the maintenance of P-E fit; a notion drawn repeatedly throughout this thesis. The article was published in 2015 with *Work, Aging and Retirement*. My co-supervisor, Prof Beryl Hesketh, is the first author; my principal supervisor, A/Prof Barbara Griffin, is the second author; Prof Rene Dawis is the third author; and I am the fourth author of this paper. My contribution to the research paper was: Concept: 20%; Data Collection = N/A; Data Analysis = N/A; Writing = 20%; Total = 20%.

Appendix 2, *Age Discrimination and Older Workers* identifies age discrimination as a critical issue for late career workers. In particular, it provides background information for Chapter 4 which identifies the deleterious impact age discrimination has upon perceptions of P-E fit. This paper currently “in press” with MIT Press. My principal supervisor, A/Prof Barbara Griffin, is the first author; I am the second author; and, Dr Jennifer Barbour is the third author of this paper. My contribution to the research paper was: Concept: 33%; Data Collection = N/A; Data Analysis = N/A; Writing = 40%; Total = 37%.

Appendix 1: Extensions to the dynamic aspects of the Retirement Transition and Adjustment Framework (RTAF): Adjustment behaviors, work styles and identity

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Abstract

The article summarizes the Retirement Transition Adjustment Framework (RTAF; Hesketh, Griffin, & Loh, 2011) based on the Theory of Work Adjustment (TWA; Dawis & Lofquist, 1984) and extends it to include additional variables important in retirement transition, namely self-efficacy, identity, stereotyping and subjective life expectancy (SLE). The RTAF and TWA fit within the broad category of Person-Environment Fit theories. After describing both the structural and dynamic components of the RTAF, methodological issues are raised, and suggestions for future research and theory development outlined. The potential of the RTAF framework for use by individuals and counsellors in retirement transition planning and facilitating positive ageing is highlighted, as is its value to organizations in helping the adjustment processes of late career workers.

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Adjustment and fit are critical requirements for the survival of the human species, and for individuals within their own lifespan, including during late career and retirement transition. In this article we summarize and update the Retirement Transition and Adjustment Framework (RTAF; Hesketh, Griffin, & Loh, 2011) that is an application of Dawis and Lofquist's (1984) Theory of Work Adjustment (TWA) to late career development, retirement transition and adjustment in later life. The RTAF and TWA fall under the umbrella of Person-Environment fit and adjustment theories that tend to have their origins within the broader fields of individual differences, learning theory and developmental psychology. TWA and other P-E fit theories have a long history of application in vocational psychology and career development. More recently, concepts of fit between people and environments, jobs, or organizations (P-E, P-J and P-O fit) have been used in organizational behavior.

The field of career choice and development has a rich tradition of P-E fit and related theories. Parsons (1909) is acknowledged for having provided vocational guidance with a theoretical basis in its early years as a profession, emphasizing the need for increasing self-knowledge, obtaining good occupational information, and using true reasoning (decision-making) to link these two sets of facts. This P-E fit idea is also implicit in many subsequent theories, including that of Super (1953) who, in addition to the use of age-related stages of career development (adapted from the stage concepts in lifespan developmental psychology), highlighted the importance of implementing a self-concept, which requires knowledge about oneself (P) and about occupational opportunities (E), in order to achieve satisfactory outcomes. Holland's (1997) hexagonal model provided an innovative way of typing people and environments on six dimensions (Realistic, Investigative, Artistic, Social, Enterprising and Conventional), including their interactions, predicting that fit resulted in positive outcomes. In the Theory of Work Adjustment, Dawis and Lofquist (1994) added both specificity to the description of person and environment (e.g., separating those aspects of fit

that lead to satisfactory performance from those that lead to satisfaction), and a dynamic component, predicting when and how fit can be achieved. More recently the concept of protean careers (Hall, 2004) has shifted the focus to self-managed career adaptation and flexibility in response to changing work requirements and the types of career paths available. This shift fits well with the approaches needed in understanding the retirement transition process in an era when age is no longer the only trigger for retirement, and where self-defined success becomes relatively more important than objectively defined success.

Work adjustment, fit and protean career concepts accord with Selection, Optimization and Compensation (SOC) theory, a developmental meta-theory that has been applied to retirement transition (see Baltes & Rudolph, 2013). *Selection* in the SOC context addresses how individuals arrive at their goals, either by choosing them (*elective selection*) or by adapting them to accommodate the loss of resources (*loss-based selection*). *Optimization* covers goal attainment often through persistence, practice, and hard work. *Compensation* involves processes used to make up for losses in order to maintain progress toward goals. As will be demonstrated below, the dynamic adjustment component of TWA (Dawis, 2005; Dawis & Lofquist, 1984) offers an alternative and more detailed framework for describing and understanding many aspects of retirement transition and adjustment including Selection, Optimization and Compensation, while also providing a structure for organizing measurement of people and their environments during this process.

P-E fit concepts have been applied mainly in vocational psychology and career development but the plethora of approaches to measuring and applying P-E fit within organizational psychology cannot be ignored. Fortunately, Edwards, Cable, Williamson, Schurer and Shipp (2006) offer a useful way of summarizing the now extensive organizational behavior literature on fit into three major measurement approaches, namely atomistic, molecular and molar. In the *atomistic* approach, separate measures are obtained of

P and E, and these are then used to predict an outcome, directly, and with various linear and non-linear combinations. The *molecular* approach involves asking individuals if there is a perceived discrepancy between an attribute of the person and a commensurate attribute of the environment, and then examines the direct contributions of the person and environment as well as that of the perceived deficit or surplus. The *molar* approach covers studies that seek direct assessments of fit or similarity between P and E without measuring either independently.

Each of the three measurement approaches (atomistic, molecular and molar) can be applied to *needs-supplies fit* (extent to which the rewards supplied by the environment match the individual's needs, including goals, values, desires and expectations) and *demands-abilities fit* (extent to which an individual's abilities – KSA's – meet the environment's demands). Although we acknowledge the broadening of the measurement approaches to person-environment fit (P-E) and the applications to the group or organizational level, the focus of this article is on TWA and its application to late career, retirement transitions (including pre-retirement planning and part-time, bridge and voluntary work) and post retirement adjustment as highlighted in the RTAF. The RTAF model discussed more fully below can be thought of as atomistic (separate measure of P and E), and incorporating both needs-supplies fit and demands-abilities fit.

There are several reasons for choosing to focus on TWA and its application to late career transitions as outlined in the RTAF. First, the theory has a range of practical applications. Although the roots of TWA were in applications applied to vocational rehabilitation, especially after the Second World War, Eggerth (2008) reminds us that the influence of TWA is beyond vocational psychology, having been adopted by the USA government agencies responsible for public health and welfare, and by centers for disease control and job stress. In line with this, Lofquist and Dawis (1991) present a derivative of

TWA, namely Person Environment Correspondence (PEC) counselling, that can apply to marital and other areas of counselling. Second, RTAF includes both a structural component and a substantive dynamic component based on the control theory ideas implicit in TWA. The structural component provides for snapshot assessments of individuals and environments (allowing for the charting of change in individuals and organizations over the retirement transition). The dynamic component addresses how individuals and environments are triggered into initiating adjustment behaviors (actions aimed at changing the person and environment), the styles in which they do so, and how this feeds into outcomes such as satisfaction and performance. TWA was, in many respects, ahead of its time, and with more recent developments in longitudinal, hierarchical and within-person analyses, empirical tests of the dynamic aspects are now possible (Chan, 1998; Muthén & Muthén, 2000; Wang & Bodner, 2007; Wang, Sinclair, Zhou, & Sears, 2013). Third, although TWA is deceptively simple, it can be applied to individual adjustment behaviors as well as those activities undertaken by organizations (selection, training, human factors and organizational development) to foster positive outcomes for individuals and organizations. As such it provides a framework that can be used by organizations and individuals to facilitate late career development and retirement transition, and implement the change process. Fourth, it is interesting to reflect on the similarities of the outcomes described in RTAF and those of positive psychology, namely effective performance, satisfaction and well-being (see Eggerth, 2008) for a discussion relating to TWA). The ageing literature has adopted the positivity frame, with much focus on positive ageing. The depth of theory underlying TWA ensures that its application to late career development and all phases of retirement transition and ageing generally should help achieve the overarching aims of positive ageing. Fifth, and finally, TWA has its roots in learning theory, with concepts such as reinforcers in the environment. Learning, including social learning, is an integral component of any adjustment providing yet

another link to fundamental developmental and social learning processes including those required for retirement transition and adjustment.

The Retirement Transition Adjustment Framework

The next section describes the RTAF model, updates it with more recent research, and illustrates how this framework can accommodate a range of newer concepts and measures that have been applied to late career development, retirement transition and post retirement adjustment. The TWA originally described two components, a structural model and a set of dynamic processes (Hesketh & Griffin, 2005), both of which have been adopted and expanded in the RTAF (Hesketh et al., 2011) and further elaborated here as outlined in Figure 1. The structural model identifies a set of variables (Boxes 1 to 7) that together indicate the level of P-E fit and positive outcomes that exists at a single point in time. However, these variables are not necessarily stable and therefore Hesketh et al. (2011) argue that they should be assessed repeatedly in order to track the changing level of fit and outcomes across time. The dynamic component (Box 8) identifies the processes used to restore fit when change in the structural model results in a degree of misfit and poor outcomes. In this paper we include an additional set of factors such as self-efficacy, stereotypes and identity that influence the perception of self and environment (Box 9) and that in turn affect the functioning of the dynamic component in Box 8. Furthermore, in addition to this deliberate across-time approach to understanding P-E fit, the RTAF incorporates a time-related variable of significance to aging, namely Subjective Life Expectancy (SLE, Box 10), which provides a mental model of remaining years and is hypothesized as a motivator of the dynamic process.

Structural Model – Fit Predictors

The RTAF structure includes both demands-abilities fit (Boxes 1 and 2 in Figure 1) and needs-supplies fit (Boxes 3 and 4). People are therefore described in terms of their abilities (Box 1) and their needs and associated higher order values (Box 3). Integral to the

RTAF, and TWA before it, is the commensurate measurement of the environment in terms of its ability requirements (Box 2) and reinforcers supplied (Box 4). These two environmental components are shaded grey in Figure 1.

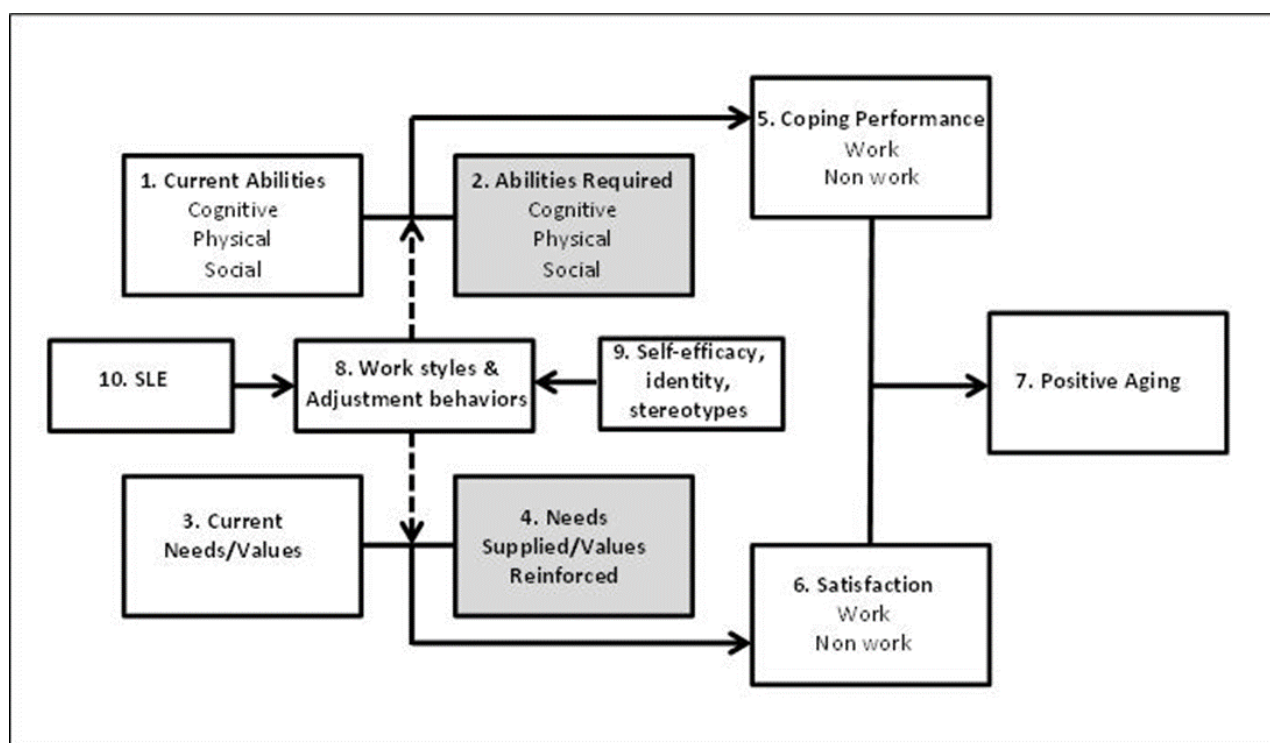


Figure 1. The updated Retirement Transition Adjustment Framework (RTAF). The grey shaded boxes represent assessments of the environments.

