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<td>Fok, Hao Nam Franco (霍灝枬)</td>
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An investigation of age difference on organizational citizenship behaviors: The role of personal resources and occupational future time perspectives

A Report Submitted to
Department of Applied Social Studies
in Partial Fulfillment of the Requirements for the Bachelor of Social Sciences in Psychology

by

Fok Hao Nam, Franco

April, 2011
Abstract

This study focuses on three objectives: (i) to provide support for the personal resources model of the relationship between psychological capital (PsyCap) and organizational citizenship behaviors (OCB) through the mediation of work engagement; (ii) to examine the role of occupational future time perspective (FTP) on OCB; and (iii) to investigate whether the relationship among PsyCap and work engagement and OCB would vary between age. In a sample of technicians and engineers from Hong Kong (N = 183), results suggest that PsyCap, work engagement and occupational future opportunities predict OCB and age moderates the relationship between PsyCap and work engagement. Also, moderated mediation analysis shows that work engagement mediate the relationship between PsyCap and OCB among middle-aged and older workers but not among younger workers. Present findings suggest that the impact of motivational forces and personal resources on organizational contribution are different between younger and older workers. Future research directions and practical implications for human resources practitioners are discussed.
Acknowledgement

The accomplishment of Final Year Project is challenging yet joyful. This journey would have been tougher without people lend a hand on me during hardship. Therefore, I would like to express my greatest gratitude to those people who facilitate the completion of this Final Year Project.

I would like to thanks my supervisor, Dr. Danni Yeung, for giving me inspiration and guidance throughout the journey. Her tutoring and support has fostered my independence and interest to conduct applied research in a professional manner. This would be the most valuable attainment throughout my undergraduate studies.

Also, I would like to thanks my statistic tutor, Kin, for his patience instruction on statistical analysis that I learn a lot from his tutoring.

On the other hand, I would like to thanks Mr. Man Wai Cheung and Miss Judy Leung for their kindness and patience in responsible for the data collection process. Without their assistance, the present study would not be able to finish in the present form.
Thesis Submission Declaration Form

City University of Hong Kong
Department of Applied Social Studies

Thesis Submission Declaration Form

Student Name:

Student No.:

Title of Thesis/Dissertation:

Course Code: SS4708

Programme: BSSPSY

Supervisor’s Name:

I have read and understood the following

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Signature: Fok Hao Nam, Franco Date: 15-2-2012
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Chapter 1: Introduction and Literature Review

Developed countries are currently facing the challenge of ageing population and low fertility rate. It was predicted that in the year 2050, workers aged above 50 will occupy 33% of the global working population (United Nation, 2007). While the availability of younger workers decreases, the proportion of aged workforce will increase substantially (Ross, 2010). This situation implies organizations will have greater dependency on older worker in the future. Therefore, knowledge to promote and maintain the productivity and well-being of the ageing workforce is needed.

Compared with younger workers, there are more misconceptions on older workers about their work performance. Henkens (2005) identified three dimensions of stereotypes that people view on older workers concerning their productivity and adaptability. Also, a cross-culture comparative study shown that older workers in Hong Kong faced more stereotypes than UK workers and these stereotypes could influence personnel decision and agitated for age discrimination in workplace (Chiu, Chan, Snape, & Redman, 2001). Such discrimination in workplace may place older workers less probable in receiving training and development opportunity and in greater risks when there are organizational layoffs. However, increasing evidences supported that older workers could contribute to organizations in various ways such as utilizing materials economically during work (Salthouse, 1991) and satisfactory maintenance of job
competence (Warr, 2001). Moreover, there is no difference in the frequency of work accidents between younger and older workers (Benjamin & Wilson, 2005). Although researches revealed that younger workers are more engaged at work because of the pursuit of personal goals and striving for identity achievement (Hyvonen, Feldt, Salmela-Aro, Kinnunen, & Makikangas, 2009; Luyckx, Duriez, Klimstra, & De Witte, 2010), it does not mean that older workers are less engaged or less productive in their job. In the meta-analysis by Ng and Feldman (2008), they shown that older workers perform more OCBs, engaged in more safety practices and displays fewer counterproductive behaviors such as aggressive behaviors and absenteeism. Therefore, the competence between younger and older workers may far less different as people may have conceived. Rather, they can have high engagement at work similar to their younger counterparts, but with different underlying factors.

Lifespan theory suggested that motivation and goals changes across individual development. As organization is an inclusive workplace which the employees are diverse in age, it is a valuable context to study how developmental factors influence the striving between different cohorts of employees. According to Carstensen, Isaacowick, and Charles (1999) socioemotional selectivity theory (SST), older adults emphasize in achieving emotionally meaningful goals (e.g. harmonious interpersonal relationship) while younger adults focus in knowledge expansion and personal development (e.g. career objectives). SST is evidenced by Lang and Carstenen (2002) that people’s goal
can be manipulated by future time perspective (FTP). FTP represents individuals’
perception on their remaining time and remaining opportunities in the future, thus it has
been found to be negatively related to age (Zacher & Frese, 2009).

**Hypothesis 1:** Age is negatively associated with occupational FTP.

In work psychology context, employees with expansive FTP are focused more on
future opportunities (Carstensen, 2006) such that they are likely committed to work by
organizational inducements such as finance or promotion (Bal, Jensen, Van der Velde,
de Lange, & Rousseau, 2010). In contrast, individuals with less FTP perceive their
future are less probable to new opportunities, and it was found that older workers with
limited FTP focus more on loss prevention goals (De Lange, Yperen, Van der Heijden,
& Bal, 2010). SST can be applied to work psychology to illustrate the age differences in
personal goals and concerns which suggest the motivational forces are different among
younger and older workers. Therefore, it is generally accepted that older workers are
less focused on personal achievement goals such as striving for career development and
knowledge expansion (Freund, 2006). Rather, older workers tend to increasingly
emphasize avoidance goals to ensure minimal loss of current resources (Kanfer &
Ackerman, 2004). Although researches have evidenced that older workers are less
concerned with personal advancement (e.g. Lucykx, et al, 2010, Zacher, Heusner,
Schmitz, Zwierzanska, & Frese, 2010), their motivation to contribute and committed to
an organization are not limited to whether an employee could derive rewards or status
from an organization to fulfill achievement goals. It was supported by Fung and Carstensen (2004) that employees with limited FTP were less concerned with organizational inducements but emphasize more on the relationships with colleagues as an expression on personal goal shift and selection. Given that age is closely related to the perception on individual’s future, FTP is suggested as the antecedents of altruistic and generative behaviors toward the organization and colleagues because such behaviors are important for older workers to accomplish emotionally meaningful goals (Fung & Carstensen, 2004; Grant & Wade-Benzoni, 2009; Wagner & Rush, 2000).

**Hypothesis 2:** Occupational FTP is positively associated with OCB.

The meta-analysis by Ng and Feldman (2008) found that age was positively related to OCB. However, using age as the predictor of various organization outcomes may results inconsistent relationship as the association between age and performance is rather small because of several intermediate factors influence the association, thus it is possible to find a mediating effect by identifying multiple mediating path (Ng & Feldman, 2008; Shrout & Bolger, 2002). As such, variables which are assumed to be related with age would possibly mediate the effect between age and OCB, and therefore the differentiation of future opportunities and future time would provide information whether multiple mediating paths attenuated the overall mediating effect.