Dawis and Lofquist (1984) describe ways of assessing attributes in each of the four boxes, but alternative measures can be substituted. In the RTAF we have chosen to focus on current cognitive, physical and social abilities, although the broader conceptualization of Knowledge, Skills and Abilities (KSAs) could be used. The demands-abilities component of fit is often a major focus for employers, who through selection and training aim to ensure that they have employees able to provide abilities (or KSAs) necessary for the demands of the job and work organization.

With respect to the needs-supplies fit, the value dimensions outlined in TWA (namely Achievement, Autonomy, Status, Altruism, Safety and Comfort) have been widely used, and can apply within the RTAF. These values derive from more specific lower order needs. Dawis (1991) explains how the six TWA values can form contrasts. Achievement, for example, contrasts with comfort as one cannot achieve challenging goals without some stress or discomfort; while comfort (freedom from stress) may mean sacrificing one's ambitions. Altruism contrasts with status, with the focus of altruism on others' welfare, while status focuses on self-advancement and self-promotion. Autonomy contrasts with safety, with an autonomous person depending on the self not the environment; while someone seeking safety needs an environment with order and structure. These contrasting values highlight the importance of prioritizing values as not all needs can be met to the same extent.

Within the TWA tradition, the P and E structural components were thought to be relatively stable constructs (Dawis, 2005) and indeed, much of the broader P-E fit research presumes a degree of stability (Caldwell, Herold, & Fedor, 2004). Nevertheless, more recent study of the changes associated with age indicates that the late career and all phases of retirement transition and post retirement adjustment are times of potentially significant change (Wang, Olson, & Schultz, 2013). Change in abilities – (Box 1) may relate to memory, hearing and sight, and physical capacities. Needs, and the associated higher order values (Box 3), may become less expansive (Carstensen, Fung, & Charles, 2003) with a decrease in the importance of achievement, for example, as one transitions from late career to post retirement.

Environments may also change as has been demonstrated in many fields, particularly as the result of technological change in the work place and home. Interest lies in the adaptability of the abilities supplied by individuals during their working life and late career. Adaptability is equally important during retirement transition when individuals may switch

from full time work to part-time employment, and possibly eventually to voluntary work and post retirement paid work all of which have different requirements and rewards.

The non-static nature of individuals and environments (Boxes 1 – 4 in Figure 1) calls for an approach that is able to provide multiple snap shots of the structural component of the RTAF. This together with the inter-relatedness of several dimensions (e.g., the contrasting nature of values discussed above) points to the need for predictions about the extent to which fit on specific dimensions of both the needs-supplies and demands-abilities are of greater or lesser importance for outcomes rather than making assumptions that all fit is equally good (see Hesketh & Gardner, 1993). Some environmental attributes are normatively desirable, and hence one might expect that these would contribute to satisfaction directly with less importance placed on fit. Friendly colleagues in an environment would contribute directly to satisfaction for most people, and ‘fit’ may be less important. It is also possible that some individuals are naturally happier and more satisfied irrespective of the environment. Fit, however, is likely to be important where there is considerable variance in individual differences (e.g., preferences for physical activity), and in relation to this attribute, fit would be particularly important. We encourage future researchers to think about the attributes and measures that they use in Boxes 1 – 7, and take into account the extent to which linear direct relationships are theoretically likely to be found and when interacting effects of specific dimensions (fit) make sense. The growing literature on late career development and ageing should facilitate this process.

Investigations of P-E fit within the organizational sciences and vocational literature typically limit assessments of the environment to the work environment. More recently, as discussed above, levels of the work environment have been further specified, including a person’s fit with the job, the organization, and their career (Kristof-Brown & Jansen, 2007; Kristof-Brown, Jansen, & Colbert, 2002; Vogel & Feldman, 2009). However, the focus on

work environments is too narrow for the late career/retirement transition context where new patterns of retirement involve diverse configurations of paid work, voluntary work, and non-work involvement, including bridge employment and phased employment (Wang & Shultz, 2010) and where reinforcers and demands may come from any of these different environments, often at the same time. The RTAF therefore acknowledges the importance of fit across a variety of work, home and community environments. Unfortunately, research that simultaneously considers fit in multiple environments is lacking. Nor has there been any investigation of when or if one type of fit (even within the work domain) is likely to become more salient than other types (Ostroff, 2012). It will be important for future research on the RTAF to ascertain whether fit in one aspect of a person's life can compensate for lack of fit in another or whether a degree of fit with all the environments in which one engages is necessary for positive aging. The capacity of RTAF to incorporate multiple environments becomes particularly important when it is used as an aid to counselling and planning for late career development and retirement transition and adjustment.

As indicated, the RTAF has a particular focus on demands-abilities and needs-supplies fit, which Edwards and Shipp (2007) categorize as complementary fit (i.e., the characteristics that an individual or environment contributes help to address a void or deficit in the other). Muchinsky and Monahan (1987) also differentiated *supplementary fit* (i.e., a person adds characteristics that are similar to other individuals in a group or environment) from *complementary fit*. Although not separate components of the RTAF structural model, Hesketh et al. (2011) incorporate the concept of supplementary fit by proposing that an important additional aspect of a person's environment is their spouse or partner. Although there is some evidence that marital satisfaction and retirement adjustment is higher for individuals who are "in sync" with their partner in terms of retirement timing (Moen, Kim, & Hofmeister, 2001), it appears that generational effects are likely to influence how couples manage the timing of

their retirement transition (Moen, Huang, Plassmann, & Dentinger, 2006). The RTAF provides a theoretical framework for understanding the similarity effects of fit with one's partner in the various phases of planning retirement, decision making about bridge, part-time or voluntary work during retirement transition and in later stages of life. It can also guide efforts to counsel couples through the difficulties created by transitioning at different times and coping with the adjustment process (see below) between partners as they transition (Eggerth, 2008; Lofquist & Dawis, 1991).

Structural Model – Outcomes and Interactions

According to TWA, the outcomes of demands-abilities fit and needs-supplies fit are satisfactory performance and job satisfaction respectively, which together result in ongoing tenure within an organization (Dawis & Lofquist, 1984). The matching constructs in RTAF are coping performance (Box 5 in Figure 1), satisfaction in work and non-work environments (Box 6), and positive aging (Box 7). Coping performance includes outcomes other than job performance in the work environment such as health behaviors, retirement planning, and successful social interaction at home and in the community. Their inclusion broadens the literature that could be considered relevant to retirement, where traditionally the focus has been on job satisfaction and work performance (Hesketh et al., 2011). Positive aging reflects overall success in managing the aging process (Windsor, 2009), and by association can draw on the growing field of positive psychology.

Interestingly, the values used by TWA map neatly onto reinforcers that come from the environment (comfort and safety), other people (altruism and status) and the self (autonomy and achievement). These distinctions can be related to the theoretical literature on satisfaction and well-being. Deci and Ryan (2006) categorize well-being models into pleasure attainment and pain avoidance (hedonic), on the one hand, and meaning, self-actualization, and doing something worthwhile (eudemonic), on the other. Eggerth (2008) makes the point that TWA

dimensions cover both the hedonic and eudemonic features. The Minnesota Satisfaction Questionnaire (Dawis & Lofquist, 1984), which can capture overall satisfaction as well as intrinsic and extrinsic job satisfaction, supports this distinction.

Dawis (2005) suggests that the structural predictive model of TWA can be improved by the use of moderator variables: Satisfactoriness (i.e., the person is performing or coping in a satisfactory manner) on the effect of needs-supplies upon satisfaction; and satisfaction on the effect of demands-abilities on satisfactoriness. In Figure 1, this would mean that Box 5 moderates the fit between Boxes 3 and 4 as well as Box 6 moderating the fit between Boxes 1 and 2. Although it is often assumed that a satisfied worker would be a good performer, this does not necessarily follow in all circumstances (Fisher, 2003). The literature examining the link between satisfaction and performance highlights the complexity of the relationship which differs depending on whether analyses are cross-sectional or within person (Fisher, 2003) and the relevance of moderator variables (Schleicher, Watt, & Greguras, 2004). In examining the relationship, Schleicher et al. (2004) point to the importance of separating out dimensions of performance (e.g., task and contextual performance), and dimensions of attitudes such as satisfaction (e.g., affective and cognitive) when examining the satisfaction-performance relationship. The relationship between satisfaction and contextual performance is higher than that between satisfaction and task performance.

It is possible that there are non-linear relationships among these key variables. For example over-supply in the context of needs-supplies fit could lead to a degree of complacency with a negative impact on performance. Alternatively, very poor needs-supplies fit (where the environment under supplies what the person requires) and associated dissatisfaction is likely to increase withdrawal behavior and could distract attention from performance or attempts to activate adjustment behaviors. Perhaps moderate levels of needs-supplies fit enhances motivation to perform and cope.

The RTAF, in applying TWA to retirement transition, has a focus on more than job performance and job satisfaction, broadening the outcome variables to coping behavior, well-being and positive ageing, outcomes that are important as the work environment reduces in salience. There is evidence of a strong two-way link between overall positive affect/happiness (as distinct from specific job satisfaction) and a range of outcomes including performance, health and well-being (Lyubomirsky, King, & Diener, 2005). Good performance and coping behavior are likely to contribute to satisfaction and it would be rare to find a complete misfit in the demands-abilities area, coupled with a high level of need-supplies fit. However, these are issues that must await specific research and further theoretical development, and the field of late career development, and all phases of retirement transition and ageing provide a fertile set of opportunities to do so.

Dynamic Component

A fundamental assumption of TWA (and other P-E fit theories) is that people want to maintain correspondence with their environment (Dawis & Lofquist, 1984) and therefore adjustment behaviors are seen as the mechanism whereby a good fit is achieved or maintained by the person and environment interacting with each other in “mutual responsiveness” (Dawis, 1996, p. 79). Nevertheless, across the bulk of the not inconsiderable P-E fit literature, there is limited understanding and even less attention given to the dynamic nature of P-E fit (Kristof-Brown & Jansen, 2007). Moreover, P-E fit has typically been investigated during the early career phase (e.g., Cable & Parsons, 2001) when it is assumed to *improve* over time, for example, in the context of newcomer socialization. In contrast, the late career, retirement transition and post retirement are times when changes in both the person and the environment may well lead to *declining* fit over time (Feldman, 2013).

In TWA, the temporal aspects of person-environment interaction are referred to as *style* variables (Dawis & Lofquist, 1984), including both work styles and adjustment

behavior. Although either the person or the environment could conceivably respond with these different styles and behaviors, we limit this discussion to the person's actions.

Work styles. The work styles, celerity, pace, rhythm, and endurance, describe how individuals habitually act at work. These define the speed of initiating work behavior, the amount and pattern of effort habitually expended when working, and how long the individual will habitually persist in responding to a work demand. Table 1 describes the style variables in more detail. Within the RTAF, this set of style variables is hypothesized as also being relevant to managing demands in non-work environments, such as the home, voluntary work settings and the community.

Environments will differ in the styles that are best suited for success (Dawis & Lofquist, 1984). For example, the job environment of an air traffic controller will have a working pattern quite distinct from that of a university professor, given the fast paced activity of monitoring air traffic. Likewise, the styles best suited to the work and non-work environments of older workers/retirees may differ. Here, it is important to note that the correspondence between an individual's work style and their environment are quite distinct from the correspondence of demands and abilities discussed previously. Work style variables have an underlying time dimension in their definition and are distinct from demands and abilities; they describe dynamic processes rather than static states. That is, whereas demands-abilities fit describe at a set point the relationship between an individual's knowledge, skills and abilities (KSAs) and that required by their environment, correspondence between work styles and the environment describe the suitability of the way that these KSAs are enacted in that environment. Consequently, the correspondence between an individual's typical style and that required for their environment moderate the effect of fit on outcomes like satisfaction (Dawis, 2002, 2005). Such a situation could occur for example, if a new retiree's typical style of dealing with previous work environmental demands did not match the speed, effort, rhythm

Table 1

Description of Work Styles and Adjustment Styles

Work Style	Definition	Measure	Behavioral Indicators
Celerity	Habitual speed of initiating work behavior	Slow to fast	<i>Fast:</i> Completing assignments early, rashness, and mistakes often made in the pursuit to get things done quickly <i>Slow:</i> Methodical approach to work, seeming procrastination, and protracted responses.
Pace	Habitual levels of effort applied to working	Low to high	<i>High:</i> Always appears busy, continually engaged even during down-time.
Rhythm	Habitual patterns of effort applied to working	Steady, Cyclical or Erratic	<i>Steady:</i> Performs at the same level of effort, whether that (pace) is high or low. <i>Cyclical:</i> Demonstrates a regular pattern in their output of effort. <i>Erratic:</i> Shows no pattern or regularity of effort.
Endurance	Habitual lengths of time applied to work behavior	Short to Long	<i>Long:</i> Completion of long-term projects, long tenure, and enduring interests focused on the one thing (relationships, hobbies sports, etc.).
Adjustment Behavior	Definition	Measure	Behavioral Indicator
Flexibility	Tolerance of misfit with environment before initiating adjustment	Low to High	<i>High:</i> Unfazed by change or incongruent situations <i>Low:</i> Rapid engagement in adjustment behavior when change occurs
Proactive Adjustment	Behaviors aimed to increase fit by effecting change in the environment	Low to High	<i>High:</i> Seeking to change workplace policy, working conditions or compensation, requesting flexible employment conditions
Reactive Adjustment	Behaviors aimed to increase fit by effecting change in one's person	Low to High	<i>High:</i> Attending courses, adjusting interpersonal approach, changing expectations
Perseverance	The length of time one is willing to engage in proactive or reactive adjustment before deciding to give up	Short to Long	<i>Long:</i> Persisting in behavior despite lack of obvious improvement in situation

Note. Definitions from Dawis (2002) and Dawis and Lofquist (1984)

and endurance required in the retirement environment at home, in a voluntary work setting or in the community generally. This incongruent style would diminish the positive effects gained from fit on other levels (e.g., met needs for more time with family). Some support for this notion is provided by Jansen and Kristof-Brown (2005) who demonstrated that participants in synch with the rhythm of their work environment had increased job satisfaction, engaged in more helping behavior and experienced less job related stress.

Although not included in the original version of the RTAF (Hesketh et al., 2011), this latest version incorporates the work styles variables (Box 8 in Figure 1). In line with the TWA propositions, we hypothesize that in the face of a change in P or E in the various phases of late career, retirement transition and post retirement those whose habitual response style matches their current environmental demands will have higher adjustment. However, in the same way that the P and E structural variables can have direct effects on outcomes (Edwards, 1994), the work styles of P and E should also be measured to assess their direct effects.

Adjustment behaviors. The adjustment behavior variables, summarized in the lower half of Table 1, include flexibility, perseverance, activeness, and reactivity. These describe more specifically how individuals regulate misfit with their environment, in contrast to work styles that occur regardless of fit (Dawis, 1996). When a person perceives low levels of correspondence with the environment, he or she may at first tolerate a level of misfit before feeling the need to initiate adjustment behaviors. This is defined as the person's *flexibility*. Once initiated, the duration of time that a person will continue to engage in adjustment behavior before giving up is defined as the level of *perseverance*. Perseverance is conceived here as distinct from endurance, in that endurance refers to a person's typical working style while perseverance is focused upon the length of time committed to adjustment behaviors in particular.

The remaining two adjustment behavior variables describe the two broadest approaches that can be taken to reduce misfit. These are: 1) *Proactive adjustment* (called ‘activeness’ in the original TWA conceptualization) that occurs when individuals try to increase their fit with the environment by effecting change upon the environment (e.g. negotiating flexible work hours); and 2) *Reactive adjustment* that occurs when individuals try to increase fit with their environment through making changes to their roles as individuals (e.g., learning new skills). Examining the interactions among the adjustment behavior variables and the work styles can further enhance the dynamic aspects of the RTAF. For example, when an individual’s flexibility is expended, she or he will initiate proactive or reactive adjustment behaviors. These adjustment behaviors will then be enacted with particular levels of speed, effort, and rhythm, which will impact on the outcomes.

Action Regulation Theory (Frese & Zapf, 1994) may be relevant to these ideas. The theory places the individual at the center of managing transactions with the environment in order to achieve career goals. Action sequences include goals, information collection, planning, execution and feedback. Raabe, Frese, and Beehr (2007) examined the effect of an Action Regulation Theory-based intervention within a company on employee-active engagement in self-career management. The interventions resulted in increased self-knowledge, planning quality and goal commitment, with the increase in planning quality mediated through self-knowledge and goal commitment. These translated into increased career self-management behaviors and satisfaction with career progression. Although not directly related to the RTAF proactive and reactive adjustment, Action Regulation Theory in general, and the Raabe et al. paper (2007) results in particular, support the potential role of active engagement in managing transitions, and the role of environments in supporting this action, an issue highlighted below.

Dawis (1996) argues that the work style and adjustment behavior variables are relatively stable characteristics that have developed over time as people interact with their environments. We have grouped these in Box 8 in Figure 1. However, at least in terms of the adjustment behavior, research on proactive and reactive behavior (albeit outside the P-E fit literature) indicates that factors within the workplace can modify the extent to which a person engages in these behaviors (Parker, Williams, & Turner, 2006). The multiple environments available during retirement transition provide a rich stimulus to initiate new adjustment behaviors. Examples might be found in relation to physical activity, which is widely acknowledged as critical for successful ageing (Barnett, van Sluijs, & Ogilvie, 2012). During retirement transition, a person might reactively increase the importance of the need for physical activity, while proactively seeking out environments that prompt that activity (such as joining gyms or walking clubs). Interestingly, Potocnik and Sonnentag (2013) showed that non-work activity (e.g., volunteering, attending community and religious groups) was significantly related to increased well-being in retirees but not in their same-age counterparts who were still employed. The needs and interests of these two groups are likely to be different so whether or not such activity serves as a successful adjustment behavior is context and need dependent. Only one study (Lawson, 1993) has attempted to directly measure the style variables with the result that a significant gap exists in measurement and testing, despite their potential for explaining how misfit is managed over time.

Although not mentioned specifically in TWA, Fehr (2012, 2013) highlights the role of creativity in successful adjustment and retirement transition, arguing that creative people have a preference for novelty and have confidence in overcoming new challenges, and hence transition to retirement is likely to be easier.

Important questions remain about which of the adjustment behavior modes will be used in response to misfit that exceeds the level of tolerance (flexibility). Moving from full-

time to part-time employment or from paid work to no work or voluntary work can be thought of as a proactive (active) mode of adjustment, namely changing the environment. Trying to keep up with technological changes and new work demands in late career is an example of a reactive mode of adjustment. We suggest that a better understanding of perceived stereotypes and issues of identity, factors that also influence self assessments of KSAs and employer demands, may well play a part in the type of adjustment chosen (see Box 9), and that Subjective Life Expectancy (Box 10), a mental model of time remaining, is a motivator for these behavioral choices as well as goal setting and assessing the importance of values.

Factors Affecting Engagement in Adjustment Behaviors and Work Styles

According to TWA, lack of fit was in itself a motivator for engaging in adjustment behavior. However, what work style is adapted and what adjustment behaviors are chosen can depend upon broad questions beyond the perception of fit: “Can I do the behavior”? “Should I do the behavior”? “Am I free to do the behavior (or is the behavior an available option)?” The RTAF adds additional motivators of such behavior in the late-career/retirement transition phase drawing on social cognitive theory (Bandura, 1977) and socio-emotional selectivity theory (Carstensen et al., 2003). Box 9 includes perceptions of self-efficacy, identity and stereotyping. Although we recognize that these factors may influence an individual’s values and perceptions of abilities, and consequently perceptions of P-E fit, the current discussion focuses primarily upon the important role that self-efficacy, identity and stereotyping perform in influencing adjustment behaviors and work styles. We recognize that the self-concept and identity literature has a wide range of theories and models explaining how self-concepts influence behaviors, cognitions and emotions. It is probably possible to link any number of these theories to RTAF and discuss their unique contribution upon work styles and adjustment behavior. However, we have chosen to use possible selves and social identity theory/self-categorization theory as a demonstration of how identity is thought to shape work styles and

adjustment behaviors. Although implicit within TWA (Dawis, 1996, 2005), RTAF makes explicit the influence of these variables upon the dynamic component of the model by detailing their role in choosing and engaging adjustment behaviors. These choices, and indeed many related to retirement decisions generally are given focus by a mental model of years remaining, namely SLE.

Self-efficacy, Identity, and Stereotyping

Self-efficacy is conceived as a personal evaluation of one's capability of carrying out an action in order to achieve a particular outcome (Bandura, 1982). According to social cognitive theory (Bandura, 1977), this judgment is broken down into two separate components: The belief that one can successfully carry out the behavior (efficacy expectations); and the belief that the behavior will lead to the desired outcome (outcome expectations). Upon evaluation, both of these beliefs may motivate the individual towards engaging in goal directed behavior (positive evaluation), or may conversely cause the individual to lessen or even cease their efforts (negative evaluation). In the RTAF model, the adjustment behavior and work style adopted in the face of misfit will be determined partly by a person's level of self-efficacy, namely the extent of the belief in her or his ability to engage successfully in an adjustment behavior or work style and the level of expectation that what is chosen will be efficacious. The significance of self-efficacy beliefs generally means that these may also influence perceptions of fit.

It should be noted that self-efficacy is not a stable trait-like characteristic, but rather is a dynamic component that is influenced by feedback from such sources as behavioral outcomes, experiences with the environment, interactions with significant others, social modelling and emotional arousal (Bandura, 1977). Feedback and social and other learning processes are a fundamental part of the original TWA (Dawis & Lofquist, 1984). These learning processes are particularly important during retirement transition as they shape

evolving needs and values, and the associated expectations for reinforcers in the environments. For example, someone looking to successfully retire might attend a retirement transition seminar and be informed of realistic retirement expectations, given financial advice, and hear from similar others who have retired successfully. We would expect this person's efficacy expectations to increase by acquiring new skills, self-understanding and knowledge about a range of opportunities, and by recognizing what reactive and/or proactive behaviors will lead to a successful transition. Furthermore, this increase in efficacy may lead to modifications in levels of celerity, effort, rhythm and endurance. Not only may this person better understand what work style is required by the situation and therefore adapt accordingly, he or she may also have a stronger belief that effort across time will result in achieving goals successfully. Self-efficacy then directly relates to the questions: "Can I do the behavior required to maintain or increase fit?" and "What general and adaptive work style is necessary to achieve this goal?"

However, which behaviors are ultimately pursued will not necessarily reflect what is most effective, for invariably individuals construe themselves and their environment imperfectly (Edwards, Caplan, & Van Harrison, 1998). Different individuals will interpret inputs and feedback differently according to their individual characteristics; they do so through cognitive lenses derived from their experiences and reflections. P-E fit theories have long recognized the importance of understanding the distinction between objective and subjective persons and environments (Kristof-Brown, Zimmerman, & Johnson, 2005). An objective person and environment can be defined as the attributes of the individual and the physical and social aspects of the environment as they are consensually construed. On the other hand, subjective persons and environments refer to the individual's perceptions through a personal interpretative layer that may include self-efficacious beliefs. The discrepancy between objective (consensually observed) and subjective (self perceived) fit is potentially of

interest in its own right. Furthermore, such discrepancies may in turn influence self-efficacy assessments of adjustment behaviors, affecting their effectiveness.

According to Markus and Herzog (1992), it is the individual's self-concept that provides significance and organization to perceptions, cognitions and actions. Therefore, we should expect people's self-concepts to influence perceptions of fit as well as their ongoing approach to adaptive behaviors. Within RTAF, self-concepts or identity relate to the question, "Should I do this behavior?" or more specifically, "Does this behavior cohere with my identity or self-concept?" Several theories explain how self-concepts and identities influence behavior, cognition and emotion. In this paper we consider possible selves and social identity theory/self-categorization theory as a demonstration of how identity could shape the choice of work styles and adjustment behaviors.

According to Markus and Nurius (1986), an individual's identity is conceived not only in the present, but also as future self-identities that allow one to consider who one might come to be – both hoped for and feared. Possible selves express one's goals, aspirations and fears, and consequently motivate action towards hoped for selves and away from feared selves.

Whether or not a person will spend time and resources in order to achieve increased fit may depend upon what future selves are thought to be achievable, what future selves are hoped for or feared, and how close and salient these identities are (Hoyle & Sherrill, 2006; Strauss, Griffin, & Parker, 2012). If a person's future self, such as the "retired self" is perceived as distant, unachievable or feared, then adjustment behavior is likely to focus on achieving fit in the present work environment with little effort on preparatory behavior for future fit. However, when retirement transition is perceived as close, achievable, or desired, a person's "retired-self" is likely to become a motivating factor in directing adjustment behaviors towards a retirement goal. Work styles are also likely to be implicated. A person with a close and salient "retired-self" is likely to demonstrate more urgent, effortful, enduring

and less erratic behaviors directed towards retirement goals than a person whose “retired-self” was perceived as distant.

The formation of personal identities does not occur in a social vacuum but is partly derived from a person’s cognitive recognition that they belong to a particular social group (or groups), in conjunction with the value and affective significance that this membership brings (Tajfel, 1978). Social identity theory (Tajfel & Turner, 1986) and self-categorization theory (Turner, 1985) describe how group membership can drive individual behavior through conformity with in-group prototypes and social norms, and through competition with salient out-groups in order to reduce uncertainty and achieve self-enhancement. Identifying as an older worker is therefore likely to affect a person’s behavior and attitudes (Bayl-Smith & Griffin, 2014). For example, Gaillard and Desmette (2008) in their study on late career workers found that those who cognitively identified themselves as belonging to the group, “older workers”, expressed an increased intention to retire early. These findings were repeated by Desmette and Gaillard (2008) with the additional finding that those who viewed themselves as “older workers” were less interested in their career development. These findings are consistent with self-categorization theory; that is, individuals who define themselves as “older workers” take on the attributes of older worker stereotypes – including the intention to retire soon. Therefore within the RTAF, social identification with groups who are in various phases of late career, retirement transition (including part-time, bridge and voluntary work) and post retirement is hypothesized as having a role in determining what and how adjustment behaviors are to be pursued. For example, if a person cognitively identifies with the group “retirees” and affectively desires to be part of this group, their adjustment behaviors are likely to be directed towards increasing their fit with perceived retiree norms and work styles. If they associate retirees with community involvement or helping their family, adjustment goals will be directed towards achieving these ends. Likewise, if retirees

are associated with a group with particular work styles, such as being deliberate and persistent, similar work styles may be developed by the individual. Alternatively, if a person is not happy with their categorization as a retiree, adjustment behaviors may be directed towards learning new employment skills and away from supposed retiree work styles so that they can join a group that is perceived as more desirable, such as “bridge worker”. In either case, social identity is influencing perceptions of fit, what adjustment behaviors are initiated, and with what style.