**Hypothesis 3:** Occupational FTP mediates the positive relationship between age and OCB.
SST has provided clues on the difference of motivational force among younger and older workers. However, simply having the desire to strive may not be enough for the employees to sustain their good performance overtime in an ever-changing workplace. Seligman’s (2003) advocacy on positive psychology had driven the movement of positive organizational scholarship. Studies has oriented to the emphasis of employees’ positive qualities contributing to the organization such as work motivation and positive organizational behaviors (Cameron, Dutton, & Quinn, 2003). Conversation of resources (COR) theory has provided the framework on how employees motivated and sustained positive work behaviors by an aggregation of four types of resources namely objects, conditions, personal characteristics and energies that facilitate employees to thrive (Hobfoll, 1989). COR have two assumptions. First, it assumed that employees utilize their accumulated resources to cope with challenges and stress, thus possess greater resources means greater protection from work overload. Second, it hypothesized that the accumulation of resources assists employees to acquire more resources and prevent resources loss. For example, employees specialized in computer technology could sustain career achievement and prevent from unemployment by continuous education to accumulate skills and experiences. Empirical research has evidenced the positive effect of resources. Several longitudinal studies found that there is a reciprocate interaction between job (e.g. supportive atmosphere) and personal resources (e.g. efficacy belief) that foster work engagement (e.g. Hakanen, Perhoniemi,
& Toppinen-Tanner, 2008; Salanova, Bakker, & Llorens, 2006, Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009). Regarding to Bakker and Demerouti’s (2006) job demands-resources model (JD-R) in predicting work engagement, psychological capital (PsyCap) is a kind of personal resources which build upon the influence of job resources and directly promote work engagement (van den Heuvel, Demerouti, Schaufeli, & Bakker, 2010). In the present research, focus is placed on the role of PsyCap in predicting work engagement and its positive outcomes. According to Luthans, Avolio, and Avey (2007a), PsyCap is “an individual’s positive psychological state of development characterized by self-efficacy, optimism, hope and resilience” (p.3). These components of PsyCap are well-studied individually in predicting various positive organizational outcomes. Self efficacy has shown to be enhanced by supervisory support in workplace which would increase work engagement (Xanthopoulou et al., 2009a), buffering the negative effect of emotional dissonance at work (Heuven, Bakker, Schaufeli, & Huisman, 2006), and increase job performance (Stajkovic & Luthans, 1998). Also, reduced self efficacy can lead to work disengagement (Schaufeli & Bakker, 2004). Optimism is an attribution style that an individual perceives current challenges as positive, thus anticipates a bright future. It has shown to be positively related to employees’ productivity (Seligman & Schulman, 1986), positive stress appraisal (Jurasalem, 1993), and is influenced by work support in predicting work engagement and financial outcomes (Xanthopoulou, Bakker, Schaufeli, & Demerouti, 2009b). Hope
is the ability and motivation to contemplate plans to attain goals in spite of obstacles (Avey, Wernsing, & Luthans, 2008; Snyder, 2002). Individuals without hope would impact their achievements because of lacking strategies in goal pursuit (Maslach, Schaufeli, & Leiter, 2001). It was found that hope is positively related to work engagement in which the employees are dedicated to achieve work goals vigorously (Sweetman & Luthans, 2010). Resilience is the ability to bounce back from adversity and reorienting oneself to face challenges (Masten, Best, & Garmezy, 1990). It has shown to buffer the effect of burnout for maintaining work engagement (Bakker, Demerouti, & Euwema, 2005) and promotes work engagement through the recovery of energy and vigor (Sonnetag, 2003). Though each of these PsyCap constructs could independently enhance employees’ performance and contribution, it was suggested that these personal resources combined together would provide stronger predictability on performance outcomes (Luthans et al, 2007a). For example, when employee is able to bounce back from hardship (i.e. resilience) with mastery of work skills (i.e. self-efficacy) and believe their future is prospective where goals are reachable (i.e. optimism and hope), it is expected that employee would have higher participation in work (Luthans et al., 2007a). Thus, the positive effect of personal resources would enhance employee’s motivation and enjoyment in their work.

**Hypothesis 4:** PsyCap is positively associated with work engagement.

Having good work motives and abundance resources is expected leading to high
work engagement. The concepts of work engagement was originated from Kahn (1990) that refers to “employee harness themselves to their work roles by which they employ and express themselves physically, cognitively, emotionally and mentally during role performances” (p. 694). Schaufeli, Salanova, Gonzalez-Roma, and Bakker (2002) provided a widely used concept of work engagement as “positive, fulfilling, work-related state of mind characterized by vigor, dedication and absorption” (p. 74). According to Fredrickson (2001) broaden-and-build (B&B) theory, positive emotional states such as enthusiasm and contentment could widen peoples’ minds and increase their choices of behaviors (e.g. more innovative and flexible) which further accumulate personal resources such as psychological well-being. Given that work engagement has strong affective-motivational meaning (Schaufeli, et al, 2002), it is expected that work engagement serves both the antecedents and consequences of positive emotions (Salanova, Schaufeli, Xanthopoulou, & Bakker, 2010). B&B emphasized the influence of positive affect and it was found that positive moods at work predicted higher task performance (Tsai, Chen, & Liu, 2007). Still, researches on work engagement largely focused on personal gains and limited attention is given to the potential contribution towards organization. The present study employed the constructs of work engagement from Schaufeli and his colleagues (2002) as it stimulated considerable research in recent years to discover its positive consequences such as employees’ proactive behavior (Salanova & Schaufeli, 2008) and organizational commitment (Halbesleben, 2010).
Given that work engagement indicates employees high in energy, devotion and involvement in jobs, it is hypothesized that highly engaged employees would perform more OCB as this group of employees has adequate energy and motivation about their job.