Overlaying self-efficacy and self-concepts is the pressure exerted on the individual by stereotypes related to each of the late career and retirement transition phases. Stereotyping may cause stereotype threat that could impair behavior. Anxiety associated with stereotype threat might interfere with cognitive functioning especially if a negative stereotype is part of one's identity (Steele & Aronson, 1995). Stereotypes can impact each component described above; be that self-efficacy, possible selves and norms associated with one's ingroup (Wheeler & Petty, 2001).

Stereotypes may also affect work styles and adaptive behaviors directly through self-stereotyping and discrimination. Although not all older employee stereotypes are negative (Gaillard & Desmette, 2008), the prevalent stance espoused in the media and organizations alike are predominantly pessimistic; especially in the areas of adaptability and technology (Buyens, Van Dijk, Dewilde, & De Vos, 2009). Negative age stereotypes may have been internalized since childhood and late career workers may see these as characteristic of themselves (e.g. older people are unwilling to learn, are slow and have low endurance). These internalized stereotypes might then limit the behaviors and work styles that are perceived to be available to the individual (Levy, 2009). Likewise, age discrimination, perhaps the most overt effect of stereotyping, directly impinges upon possible adaptive behaviors and work styles that individuals can pursue by excluding them from social support, training and job

opportunities. Furthermore, age discrimination is a stressor that depletes psychological resources, increasing thoughts about leaving a job and hence reducing motivation to apply adjustment behavior to increase fit (Bayl-Smith & Griffin, 2014). Therefore stereotypes and their practice through age discrimination are likely to have an adverse impact upon the perceived and real freedoms to perform maintenance and adjustment behaviors with given work styles.

More positively, Fehr (2012) argues that experiences of increased well-being in retirement may not only be because of a removal of work stress, but rather that the new status provides an opportunity for “positive identity construction” (p. 76). This is supported in part by Michinov, Fouquereau and Fernandez’s (2008) study of French retirees, where those who were positively committed to their identity as a retiree were on average more satisfied with their retirement than those who disliked or wanted to avoid such an identification. Extending this idea, RTAF could offer a structure and suggested process for both employers and those actively transitioning to retirement to prepare for it through anticipatory socialization by creatively exploring new opportunities that satisfy needs and provide outlets for skills and abilities in environments. Imagining future selves in different environments (bridge employment, retirement, voluntary work, etc.) with varying degrees of fit may aid decision-making during transitions and enhance self-efficacy for applying adjustment behaviors.

Concepts of identity, self-efficacy and, in particular, future selves, are relevant to anticipatory socialization which Curl and Ingram (2013) have researched in relation to late career and retirement. Using the Health and Retirement Study ($N=1028$ dual earner couples) they found greater anticipatory socialization (i.e. thinking about and discussing retirement) among those who were looking forward to retirement, and who were older, white, and with a higher income and more retirement wealth. For wives only, having a health problem that limited work, higher spouse occupational status, and having a spouse who was looking

forward to retirement predicted more anticipatory socialization. For husbands only, higher education, higher depressive thoughts and lower occupational status predicted more anticipatory socialization. The study found evidence of spousal congruence, with husbands, on average, engaging in more anticipatory socialization than wives. Anticipatory socialization predicts better retirement adjustment and satisfaction. The RTAF can be used as a framework to facilitate anticipatory socialization by encouraging late career workers and those transitioning to retirement to anticipate what the profiles in each of the boxes (Figure 1) might look like in different roles.

Time Component

Goal theory is a broad area of study applicable to both career development and organizational performance. Action Regulation Theory (Frese & Zapf, 1994), with its emphasis on goals, information collection, planning, execution and feedback has an underlying time dimension. As outlined briefly earlier, SOC theory (Baltes & Rudolph, 2013) reminds us that individuals electively select goals or adapt their goals to accommodate a loss. Both of these activities are a critical component of retirement transition and adjustment, and we suggest that Subjective Life Expectancy (SLE – Box 10 in Figure 1) provides an important framework for planning and setting short term and long-term goals and influences needs and values. Hesketh et al. (2011) argue that one's estimation of longevity is analogous to a mental model of the number of years left. Griffin (2014) highlights how this mental model of time remaining “functions as a uniquely personal timeframe for late-career workers, guiding how they apportion work and transitioning to full retirement and contributing to their motivation for ongoing adjustment at work” (p. 7). SLE is also likely to influence the distribution of finances and activities in retirement. Griffin, Hesketh, and Loh (2012) show that SLE predicts the age at which people plan to retire, whether or not they do, and also whether or not they return to employment. These findings support socio-emotional selectivity theory (Carstensen et al., 2003), which

suggests that ageing is associated with a shift in future time perspective from being expansive to being limited. With increasing age, achieving knowledge-relevant and work-related goals become less important, while achieving emotional and social goals increases in importance. Late career workers who anticipate living to an older age may retain an expansive view of the future, and hence when faced with lack of fit they are more likely to engage in reactive and proactive adjustment behaviors to retain or regain fit at work. In contrast, late career workers with a shorter subjective life expectancy may be less motivated to engage in work adjustment behavior, focusing instead on achieving emotional and social goals in transition or retirement related roles (Griffin, 2014).

Methodological Issues

Several measurement and analytic challenges remain for those researching and using P-E fit that need to be considered in applications to retirement transition. Although perceived or subjective fit (molar fit) may be a useful measurement shortcut in some instances, it does not provide the detail required to understand the particular contributions of the person and the environment, especially as these change over time with ageing and adjustment. Nevertheless, when taking the atomistic approach to assessing fit as proposed by TWA (using separate but commensurate measures of P and E), choosing the appropriate analysis has not been without problems. Edwards (1994) drew attention to the difficulties of using difference scores, or even squared differences, and suggested polynomial regression. This analytic approach has the benefit of accounting for the direct effects of P and E, given that in some instances person attributes make the strongest contribution to outcomes (e.g. optimistic people tend to be happy irrespective of the environment) whereas in others the environment attributes may exert a strong direct effect (e.g., supervision; see Hesketh & Gardner (1993) for a discussion on this issue). When direct effects dominate the amount of variance explained, the contribution by fit can be relatively small.

The debate about assessing fit as proposed by structural models such as the TWA and RTAF has focused mainly on cross-sectional data, which is perhaps the most appropriate for understanding the “snapshot” in time between-person differences in the effect of fit on outcome variables. Indeed, because of the high potential for both the person and environment to change during the late career and retirement transition phases (Feldman, 2013) it makes less sense to expect that fit at one point in time will predict satisfaction and performance outcomes at a future point in time. As explained above, the dynamic component of RTAF indicates that such a link will depend on the work style variables or adjustment behaviors that operate in the intervening time lag.

Nevertheless, even though the between-person approach to testing P-E fit theories is predominant in the literature, P-E fit actually describes processes that operate at the within-person level of analysis. Changes to the person or their environment signal the need for reactive and/or proactive adjustment and this dynamic within-person process occurs over time and should therefore be measured and analyzed at the within-person level. A between-person analysis cannot determine if an individual’s fluctuation in job satisfaction, performance, or even positive aging varies according to their changing level of fit. Nor can it identify how fit changes over time – for example, is there an inevitable trajectory of declining fit with one’s work in the late career/retirement transition phase as proposed by Feldman (2013)? Recent advances in statistical analysis of hierarchical and longitudinal data offer new ways of examining fit and the RTAF more specifically (Chan, 1998; Chen, Bliese, & Mathiau, 2005; Wang & Bodner, 2007).

Using these techniques in combination with the explanatory potential of the TWA principles embedded in the RTAF can bring a more comprehensive understanding of retirement transition. For example, Wang (2007) identified three different trajectories of wellbeing in the post-retirement period: one group of people had a dip in satisfaction before

regaining pre-retirement levels of satisfaction, one group steadily improved in satisfaction after retiring, and one group maintained their levels of well-being across the transition period. These multiple pathways could not be accounted for by a single theory. Applying an RTAF lens to these findings, we suggest that those who had a dip in satisfaction may have gone from good fit at work to poor fit in retirement – their E changed in a way that did not match their skills or meet their needs. The subsequent misfit would have prompted adjustment behaviors to regain fit, and hence satisfaction. Those who improved in satisfaction post-retirement may have gone from poor fit at work to an environment that better matched their needs, or they may have changed their expectations or proactively adjusted their environment; those who maintained satisfaction were likely engaging in successful reactive and proactive adjustment behavior in both environments. The last mentioned group were not only stable but had higher wellbeing than the other two groups across the study period. Perhaps some individuals have the knack of timing retirement effectively and choosing and enacting successful adjustment behavior thus preventing future misfits. Future research could test whether the style variables act as a between-person cross level moderator of the effectiveness of adjustment behavior in maintaining P-E fit. It is important to note that within person relationships, say between self-efficacy and goal setting, may differ from those found almost universally in cross-sectional research (see Yeo & Neal, 2013).

How processes unfold is attracting increasing research attention (Sonnentag, Pundt, & Albrecht, 2014). In terms of P-E fit, very little is known about the time lag required to capture the process – does a change in fit occur incrementally over a longer period of time or does it occur rapidly? The challenge for future researchers will be to sample sufficiently frequently to detect change, and to provide insight into the typical time lags in P-E fit and adjustment behaviors.

Agenda for Future Theory Development and Research

The issues raised in this article highlight several areas for future theory development and research.

1. *Longitudinal research.* Dynamic models require longitudinal data. Statistical methods are increasingly available for analyzing these data, although obtaining adequate sample sizes remains a challenge. Optimistically, developments in big data, data analytics and digital monitoring will become more widespread, and perhaps accepted, although ethical issues remain a challenge (Hesketh & Graco, 2014; Hesketh et al., 2011).

2. *Timing of observations and frequency of sampling.* Future research may benefit from lessons learned in control theory about sampling rate over time, namely, how long the intervals should be between measurements. In the context of late career development and retirement transition this will be affected by how quickly abilities and needs change (Boxes 1 and 3 in Figure 1), and the possibilities of changing environmental demands and supplies (Boxes 2 and 4). Future research is also needed to understand the time delay in changes in fit impacting on the various outcome measures (Boxes 5, 6 and 7), and how this timing may be affected by the factors outlined in Boxes 8, 9 and 10. The complexity and practicality of getting the timing right cannot be underestimated, but it is possible that attempts to simulate the effect of different sampling rates and assumptions, and the possible application of Laplace transforms (Davies, 2002) could provide guidance to future forms of data collection.

3. *Large longitudinal data sets.* Given the difficulty of collecting data over sufficiently long periods of time in order to capture late career and retirement transition, there has been a trend toward the use of national large-scale longitudinal studies. These often having a broader focus than just retirement, and researchers have needed to retrospectively select variables from these datasets that are relevant to late career and retirement transition. The advantages of scale and size can be offset by the disadvantage of lack of control over the timing of data collection and

the specificity of the measures collected. Nevertheless, they do provide opportunities for using advanced statistical methods, such as growth mixture modelling and mixed latent Markov modelling (Wang & Chan, 2011) to model important qualitative change and identify latent subpopulations that exhibit distinctive qualitative change patterns over time (e.g., moving in and out of employment and well-being throughout transition).

4. *Measures and scales.* Leung and Earl (2012) illustrate the development of new measures for retirement transition interventions and research. The RTAF extends TWA and includes several new concepts drawn from related fields. There is a need for the development of measures and scales suited to late career and retirement transitions phases for these concepts, and for the less well-known work style and adjustment behaviors in TWA and RTAF.

5. *Mini theories and predictions.* Although the overwhelming evidence is that fit predicts positive outcomes, there is considerable scope to fine tune predictions for different dimensions of demands-abilities fit, and the impact on dimensions of coping performance, and for different dimensions needs-supplies fit and the impact on dimensions of satisfaction. On some dimensions the direct effects of either P or E may be greater than the contribution of fit, but on other dimensions, fit may be the most important (Hesketh & Gardner, 1993).

6. *Interactions among key constructs in the RTAF.* The article highlighted the predictions by Dawis and Lofquist (1984), that satisfactoriness (coping performance) moderated the needs-supplies satisfaction link, and that satisfaction moderated the demands-abilities performance link. More research is needed drawing on the broader field that has examined interactions between satisfaction and performance in the work context, and attitudes and behavior more generally.

7. *Achieving fit across different environments.* During late career, retirement transition (including planning and part-time, bridge and voluntary work) and post retirement it is likely that the demands and supplies of the environment will arise from more than just work, and

hence there is scope for research examining whether some misfit in one environment can be compensated for by fit in another, or if fit has to occur across all environments. The former would seem sensible, but research is needed.

8. *Fit and work styles.* Interesting possibilities exist in developing measures for the work styles that incorporate the underlying notion of time, namely celerity, pace, rhythm and endurance in the person and commensurate measures of the environment demands, and using these to examine direct and interacting effects on coping performance and other outcome variables.

9. *Role of the adjustment behaviors.* Several ideas have been presented in the paper about ways in which self-efficacy, identities and future selves might influence which of the adjustment behaviors are brought into play under conditions of misfit. This is, however, an area that remains important for future research.

10. *Practical Applications.* Throughout the paper we have hinted at the potential use of the RTAF for retirement planning and counselling to facilitate retirement transition and adjustment. It should be noted that fit can be achieved by altering expectations, as well as by acquiring new skills. Harper and Shoffner (2004) draw on TWA ideas to argue that planning and assessing one's capabilities, limitations, and needs can help people find new outlets and new identities. Griffin (2014) illustrates how the RTAF can help identify what has been lost, and facilitate the creative exploration of replacements. The advantage of RTAF in retirement planning is the comprehensiveness of the variables that it takes into account for exploring fit, and hence for exploring what needs to adjust in late career, retirement transition and during post retirement. RTAF has its focus on adjustment as an outcome, which is appropriate for retirement transition. The focus is less on career choice specifically. Detailed research documenting and evaluating the use of RTAF as a counselling and retirement planning framework remains on the agenda.

Concluding Comments

The Retirement Transition and Adjustment Framework (Hesketh et al. 2011) is based on the Theory of Work Adjustment which has substantial empirical support summarized in Dawis and Lofquist (1984) and Dawis (2005). This article extends the RTAF to include the ways in which self-efficacy, identity and stereotypes affect perceptions of fit, but more importantly, the ways in which adjustment behaviors are enacted. It also outlines how SLE provides a mental model of time remaining that provides a focus for goal selection and choice of adjustment behaviors. The extended RTAF can be used in practice with both individuals and organizations to facilitate late career development, retirement transition and adjustment and positive ageing. Furthermore, as a framework it suggests several lines of research relevant to late career development and retirement, and provides a structure for organizing past and future research findings.

References

- Baltes, B. B., & Rudolph, C. W. (2013). The Theory of Selection, Optimization and Compensation. In M. Wang (Ed.) *The Oxford Handbook of Retirement* (pp. 88-101) New York: Oxford University Press.
- Barnett, I., van Sluijs, E. M., & Ogilvie, D. (2012). Physical activity and transitioning to retirement: A systematic review. *American Journal of Preventive Medicine*, 43, 329-336.
- Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychological review*, 84, 191-215.
- Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, 37, 122-147.
- Bayl-Smith, P. H., & Griffin, B. (2014). Age discrimination in the workplace: Identifying as a late career worker and its relationship with engagement and intended retirement age. *Journal of Applied Social Psychology*, 44, 588-599.
- Buyens, D., Dijk, H. Van, Dewilde, T., & Vos, A. De. (2009). The aging workforce: perceptions of career ending. *Journal of Managerial Psychology*, 24, 102–117.
- Cable, D. M., & Parsons, C. K. (2001). Socialization tactics and person–organization fit. *Personnel Psychology*, 54, 1–23.
- Caldwell, S. D., Herold, D. M., & Fedor, D. B. (2004). Toward an understanding of the relationships among organizational change, individual differences, and changes in person-environment fit: a cross-level study. *Journal of Applied Psychology*, 89, 868-882.
- Carstensen, L. L., Fung, H. H., & Charles, S. T. (2003). Socio-emotional selectivity theory and the regulation of emotion in the second half of life. *Motivation and Emotion*, 27, 103–123.

- Chan, D. (1998). The conceptualization and analysis of change over time: An integrative approach incorporating longitudinal mean and covariance structures analysis (LMACS) and multiple indicator latent growth modeling (MLGM). *Organizational Research Methods, 1*, 421-483.
- Chen, G., Bliese, P. D., & Mathiau, J. E. (2005). Conceptual framework and statistical procedures for delineating and testing multilevel theories of homology. *Organizational Research and Methods, 8*, 375-409.
- Curl, A. L., & Ingram, J. G. (2013). Anticipatory socialization for retirement: A multilevel dyadic model. *Clinical Gerontologist, 36*, 375-393.
- Davies, B. (2002). *Integral transforms and their applications* (3rd ed.) NY: Springer.
- Dawis, R. V. (1991). Vocational interests, values and preferences. In M. D. Dunnette & L. M. Hough (Eds.). *Handbook of Industrial and Organizational Psychology* (pp. 833-871). Palo Alto: Consulting Psychologists Press.
- Dawis, R. V. (1996). The Theory of Work Adjustment and Person-Environment-Correspondence Counseling. In D. Brown & L. Brooks (Eds.), *Career Choice and Development* (3rd ed., pp. 75–120). San Francisco: Jossey-Bass Inc.
- Dawis, R. V. (2002). Person-Environment-Correspondence theory. In D. Brown (Ed.), *Career Choice and Development* (4th ed., pp. 427–464). San Francisco: John Wiley & Sons, Inc.
- Dawis, R. V. (2005). The Minnesota theory of work adjustment. In S. D. Brown & R. W. Lent (Eds.), *Career Development and Counseling: Putting theory and research to work* (pp. 3–23). Hoboken: John Wiley & Sons, Inc.
- Dawis, R. V. & Lofquist, L. H. (1984). *A Psychological Theory of Work Adjustment*. Minneapolis: University of Minnesota Press.

Deci, E. L., & Ryan, R. M. (2006). Hedonia, eudemonia, and well-being: an introduction.

Journal of Happiness Studies, 9, 1–11.

Desmette, D., & Gaillard, M. (2008). When a “worker” becomes an “older worker”: The effects of age-related social identity on attitudes towards retirement and work. *Career Development International*, 13, 168–185.

Edwards, J. R. (1994). The study of congruence in organizational behavior research: Critique and a proposed alternative. *Organizational Behavior and Human Decision Processes*, 58, 51-100.

Edwards, J. R., Cable, D. M., Williamson, I. O., Schurer, L. L., & Shipp, A. J. (2006). The phenomenology of fit: Linking the person and environment to the subjective experience of person-environment fit. *Journal of Applied Psychology*, 91, 802-807.

Edwards, J. R., Caplan, R. D., & Van Harrison, R. (1998). Person-environment fit theory: Conceptual foundations, empirical evidence, and directions for future research. In C. L. Cooper (Ed.), *Theories of Organizational Stress* (pp. 28-67). Oxford: Oxford University Press.

Edwards, I. R., & Shipp, A. I. (2007). The Relationship Between Person-Environment fit and Outcomes: An Integrative Theoretical Framework. In C. Ostroff & T. A. Judge (Eds.), *Perspectives in Organizational Fit* (pp. 209-258). New York: Lawrence Erlbaum Associates.

Eggerth, D. (2008). From Theory of Work Adjustment to Person-Environment Correspondence Counseling: Vocational Psychology as Positive Psychology. *Journal of Career Assessment*, 16, 60-74.

Feldman, D. C. (2013). Feeling like it’s time to retire: a fit perspective on early retirement decisions. In M. Wang (Ed) *Oxford Handbook of Retirement* (pp. 280-292). New York: Oxford University Press.

- Fehr, R. (2012). Is retirement always stressful? The potential impact of creativity. *American Psychologist*, 67, 76-77.
- Fehr, R. (2013). Retirement and creativity. In M Wang (Ed). *The Oxford Handbook of Retirement* (pp. 588-602). New York: Oxford University Press.
- Fisher, C. D. (2003). Why do lay people believe that satisfaction and performance are correlated? Possible sources of a commonsense theory. *Journal of Organizational Behavior*, 24, 753-777.
- Frese, M., & Zapf, D. (1994). Action as the core of work psychology: A German approach. In H. C. Triandis, M. D. Dunnette, & L. M. Hough (Eds.) *Handbook of Industrial and Organisational Psychology* (Vol. 4). Palo Alto, Calif: Consulting Psychologist Press.
- Gaillard, M., & Desmette, D. (2008). Intergroup predictors of older workers' attitudes towards work and early exit. *European Journal of Work and Organizational Psychology*, 17, 450-481.
- Griffin, B. (2014). Promoting the Work Adjustment of Late Career Employees. In P. Hartung, M. Savickas, & B. Walsh (Eds.). *APA Handbook of Career Intervention*. Manuscript submitted for publication.
- Griffin, B., Hesketh, B., & Loh, V. (2012). The influence of subjective life expectancy on retirement transition and planning: A longitudinal study. *Journal of Vocational Behavior*, 81, 129-137.
- Hall, D. T. (2004). The protean career: A quarter-century journey. *Journal of Vocational Behavior*, 65, 1-13.
- Harper, M. C., & Shoffner, M. F. (2004). Counseling for continued career development after retirement: An application of the theory of work adjustment. *The Career Development Quarterly*, 52, 272-284.

- Hesketh, B., & Gardner, D. (1993). Person-environment fit: A reconceptualisation and empirical test. *Journal of Vocational Behavior*, 42, 315-332.
- Hesketh, B., & Graco, W. (2014). Technological change and the sociotechnical system: Applied Psychology of. *International Encyclopedia of the Social and Behavioral Sciences* (2nd ed.). <http://dx.doi.org/10.1016/B978-0-08-09708E-8.220187>.
- Hesketh, B., & Griffin, B. (2005). Work adjustment. In W. B. Walsh & M. L. Savickas (Eds.), *Handbook of Vocational Psychology* (Vol. 3, pp. 245-266). New Jersey: Lawrence Erlbaum Associates.
- Hesketh, B., Griffin, B., & Loh, V. (2011). A future-oriented Retirement Transition Adjustment Framework. *Journal of Vocational Behavior*, 79, 303–314.
- Holland, J. L. (1997). *Making vocational choices: A theory of vocational personalities and work environments*. (3rd ed.). Odessa, FL: Psychological Assessment Resources.
- Hoyle, R. H., & Sherrill, M. R. (2006). Future orientation in the self-system: Possible selves, self-regulation, and behavior. *Journal of Personality*, 74, 1673–1696.
- Jansen, K. J., & Kristof-Brown, A. L. (2005). Marching to the beat of a different drummer: Examining the impact of pacing congruence. *Organizational Behavior and Human Decision Processes*, 97, 93–105.
- Kristof-Brown A. L., & Jansen, K. J. (2007). Issues of Person-Organization Fit. In C. Ostroff & T. A. Judge (Eds.), *Perspectives in Organizational Fit* (pp. 123-153). New York: Lawrence Erlbaum Associates.
- Kristof-Brown, A. L., Jansen, K. J., & Colbert, A. E. (2002). A policy-capturing study of the simultaneous effects of fit with jobs, groups, and organizations. *Journal of Applied Psychology*, 87, 985-993.

- Kristof-Brown, A. L., Zimmerman, R. D., & Johnson, E. C. (2005). Consequences of individuals' fit at work: A meta-analysis of person-job, person-organization, person-group, and person-supervisor fit. *Personnel Psychology, 58*, 281–342.
- Lawson, L. (1993). Theory of work adjustment personality constructs. *Journal of Vocational Behavior, 43*, 46-57.
- Leung, C. S. Y., & Earl, J. K. (2012). Retirement Resources Inventory: Constructs, factor structure and psychometric properties. *Journal of Vocational Behavior, 81*, 171-183.
- Levy, B. (2009). Stereotype Embodiment: A Psychosocial Approach to Aging. *Current Directions in Psychological Science, 18*, 332–336.
- Lofquist, L. H., & Dawis, R. V. (1991). *Essentials of Person-Environment Correspondence Counseling*. Minneapolis, MN: University of Minnesota Press.
- Lyubomirsky, S., King, L., & Diener, E. (2005). The benefits of frequent positive affect: Does happiness lead to success? *Psychological Bulletin, 131*, 803-855.
- Markus, H. R., & Herzog, A. R. (1992). The role of the self-concept in aging. *Annual Review of Gerontology and Geriatrics, 11*, 110-143.
- Markus, H., & Nurius, P. (1986). Possible selves. *American Psychologist, 41*, 954-969.
- Michinov, E., Fouquereau, E., & Fernandez, A. (2008). Retirees' Social Identity and Satisfaction with Retirement. *The International Journal of Aging and Human Development, 66*, 175–194.
- Moen, P., Huang, Q., Plassmann, V., & Dentinger, E. (2006). Deciding the future: Do dual-earner couples plan together for retirement? *American Behavioral Scientist, 49*, 1422-1443.
- Moen, P., Kim, J. E., & Hofmeister, H. (2001). Couples' work/retirement transitions, gender, and marital quality. *Social Psychology Quarterly, 64*, 55-71.

Muchinsky, P. M., & Monahan, C. J. (1987). What is person-environment congruence?

Supplementary versus complementary models of fit. *Journal of Vocational Behavior*, 31, 268-277.

Muthén, B., & Muthén, L. K. (2000). Integrating person-centered and variable-centered analyses: Growth mixture modeling with latent trajectory classes. *Alcoholism: Clinical and experimental research*, 24, 882-891.

Ostroff, C. (2012). Person-environment fit in organizational settings. In S. W. J. Kozlowski (Ed.), *The Oxford Handbook of Organizational Psychology* (Vol. 1, pp. 373-408). New York: Oxford University Press.

Parker, S. K., Williams, H. M., & Turner, N. (2006). Modeling the antecedents of proactive behavior at work. *The Journal of Applied Psychology*, 91, 636-652.

Parsons, E. (1909). *Choosing a Vocation*. Boston: Houghton Mifflin.

Potocnik, K., & Sonnentag, S. (2013). A longitudinal study of well-being in older workers and retirees: The role of engaging in different types of activity. *Journal of Occupational and Organizational Psychology*, 86, 497-521.

Raabe, B., Frese, M., & Beehr, T. A. (2007). Action Regulation Theory and career self-management. *Journal of Vocational Behavior*, 70, 297-311.

Schleicher, D. J., Watt, J. D., & Greguras, G. J. (2004). Reexamining the job satisfaction-performance relationship: The complexity of attitudes. *Journal of Applied Psychology*, 89, 165-177.