**Hypothesis 5**: Work engagement is positively associated with OCB

To date, studies had discovered the positive outcomes of PsyCap such as employee well-being (Avey, Luthans, Clapp-Smith, & Palmer, 2010) and effective stress management (Avey, Luthans, & Jensen, 2009), and it is positively related to OCB and negatively related to counter-productive behaviors (Avey, Luthans, & Yousseff, 2010). Moreover, cross-cultural studies have validated the Chinese measurement scale of PsyCap and have been demonstrated its power to predict supervisory evaluations and performance of Chinese workers (Luthans, Avey, Smith, & Li, 2008; Luthans, Avolio, Walumbwa, & Li, 2005). Thus, a resourceful work environment plus employees’ psychological strength is crucial for positive work states. Although studies have been discovered the positive outcomes of PsyCap, intermediate variables which motivate an employee to engage in positive organizational behaviors is unknown. With the assumption of B&B theory, it is likely that the positive affective components in work engagement may serve an indicator of performance. It was found that positive emotions associated with more interpersonal cooperation (Barsade, Ward, Turnove, & Sonnenfeld, 2000). As such, work performance indicator such as OCB which emphasized helping
and effectiveness in workplace would be driven by work engagement.

**Hypothesis 6:** Work engagement mediates the positive relationship between PsyCap and OCB.

To extend the knowledge on the relationship between resources and performance at workplace where employees are diverse at age, it is essential to address the age difference in the sources of motivation and employees’ reactions with various resources. In fact, PsyCap is suggested to be accumulative that could be increased with age (Luthans, Avey, & Patera, 2008). It was found that older workers (i.e. aged 50 or above) are generally high in the overall PsyCap than younger workers because they possess more work-related knowledge and accumulated adequate experiences in handling adverse events which could further increase their hope and optimism in facing work challenges (Hao, 2010). Thus, the difference of aggregated personal resources may suggest older employees are more engaged at work.

**Hypothesis 7:** Age moderated the positive effect of PsyCap on work engagement, with a stronger association on older adults than younger adults.

Age difference is also evidenced in workplace contribution. Researchers have found that older employees perform more extra-role behaviors such as teaching of skills and passing work philosophy which facilitate growth of their younger counterparts (Hall & Mansfield, 1975; Kleibr & Nimrod, 2008). Such contribution is suggested as an expression of generativity which facilitates older adults’ subsequent development with
higher well-being (Erikson, 1950; McAdams and St Aubin, 1992). In fact, Clark and Arnold (2008) found that older men feel joyful at work through helping colleagues’ development rather than solely striving for productivity. The expression of generativity is found to be positively related to competence, achievement striving, dutifulness and altruism (Cox, Wilt, Olson, & McAdams, 2010). Given that older adults emphasize more emotionally meaningful goals, it is also possible that the increase in work engagement which implies positive emotion would subsequently leads to more positive organizational behaviors among older employees.

**Hypothesis 8**: Age moderates the positive relationship of PsyCap on OCB through work engagement, in which work engagement mediates the relationship only when age is high.
Conceptual Model

To provide clear understandings on the conceptual framework of the present study, a proposed model with hypotheses summary is presented in figure 1.

Figure 1: Graphic illustration of proposed mediation and moderated mediation model.