Sonnentag, S., Punnett, A., & Albrecht, A. G. (2014). Temporal perspectives on job stress. In A.J. Shipp & Y. Fried (Eds.) *Time and Work: How Time Impacts Individuals* (Vol. 1, pp. 111-140). New York: Psychology Press.

Steele, C. M., & Aronson, J. (1995). Stereotype threat and the intellectual test performance of African Americans. *Journal of Personality and Social Psychology*, 69, 797-811.

- Strauss, K., Griffin, M. A., & Parker, S. K. (2012). Future work selves: how salient hoped-for identities motivate proactive career behaviors. *The Journal of Applied Psychology*, 97, 580–98.
- Super, D. E. (1953). A theory of vocational development. *American Psychologist*, 8, 185-190.
- Tajfel, H. (1978). Social categorization, social identity and social comparison. In H. Tajfel (Ed.), *Differentiation between Social Groups* (pp. 61-76). London: Academic Press.
- Tajfel, H., & Turner, J. C. (1986). The social identity theory of intergroup behavior (2nd Edition). In S. Worchel & W. Austin (Eds.), *Psychology of Intergroup Relations* (pp. 7-24). Chicago: Nelson-Hall Publishers.
- Turner, J. C. (1985). Social categorization and the self-concept: A social cognitive theory of group behaviour. In E. J. Lawler (Ed.), *Advances in group processes: Theory and Research* (Vol. 2, pp. 77–122). Greenwich, CT: JAI Press Inc.
- Vogel, R. M., & Feldman, D. C. (2009). Integrating the levels of person-environment fit: The role of vocational fit and group fit. *Journal of Vocational Behavior*, 75, 68-81.
- Wang, M. (2007). Profiling retirees in the retirement transition and adjustment process: Examining the longitudinal change patterns of retirees' psychological well-being. *Journal of Applied Psychology*, 92, 455-474.
- Wang, M., & Bodner, T. E. (2007). Growth mixture modelling: Identifying and predicting unobserved sub populations with longitudinal data. *Organizational Research Methods*, 10, 635-656.
- Wang, M., & Chan, D. (2011). Mixture Latent Markov Modeling: Identifying and Predicting Unobserved Heterogeneity in Longitudinal Qualitative Status Change. *Organizational Research Methods*, 14, 411–431.
- Wang, M., Olson, D. A., & Shultz, K. S. (2013). *Mid and late career issues: An integrative perspective*. New York: Routledge.

- Wang, M., & Shultz, K. S. (2010). Employee retirement: A review and recommendations for future investigation. *Journal of Management*, 36, 172-206.
- Wang, M., Sinclair, R. R., Zhou, L., & Sears, L. E. (2013). Person-centred analysis. In R. R. Sinclair, M. Wang, & L. E. Tetrick (Eds.) *Research Methods in Occupational Health Psychology* (pp. 349-373). New York: Routledge.
- Windsor, T. D. (2009). Persistence in goal striving and positive reappraisal in psychosocial resources for ageing well: A dyadic analysis. *Aging and Mental Health*, 13, 874–884.
- Wheeler, S. C., & Petty, R. E. (2001). The effects of stereotype activation on behavior: a review of possible mechanisms. *Psychological Bulletin*, 127, 797-826.
- Yeo, G. B., & Neal, A. (2013). Revisiting the Functional Properties of Self-Efficacy: A Dynamic Perspective. *Journal of Management*, 39, 1385-1396.

Pages 218-261 of this thesis have been removed as they contain published material. Please refer to the following citation for details of the articles contained in these pages.

Seccombe, L. M., Rogers, P. G., Jenkins, C. R., & Peters, M. J. (2017). Age Discrimination and Older Workers. In Nelson, T. D. *Ageism: stereotyping and prejudice against older persons (2nd ed)*. Cambridge, MA. MIT Press p. 227-260.

Appendix 3: Thesis Scales, Variables and Questions

Following is a list of all items and scales used in Papers 1 to 3. These have been arranged in six categories: Demographic variables; personality variables; workplace experiences variables; person-environment fit variables; proactive behaviours and work styles variables, and; employee outcome variables.

Demographic Variables

1. What is your gender? (Male/Female)
2. Using the drop down boxes below, could you please select which decade you were born in and then in which year? ____
3. Highest level of education you have completed (From Year 10 certificate or equivalent to Doctoral Degree)
4. What is your current work status?
 - Engaged in full-time paid work (35+ hours per week)
 - Engaged in part-time paid work (Less than 35 hours per week)
 - Engaged in casual paid work (Less than 35 hours per week)
 - Not currently in any paid work
5. What is your current occupation? ____
6. What is the level of your role?
 - Employee / Team member
 - Middle manager / Team leader
 - Senior Manager
 - Other (please specify) ____
7. Using the drop down boxes below, could you please select how many years you have worked in your **current career**? ____
8. Using the drop down boxes below, could you please select how many years you have worked for your **current employer**? ____
9. Approximately how many hours do you work per week (including over time)? (sliding scale 0-100)

Personality

10. *Conscientiousness and Extroversion* (Saucier, 1994).

Please use this list of common human traits to describe yourself as accurately as possible.

Describe yourself as you see yourself at the present time, not as you wish to be in the future.

Describe yourself as you are generally or typically, as compared with other persons you know of the same sex and of roughly the same age.

Conscientiousness

- Careless
- Disorganised
- Efficient
- Energetic
- Inefficient
- Practical
- Sloppy
- Systematic

Extroversion

- Bashful
- Bold
- Extraverted
- Organised
- Quiet
- Shy
- Talkative
- Withdrawn

Workplace Experiences

11. *Perceived Workplace Age Discrimination* (Bayl-Smith & Griffin, 2014)

Thinking about your workplace, please indicate how often you have experienced the following:

- I have been unfairly singled out because of my age
- I have been socially isolated because of my age
- I have had fewer training opportunities than those who are younger than me
- I have had fewer opportunities for promotion than those who are younger than me
- My performance has been scrutinised and/or criticised more than those who are younger than me
- I have missed out on better job-assignments compared to those who are younger than me

Person-environment fit

12. *Demands/Abilities Fit and Needs/Supplies Fit* (Cable & DeRue, 2002)

Please indicate how strongly you agree or disagree with the statements below:

Demands-Abilities Fit

- The match is very good between the demands of my job and my personal skills
- My abilities and training are a good fit with the requirements of my job
- My personal abilities and education provide a good match with the demands that my job places on me

Needs-Supplies Fit

- There is a good fit between what my job offers me and what I am looking for in a job
- The attributes that I look for in a job are fulfilled very well by my present job
- The job that I currently hold gives me just about everything that I want from a job

13. *Demands/Abilities Fit and Needs/Supplies Fit* (Paper 2, Study 1)

Please indicate how strongly you agree or disagree with the statements below:

Demands-Abilities Fit

- My skills and abilities match those required by my current situation
- I possess the skills and abilities to cope well with this phase of my life

Needs-Supplies Fit

- The things that I look for in life are fulfilled very well in my present situation
- My current situation enables me to do the kind of activities I want to do
- This phase of life allows me to have just about everything I want

14. *Work Styles Fit* (See Appendix 5)

Please indicate how strongly you agree or disagree with the statements below:

- The match between the level of energy needed for my job and how much energy I typically expend is very good
- My level of perseverance at work is a very good match with what my job requires
- My endurance in work tasks fits well with what is needed in my job
- How hard I work in my job matches the requirements of my job
- How quickly I typically respond to work demands fits well with what is needed in my job
- The match between the speed of my decision making and that required by my job is very good
- The pattern of work in my job (a constant workload or irregular workload) matches very well with how I work

- My rhythm of effort at work (a constant level of effort or more irregular effort) is a good fit with my job

Proactive Behaviours and Work Styles

15. Proactive behaviours (See Appendix 4)

Please indicate **how often** you have performed the following activities and behaviours in the last three months in your current job

Career Initiative

- I have spent time learning and practising
- I have participated in experiences that have expanded my abilities
- I have advanced and developed my skills
- I have actively acquired job knowledge through reading or personal research
- I have engaged in training / workshops

Job Change Negotiation

- I have transformed my working environment
- I have obtained better equipment/tools
- I have changed the way in which my job tasks are done

16. Active work styles (See Chapter 3)

Thinking back over the past few months, please indicate how often you have done each behaviour at work:

- I started projects and tasks straight away
- I was quick to start my jobs
- When given a task or project I began working on it immediately
- I put a lot of energy into my work tasks
- I expended a great deal of effort in carrying out my job
- I used a high amount of effort and energy
- My level of effort was steady over time
- The levels of energy I put in was highly stable over time
- I was consistent in the amount of effort and energy I put into my tasks at work
- I finished whatever I began
- I finished tasks that took a long time to complete
- I persevered in doing my work tasks

Employee Outcomes

17. Work engagement (Schaufeli & Bakker, 2006)

Thinking about your job, please indicate how often you feel the following:

- At my work, I feel bursting with energy
- At my job, I feel strong and vigorous
- I am enthusiastic about my job
- My job inspires me
- When I get up in the morning, I feel like going to work
- I feel happy when I am working intensely
- I am proud of the work that I do
- I am immersed in my work
- I get carried away when I am working

18. Work Stress (Yankelevich, Broadfoot, Gillespie, Gillespie, & Guidroz, 2012)

Please indicate how well the following words or statements reflect how you feel about your job at the moment:

- Demanding
- Pressured
- Calm
- Many things stressful
- Nerve-racking
- Hassled
- More stressful than I would like
- Overwhelming

Appendix 4: Scale development: Proactive work behaviours to improve D-A fit

- A split sample was used to develop and test proactive behaviours with the intent to improve D-A fit; job change negotiation and career initiative (Parker & Collins, 2010).
- One half of the sample was used to conduct an EFA. The other half of the sample was used to conduct a CFA. Construct validity was tested using the entire sample.

Study 1a: Item generation and exploratory analysis

Item generation

- 11 items were generated to capture particular proactive behaviours as defined by Parker and Collins (2010); 6 items for career initiative / 5 items for job change negotiation.
- Items were generated by the first author, reviewed by Barbara Griffin.

Participants

- ORU
- Employed for at least eight hours
- Total of 465 participants. This split sample contained 233 participants.
- The average age for this sample was 41.98 years ($SD = 12.41$), 59.5% were male. The mean hours of work per week was 38.37 ($SD = 15.36$).

Measures

Participants were asked how often they engaged in particular behaviours at work. Example behaviours include “I have actively acquired job knowledge through reading or personal research” and “I have transformed my working environment”. To determine whether the items belonged to their intended construct, we first conducted two principal component

analyses (PCA's). Items that did not load adequately ($>.40$) onto their respective factor were dropped from further analysis. The items were then subject to an EFA using principle axis factoring (PAF) with oblique rotation (Promax, $\kappa = 4$), using parallel analysis to determine the appropriate number of factors to retain (Henson, 2006; Matsunaga, 2011). Factors with a low loading or high cross loading would then be eliminated. Analysis was conducted using SPSS version 21.

Results

During the PCA, no items were eliminated due to weak loadings. All factors loaded onto their respective factors with a extraction value of .75 or higher. Analysed together, parallel analysis suggested a 2 factor solution was appropriate. When conducting the EFA, the items "I have sought useful feedback from my superiors and colleagues," "I have established support from people outside of my work," and "I have surrounded myself with people whom I can learn" were eliminated sequentially due to high cross-loading. With these items eliminated, parallel analysis still suggested a two factor solution. The final EFA is reported in Table 1. 5 items for reactive / 3 items for proactive. The internal reliability measured by Cronbach's alpha for reactive DA scale is .89. For proactive DA scale, $\alpha = .85$. The correlation between the scale is $r = .62, p < .001$.

Study 1B: CFA

To determine whether the scales are distinct from each other, a CFA was conducted to help determine the validity of the proactive behaviours scale.

- This was tested using M-Plus 6.12.
- A two model CFA was compared to a one model CFA using the chi-square difference test.

- Fit was assessed using the CFI ($>.95$), TLI ($>.95$), RMSEA ($<.06$) and SRMR ($<.08$) cut-off criterion (Hu & Bentler, 1999).

Participants

- The second split sample contained 232 participants.
- Mean age was 42.91 years ($SD = 13.92$). Work hours 36.02 ($SD=14.49$). Gender, 62.6% male.
- An independent samples t-test did not reveal any significant differences between the participants age, work hours, gender or individual items in the scales.

Measures

The items as determined by the EFA in study 1a were used in the CFA. That is, five items were used to measure career initiative ($\alpha = .89$) and three items used to measure job change negotiation ($\alpha = .87$).

Results

The two factor CFA obtained an acceptable level of fit, $\chi^2(19) = 57.38, p < .01$, CFI = .966, TLI = .951, RMSEA = .093, SRMR = .037). Though RMSEA could be improved upon, given the small sample, and that other fit measures are fine, we do not think it appropriate to remove items or create correlations among item residuals. The two factor model has a significantly superior fit to the one factor model, $\Delta\chi^2(1) = 143.45, p < .01$. Standardised factor loadings for the five items in the reactive scale ranged from .70 to .88, and for the 3 items in the proactive scale ranged from .78 to .87.

Study 1c: Post-hoc validation testing

To provide some evidence for the construct validity of the proactive behaviours scale we conducted a post-hoc test to examine the correlation with D-A fit, N-S fit, active work

styles tired at work. As these are behaviours that are directed towards improving fit, we would expect a positive relationship with D-A fit, N-S fit and adaptive behaviours. It is also important to establish that these behaviours are distinct from the other “adaptive behaviours” within TWA, active work-styles.

Participants

- We used the whole sample from the previous two studies.

Measures

All item means, standard deviations and reliability coefficients are reported in Table 2.

Career initiative scale. Used the 5 items from the previous analyses.

Job change negotiation scale. Used the 3 items from the previous analyses.

Demands-abilities fit. To measure D-A fit, we used three items from Cable and DeRue’s (2002). The items included, “The match is very good between the demands of my job and my personal skills,” “My abilities and training are a good fit with the requirements of my job,” and “My personal abilities and education provide a good match with the demands that my job places on me.” All items were measured using a 7-point Likert-type scale (1 = *Strongly disagree* to 7 = *Strongly agree*).

Needs-abilities fit. Needs-supplies fit was measured using three items from Cable and DeRue (2002). Items included, “There is a good fit between what my job offers me and what I am looking for in a job,” “The attributes that I look for in a job are fulfilled very well by my present job,” and “The job that I currently hold gives me just about everything that I want from a job.” Items were measured using a 7-point Likert-type scale (1 = *Strongly disagree* to 7 = *Strongly agree*).

Active Work Styles. Active work styles was measured using 12 items (Bayl-Smith & Griffin, 2015). Active work styles is comprised of four separate facets, celerity, pace, rhythm, and endurance. All items were measured on 7-point Likert type scale (1 = *Never* to 7 = *Always*). Example items include “I started projects and tasks straight away” and “I expended a great deal of effort in carrying out my job”.

Results

As expected, reactive and proactive were positively related to D-A fit, N-S Fit and AWS. However, the relationships could be described as weak, indicating that they are quite distinct variables.

References

- Bayl-Smith, P. H., & Griffin, B. (2015). Measuring work styles: Towards an understanding of the dynamic components of the theory of work adjustment. *Journal of Vocational Behavior, 90*, 132–144. <http://doi.org/10.1016/j.jvb.2015.08.004>
- Cable, D. M., & DeRue, D. S. (2002). The convergent and discriminant validity of subjective fit perceptions. *Journal of Applied Psychology, 87*, 875–884. <http://doi.org/10.1037//0021-9010.87.5.875>
- Henson, R. K. (2006). Use of exploratory factor analysis in published research common errors and some comment on improved practice. *Educational and Psychological Measurement, 66*, 393–416. <http://doi.org/10.1177/0013164405282485>
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*, 1–55. <http://doi.org/10.1080/10705519909540118>
- Matsunaga, M. (2011). How to factor-analyze your data right: Do's, don'ts, and how-to's. *International Journal of Psychological Research, 3*, 97–110.
- Parker, S. K., & Collins, C. G. (2010). Taking stock: Integrating and differentiating multiple proactive behaviors. *Journal of Management, 36*, 633–662. <http://doi.org/10.1177/0149206308321554>

Table 1

Factor Loadings for the Proactive Behaviours Scale from Study 1a

Variable	1	2
I have spent time learning and practising	.85	-.04
I have participated in experiences that have expanded my abilities	.84	.02
I have advanced and developed my skills	.83	.04
I have actively acquired job knowledge through reading or personal research	.65	.11
I have engaged in training / workshops	.64	.10
I have transformed my working environment	-.06	.96
I have obtained better equipment/tools	.07	.73
I have changed the way in which my job tasks are done	.17	.62

Table 2

Study 1C: Summary of Intercorrelations, Means, Standard Deviations and Reliability Coefficient Alphas

	M	SD	1	2	3	4	5	6	7	8
1. Gender	.39	.49	-							
2. Age	42.45	13.18	.01	-						
3. Work hours/week	37.21	14.96	-.27**	-.04	-					
4. Reactive adjustment	4.44	1.06	.02	-.05	.21**	(.89)				
5. Proactive adjustment	4.11	1.18	-.01	-.12**	.19**	.65**	(.86)			
6. Demands-Abilities fit	5.39	1.11	.11*	.26**	.12*	.32**	.18**	(.90)		
7. Needs-Supplies fit	5.02	1.36	.06	.22**	.15**	.31**	.31**	.66**	(.93)	
8. Active Work Style	5.44	.84	.17**	.24**	-.01	.28**	.19**	.45**	.29**	(.94)

Note: $n = 465$. Reliability coefficients (Cronbach's alpha) are in parentheses on the diagonal. Gender 0 = Male, 1 = Female.

* $p < .05$.

** $p < .01$

Appendix 5: Scale development: Work styles fit

Study 1a: Item generation and exploratory analysis

Item generation

- 8 items were generated to measure perceived work styles fit.
- Their form borrowed from the widely used fit scales composed by Cable and DeRue (2002).
- Given that work styles has been conceived of being broken down into four separate components; celerity, effort, rhythm and endurance – so that the scale could adequately capture the content, 2 items for each facet were created.
- Items were generated by the first author, reviewed by Barbara Griffin.

Participants

- $N = 139$ – however, one respondent did not answer any items regarding work styles fit and was therefore excluded from the analysis. Therefore final $n = 138$.
- Participants were sourced using a snowballing sampling technique via Facebook and LinkedIn.
- All participants had to be working at least 8 hours per week ($M = 33.56$, $SD = 17.15$).
- 58.7% of respondents were female.
- The average age was 33.93 years, $SD = 15.10$.
- 58.7% indicated that they were employee's / team member's. 20.3% middle management / team leader. 21.0% senior manager.

Measure

All items were measured using a 5-point Likert-type scale (1 = *Strongly disagree* to 5 = *Strongly Agree*).

Items are listed in table 1.

To determine the factor structure of the items, we conducted an EFA using PAF with oblique rotation. Parallel analysis was used to determine the number of factors to retain in the EFA (Henson, 2006). Any items with a low loading ($<.40$) would be excluded from further analysis.

Results

Inter-item correlations ranged from $r = .34$ to $r = .58$ indicating a moderate to substantial relationship between items.

Parallel analysis suggests a 1 factor solution which was then examined with a PAF with Oblique rotation (Promax, $\kappa = 4$). All 8 items loaded $>.40$, accounting for 50.68% of total variance.

The internal reliability of the scale was $\alpha = .86$.

Study 1b: Post-hoc validation analysis

Possibility it is linked to D-A fit, N-S fit, Conscientiousness and Extroversion. All means, SD's and reliability coefficients (Cronbach's alpha) are reported in Table 2.

Measures

Work styles fit. Work styles fit was calculated by obtaining the mean of the eight items analysed in study 1a above.

Demands-abilities fit. Cable and DeRue's (2002) three item scale measuring perceived demands-abilities fit was used. The items included, "The match is very good between the demands of my job and my personal skills," "My abilities and training are a good fit with the requirements of my job," and "My personal abilities and education provide a

good match with the demands that my job places on me.” All items were measured using a 7-point Likert-type scale (1 = *Strongly disagree* to 7 = *Strongly agree*).

Needs-supplies fit. Likewise, needs-abilities fit was measured using items from Cable and DeRue (2002). Items included, “There is a good fit between what my job offers me and what I am looking for in a job,” “The attributes that I look for in a job are fulfilled very well by my present job,” and “The job that I currently hold gives me just about everything that I want from a job.” Items were measured using a 7-point Likert-type scale (1 = *Strongly disagree* to 7 = *Strongly agree*).

Personality. Extroversion and conscientiousness was measured using eight item scales from Saucier (1994). Each scale provided an adjective trait, for example “Talkative” and “Shy” for extroversion and “Efficient” and “Sloppy” for conscientiousness. Each item was measured using a 9-point Likert-types scale (1 = *Extremely inaccurate* to 9 = *Extremely accurate*).

Results

For the analysis, we examined the correlations between the items of interest. Work styles fit was positively related with D-A fit, N-S fit, extroversion and conscientiousness. The correlations were in the moderate range, $r = .38$ to $r = .48$, which suggests that work styles fit is a discrete construct. These results provide initial support that the scale is a valid construct.

Study 2: CFA and construct validity

To continue our examination of the validity of the work styles fit scale, we carried out a CFA to determine the appropriateness of using a composite score for all items.

- This was tested using M-Plus 6.12.

- To test convergent validity we examined the relationship between work styles fit and D-A and N-S fit, as well as active work styles.
- Discriminant validity was tested comparing work styles fit with workplace stress.
- Fit was assessed using the CFI ($>.95$), TLI ($>.95$), RMSEA ($<.06$) and SRMR ($<.08$) cut-off criterion (Hu & Bentler, 1999).

Participants

- ORU
- Employed for at least eight hours
- 465 respondents participated in the study, though six did not enter responses to the workstyles scale, and therefore were excluded from the analysis.
- The average age of participants 42.3 years ($SD = 12.98$), 61.1 percent were male. The average working hours was 37.17 hrs per week ($SD = 14.99$). was
- How they compared to an Australian sample.

Measures

The means, standard deviations and reliability coefficients are reported in Table 3.

Work styles fit. Work styles fit was measured using the eight items from study 1. The wording of the items and factor loadings are reported in Table 1. All items were measured using a 7 point Likert-type scale

D-A fit. As in study 1b, D-A fit was measured using the three items from Cable and DeRue (2002). All items were measured using a 7-point Likert-type scale (1 = *Strongly disagree* to 7 = *Strongly agree*).

N-S fit. N-S fit was also measured using 3-items from Cable and DeRue (2002). All items were measured using a 7-point Likert-type scale (1 = *Strongly disagree* to 7 = *Strongly agree*).

Active work styles. Active work styles and its constituent components were measured using the scale developed by Bayl-Smith and Griffin (2015). Each facet of active work styles had three items measured on 7-point Likert type scale (1 = *Never* to 7 = *Always*). Example items celerity, pace, rhythm and endurance respectively included “I started projects and tasks straight away,” “I put a lot of energy into my work tasks,” “My level of effort was steady over time,” and “I finished whatever I began.”

General Job Stress. Stress was measured using the revised stress in general (SIG) scale developed by Yankelevich, Broadfoot, Gillespie, Gillespie and Guidroz (2012). The 8-item scale included statements used to describe the participants current job situation, including the example items, “Demanding” and “Pressured”. Each items was rated using a 4-point Likert-type scale (1 = *Not at all* to 4 = *A lot*).

Results

Confirmatory analysis revealed a satisfactory fit for a single measure ($\chi^2(20) = 75.253, p < .001$; CFI = .979, TLI = .971, RMSEA = .078, SRMR = .021). RMSEA was over the desired threshold, but was close to .06, and other indicators of fit suggest an acceptable level of fit, so the model was deemed acceptable.

Examination of the correlation table (Table 3) confirms a moderate positive relationship with D-A fit, N-S fit and active work styles and its separate facets with correlations ranging from $r = .44$ to $r = .67$. Furthermore, work styles fit was not related to workplace stress ($r = -.02$) demonstrating discriminant validity. To further test the construct validity the work styles fit scale, a CFA was conducted that included work styles fit, D-A fit,

N-S fit and a second order active work styles factor comprised of its four facets. The eight factor measurement model with one second-order factor demonstrated good levels of fit, $\chi^2(289) = 719.956, p < .001$; CFI = .955, TLI = .950, RMSEA = .057, SRMR = .040, and were significantly superior to models that combined work styles fit and N-S fit ($\Delta\chi^2(3) = 690.414, p < .001$) or D-A fit ($\Delta\chi^2(3) = 500.988, p < .001$) into a single factor. This provides additional evidence that work styles, though related to N-S fit and D-A fit, is none-the-less quite distinct.

References

- Bayl-Smith, P. H., & Griffin, B. (2015). Measuring work styles: Towards an understanding of the dynamic components of the theory of work adjustment. *Journal of Vocational Behavior, 90*, 132–144. <http://doi.org/10.1016/j.jvb.2015.08.004>
- Cable, D. M., & DeRue, D. S. (2002). The convergent and discriminant validity of subjective fit perceptions. *Journal of Applied Psychology, 87*, 875–884. <http://doi.org/10.1037//0021-9010.87.5.875>
- Henson, R. K. (2006). Use of exploratory factor analysis in published research common errors and some comment on improved practice. *Educational and Psychological Measurement, 66*, 393–416. <http://doi.org/10.1177/0013164405282485>
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*, 1–55. <http://doi.org/10.1080/10705519909540118>
- Saucier, G. (1994). Mini-markers: A brief version of Goldberg's unipolar big-five markers. *Journal of Personality Assessment, 63*, 506–516. http://doi.org/10.1207/s15327752jpa6303_8
- Yankelevich, M., Broadfoot, A., Gillespie, J. Z., Gillespie, M. A., & Guidroz, A. (2012). General job stress: A unidimensional measure and its non-linear relations with outcome variables. *Stress and Health, 28*, 137–148. <http://doi.org/10.1002/smi.1413>

Table 1

Factor Loadings for the Work Styles Fit Scale from Study 1 and Study 2

Variable	Study 1	Study 2
The match between the level of energy needed for my job and how much energy I typically expend is very good	.73	.81
My level of perseverance at work is a very good match with what my job requires	.73	.84
My endurance in work tasks fits well with what is needed in my job	.68	.86
How hard I work in my job matches the requirements of my job	.66	.78
How quickly I typically respond to work demands fits well with what is needed in my job	.64	.83
The match between the speed of my decision making and that required by my job is very good	.63	.76
The pattern of work in my job (a constant workload or irregular workload) matches very well with how I work.	.62	.76
My rhythm of effort at work (a constant level of effort or more irregular effort) is a good fit with my job	.60	.84

Table 2

Study 1B: Summary of Intercorrelations, Means, Standard Deviations and Reliability Coefficient Alphas

	M	SD	1	2	3	4	5	6	7	8
1. Gender	.59	.49	-							
2. Age	33.93	15.10	-.20	-						
3. Work hours/week	33.56	17.15	-.35**	.51**	-					
4. Work styles fit	3.96	.53	.01	.10	.14	(.86)				
5. Demands-Abilities fit	5.68	1.11	.07	.30**	.18*	.40**	(.86)			
6. Needs-Supplies fit	4.81	1.58	-.05	.37**	.29**	.48**	.70**	(.91)		
7. Extroversion	6.22	1.37	.09	.24**	.30**	.43**	.30**	.30**	(.87)	
8. Conscientiousness	7.03	1.12	.09	.31**	.29**	.38**	.35**	.28**	.29**	(.83)

Note: $n = 138$. Reliability coefficients (Cronbach's alpha) are in parentheses on the diagonal. Gender 0 = Male, 1 = Female.

* $p < .05$.

** $p < .01$.

Table 3

Study 2: Summary of Intercorrelations, Means, Standard Deviations and Reliability Coefficient Alphas

	M	SD	1	2	3	4	5	6	7	8	9	10	11
1. Gender	.39	.49	-										
2. Age	42.30	12.98	.01	-									
3. Work style fit	5.38	.94	.08	.21**	(.94)								
4. Demands-Abilities fit	5.39	1.12	.11*	.26**	.67**	(.91)							
5. Needs-Supplies fit	5.03	1.35	.05	.21**	.66**	.66**	(.92)						
6. Celerity	5.42	.97	.15**	.19**	.44**	.33**	.20**	(.90)					
7. Pace	5.35	.98	.17**	.16**	.46**	.40**	.31**	.65**	(.87)				
8. Rhythm	5.40	.92	.13**	.25**	.57**	.45**	.36**	.69**	.75**	(.87)			
9. Endurance	5.56	.93	.15**	.25**	.48**	.40**	.21**	.68**	.67**	.71**	(.80)		
10. Active work style	5.43	.83	.17**	.24**	.55**	.45**	.30**	.86**	.88**	.90**	.87**	(.94)	
11. Workplace Stress	2.41	.70	-.01	-.20**	-.02	.01	-.02	-.02	.15**	.00	.01	.04	(.90)

Note: $n = 459$. Reliability coefficients (Cronbach's alpha) are in parentheses on the diagonal. Gender 0 = Male, 1 = Female.

* $p < .05$.

** $p < .01$.

Appendix 6: Information & Consent Forms

Dataset 1

Information & Consent Form Work Style and Adaptive Behaviour Researchers: Mr Piers Bayl-Smith & Dr Barbara Griffin

Background

You are invited to participate in a study exploring work styles and adaptive workplace behaviour.

Through a range of tasks, projects and personal interactions, a job can place a number of demands upon an individual worker. Some workers believe that they have the skills and abilities to meet these demands, while others may believe that there is a significant gap between what their job requires from them and what they in turn can offer.

This particular research explores this perception of "fit" (how your skills and abilities fit the demands of your job) in relation to your work style (i.e., how you typically approach work). Because work style factors have not been measured previously, we are also interested in how they might relate to other personality constructs and outcomes. In particular, we are interested in how someone's work style is related to their adaptive and proactive behaviours at work.

What's Required?

If you decide to participate, you will be asked to complete a questionnaire regarding your basic demographic information, personality, perceptions of fit with your job and organisation, your work style and your feelings and attitudes towards your current employment.

This study should take no more than **45** minutes to complete.

Participants will have the opportunity to enter a draw to win one of three \$50 gift vouchers from Myers. A web-link to enter the draw will be provided at the end of the survey.

Participation in this study is entirely voluntary: you are not obliged to participate and you are free to withdraw at any time.

Will my responses be anonymous?

Any information or personal details gathered in the course of the study are confidential (except as required by law). No individual will be identified in any publication of the results. Only the researchers named above will have access to the study data; in any case, your name and email will not be linked to the data you provided in the questionnaire. A summary of the results of the data can be made available to you on request – please email Piers at the address below above if you are interested in receiving a report of the research findings or check the appropriate box in the prize draw form.

This research is being conducted by Piers Bayl-Smith (Ph: 0425 302 073, piers.bayl-smith@students.mq.edu.au) to meet the requirements of the Doctor of Philosophy in Organisational Psychology, under the supervision Dr Barbara Griffin, (Associate Professor, Macquarie University, Ph: 98509012, barbara.griffin@mq.edu.au) of the Department of Psychology.

The ethical aspects of this study have been approved by the Macquarie University Human Research Ethics Committee. If you have any complaints or reservations about any ethical aspect

of your participation in this research, you may contact the Committee through the Director, Research Ethics (telephone (02) 9850 7854; email ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

Datasets 2 and 3

Information & Consent Form Work Style and Adaptive Behaviour - Time 1 Researchers: Mr Piers Bayl-Smith & Dr Barbara Griffin

Background

You are invited to participate in a study exploring work styles and adaptive workplace behaviour in people aged 45 and over.

Through a range of tasks, projects and personal interactions, a job can place a number of demands upon an individual worker. Some workers believe that they have the skills and abilities to meet these demands, while others may believe that there is a significant gap between what their job requires from them and what they in turn can offer.

This particular research explores this perception of "fit" (how your skills and abilities fit the demands of your job) in relation to your work style (i.e., how you typically approach work). Because work style factors have not been widely measured, we are also interested in how they might relate to other personality constructs and outcomes. In particular, we are interested in how someone's work style is related to their adaptive and proactive behaviours at work.

The Researchers

This research is being conducted by Piers Bayl-Smith (Ph: [REDACTED]) to meet the requirements of the Doctor of Philosophy in Organisational Psychology, under the supervision Dr Barbara Griffin, (Associate Professor, Macquarie University, Ph: [REDACTED]) of the Department of Psychology at Macquarie University.

What's Required?

If you decide to participate, you will be asked to complete an online questionnaire once a month, for three months. Each questionnaire should take no more than **20** minutes to complete. If you do choose to take part, your continued participation is completely voluntary and you may withdraw at any time.

The questionnaire asks you about some demographic information, personality, perceptions of fit with your job and organisation, your work style and your feelings and attitudes towards your current employment.

Participation in this study is voluntary: you are not obliged to participate and you are free to withdraw at any time.

A summary of results can be made available to you upon request – please email Piers Bayl-Smith (piers.bayl-smith@mq.edu.au) if you are interested in receiving a report of the research findings.

The ORU - Incentives

The ORU will manage all incentives associated with this research. The ORU will be informed when a survey has been completed, but no data collected from this survey will be given to any

other party, including The ORU.

Will my responses be anonymous?

Any information or personal details gathered in the course of the study are confidential (except as required by law). No individual will be identified in any publication of the results. Only the researchers named above will have access to the study data. Your personal details (e.g., name or email), apart from those collected in this study, are not known by the researchers and therefore cannot be linked to any data you have provided in the questionnaire.

The ethical aspects of this study have been approved by the Macquarie University Human Research Ethics Committee. If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Committee through the Director, Research Ethics (telephone (02) 9850 7854; email ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

Dataset 4

Information for participants

Successful Transition to a Healthy Retirement Project

This is a sub-study of the 45 and Up Study, looking at the process of how and when people transition into retirement. As the Baby Boomer generation moves into retirement, their patterns of work, leisure and overall adjustment are likely to be different to those of earlier generations. Therefore, it is important to understand what factors are associated with healthy and enjoyable retirements in order to provide the best support and opportunities to maximise people's ability to adjust to changing needs and environments.

The researchers

Dr Barbara Griffin from Macquarie University and Professor Beryl Hesketh from the University of Western Sydney are funded by the Australian Research Council to conduct this research.

Who has been invited

This sub-study has been running for three years. Participants include men and women, now aged over 58 years, from all walks of life, all social and ethnic backgrounds and all lifestyles and interests who are currently engaged in some form of paid work (either full time, part time, casual, or contract) or have recently retired. Over 2,000 people were randomly selected from the 45 and Up Study and invited to take part in this sub-study.

What this sub-study involves

Invited participants have been asked to complete an online questionnaire, once a year for four years, with one additional questionnaire if they have changed their pattern of work within this four year period (i.e. retire or cut back on work hours). Each questionnaire takes about 30-40 minutes to complete. Participants may withdraw at any time, by calling the 45 and Up Study Infoline on 1300 45 11 45. They may also withdraw from this sub-study and still remain in the 45 and Up Study.

What sort of information will be collected

Each questionnaire asks participants about their general attitudes to retirement and work, plans and expectations regarding transitioning into retirement, and overall health, activity and wellbeing.

How the researchers will use the information

The information collected in this sub-study will be used to identify common “patterns” of planning for and adjusting to retirement.

Once this sub-study is complete, the information participants have provided will be included in the 45 and Up Study data.

Our commitment to security and confidentiality

All information provided as part of this research is bound by Commonwealth and State privacy legislation and guidelines. The researchers, and the 45 and Up Study, are committed to providing a high standard in handling personal information. All information collected will be treated completely confidentially and used for research only.

To further ensure security and confidentiality, all information will be stored, analysed and reported on with identifying details, such as name and address, removed. No information will be released in a way that would allow an individual or household to be identified.

In addition, this sub-study is accountable to both the University of Western Sydney Human Research Ethics Committee and the Macquarie University Human Ethics Committee.

The researchers conducting this sub-study will not have access to your identifying information unless you give your consent to participate.

How the information provided will help you, and others

Moving into retirement is not an easy process and information from the Successful Transition to a Healthy Retirement Study will give us a better understanding of what determines adjustment to retirement and how individuals and employers can act to improve the quality of life in retirement.

How to participate

If you have previously provided consent to be part of this ongoing research, you will be emailed an invitation and provided with a link to complete each online questionnaire.

At this stage the Retirement Transition Study is not looking for volunteers.

More information

You can call the 45 and Up Study Infoline on 1300 45 11 45 to find out more and get regular updates on the progress of this sub-study. Participants in this sub-study will also receive a summary report of the findings at the end of the study.

Participants in this study may also contact the researchers directly:

Dr Barbara Griffin
Senior Lecturer
Department of Psychology
Macquarie University
NSW 2109

Ph: [REDACTED]

Email: [REDACTED]

Complaints or reservations about the ethical conduct of this research

You may contact the University of Western Sydney Ethics Committee through the Research Ethics Officer, nominated as Complaint Officer, by email humanethics@uws.edu.au or telephone: 02 47 360 883. Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.

Dataset 5

Information & Consent Form

Adaptive Behaviours at Work - Time 1

Researchers: Mr Piers Bayl-Smith & Dr Barbara Griffin

Background

You are invited to participate in a study exploring workplace fit and adaptive workplace behaviours.

As you have probably experienced, organisations and job roles undergo change as a result of restructuring, amendments to government policy and advancement in technology – to name just a few. Also, as a result of life experiences, we as people undergo changes in our abilities and values. Therefore, so that our roles remain compatible with our skills and standards, we often find ourselves having to make adjustments in the things we do or in how we perceive our work environment.

This survey looks at some of the things we do to adapt and adjust to create a better fit between ourselves and our place of work. It also examines a number of other factors that may affect how you view [ORGANISATION NAME].

By participating you will help us to better understand your needs and identify possible barriers to achieving a positive and beneficial correspondence of values and abilities with your organisation. It is our hope that a better understanding of these factors may positively influence [ORGANISATION NAME] values, policies and training programs for all ages leading to increased job satisfaction, well-being, productivity and continued involvement.

As a small incentive, Macquarie University are offering participants who complete the survey the chance to win one of three \$50 Myer gift cards.

The Researchers

This research is being conducted by Piers Bayl-Smith (Ph: [REDACTED] (M) or [REDACTED] (W), [REDACTED]) to meet the requirements of the Doctor of Philosophy in Organisational Psychology, under the supervision Dr Barbara Griffin, (Associate Professor, Macquarie University, Ph: [REDACTED]) of the Department of Psychology at Macquarie University.

The research is also being assisted internally at [ORGANISATION NAME] by [CONTACT]

What's Required?

If you decide to participate, you will be asked to complete two online questionnaires with a three month interval. Each questionnaire should take less than 30 minutes to complete. The questionnaire asks you about some demographic information, personality, perceptions of fit with your job and organisation, your adjustment behaviours, and your feelings and attitudes towards your current employment and career.

Participation in this study is voluntary: you are not obliged to participate and you are free to withdraw at any time. A summary of results can be made available to you upon request – please email Piers Bayl-Smith (piers.bayl-smith@mq.edu.au) if you are interested in receiving a report of the research findings.

Will my responses be anonymous?

Any information or personal details gathered in the course of the study are confidential (except as required by law). No individual will be identified in any publication of the results. Furthermore, all results will be reported as averages so that no individuals could possibly be identified. Only the researchers named above will have access to the study data. Your personal details (e.g., name or email), apart from those collected in this study, are not known by the researchers or [ORGANISATION NAME] and therefore cannot be linked to any data you have provided in the questionnaire.

The ethical aspects of this study have been approved by the Macquarie University Human Research Ethics Committee. If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Committee through the Director, Research Ethics (telephone (02) 9850 7854; email ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome

Appendix 7 of this thesis has been removed as it may contain sensitive/confidential content