H1: Age is negatively associated with occupational FTP.
H2: Occupational FTP is positively associated with OCB.
H3: Occupational FTP mediates the positive relationship between age and OCB.
H4: PsyCap is positively associated with work engagement.
H5: Work engagement is positively associated with OCB
H6: Work engagement mediates the positive relationship between PsyCap and OCB.
H7: Age moderated the positive effect of PsyCap on work engagement, with a stronger association on older adults than younger adults.
H8: Age moderates the positive relationship of PsyCap on OCB through work engagement, in which the mediating effect of work engagement is only shown in older employees but not younger employees.
Chapter 2: Methodology

Participants

Participants were technicians and engineers working for a railway corporation in Hong Kong. Originally, there were 192 participants. The present study excluded 9 female participants to make the sample homogenous. Subsequently, data from 183 male participants entered for analysis. Age ranges from 22 to 60 years ($M = 42.93$, $SD = 9.04$). Participants in the present sample were equally divided into 3 age groups using 33.33% percentile. Younger workers were aged between 22 to 38 years. Middle-aged workers were aged between 39 to 48 and older workers aged between 49 to 60 years. Among the sample, 60 obtained diploma, 49 secondary school education, 45 bachelor degree, 23 pursued master or above education, and 6 finished primary school education. The distribution of job position is hierarchical with 71 technicians, 30 senior technicians, 35 supervisors, 38 officers and 9 managers. In this sample, the tenure of employees ranged from 1 month to 35 years ($M = 16.23$ years, $SD = 9.41$).

Research Procedures

The recruitment of participants began in October 2010. First, invitation of research participation was sent to the maintenance department of the company. Upon research approval, procedures and questionnaires content were negotiated with the person-in-charge in the maintenance department. Data collection started in December. Questionnaires were distributed through the company’s internal mailing to reach
different maintenance divisions of the entire company. To ensure confidentiality, an adhesive paper is attached to each survey to fold up for the completed questionnaires. Person-in-charge in different divisions collected the questionnaires from employees, sealed and returned to the collection office located in the maintenance department through the internal mailing system. In addition, participants were informed to have the rights to have a lucky draw of cash coupons as a token for participation. Participants have the liberty on whether to leave contact method in case of successful prize gain.

**Measures**

Work engagement is measured by using the 9-item Utrecht Work Engagement Scale (UWES-9; Schaufeli & Bakker, 2003; Yi-Wen & Yi-Qun, 2005). The 9-item version has shown a stronger construct validity than 17-item version (Nerstad, Richardsen, & Martinussen, 2009) and generated a good reliability ($\alpha = .92$) in different countries (Schaufeli, Bakker, & Salanova, 2006). The scale measures absorption, dedication and vigor with 3 items. Sample item includes “I am immersed in my work”. Participants respond on a 7-point scale ranging from 1 (Never) to 7 (Strongly agree), with higher scores indicating a higher level of work engagement. A mean score of UWES was used in data analysis by averaging the 9 items. The Cronbach’s alpha of this measure was .94.

Psychological capital is measured by the Psychological Capital Questionnaire (PCQ-24; Luthans, Avolio, et al., 2007). The scale measures self-efficacy, hope,
resilience and optimism with 6 items. Sample item includes “I feel confident contributing to discussions about the company's strategy”. Responses are indicated by 6-point scale ranging from 1 (Strongly disagree) to 6 (Strongly agree). A mean PsyCap scores was used in data analysis. The Cronbach’s alpha of this measure was .91.

The present study controlled for job resources in all analysis to partial out the possible influence of job resources and its predicted inducements as evidenced in other studies testing the Job Demand-Resources Model (e.g. Bakker & Demerouti, 2006; Schaufeli, Bakker, & van Rhenen, 2009). The measurement of job resources is comprised of various scale similar to the approach of other researchers (e.g. Bakker, Van Veldhoven, & Xanthopoulou, 2010; Schaufeli, Bakker, & van Rhenen, 2009). Job Content Questionnaires (JCQ; Karasek, 1979) is selected to assess job control (i.e. autonomy and development) and job support (i.e. supervisory support and colleagues support). Items measuring performance feedback from job, colleagues and supervisors are extracted from different measures namely the Job Diagnostic Survey (Hackman & Oldham, 1975) and Questionnaire on the Experience and Assessment of Work (QEEW; Van Veldhoven & Meijman, 1994). Sample item includes “I have freedom to make decision about my job”. Responses are indicated by 4-point scale ranging from 1 (Strongly disagree) to 4 (Strongly agree). A total score of the scale is used for data analysis because average with other measures is not feasible as JCQ requires standardization and specific procedures in scoring. Therefore, a separate score of JCQ is
calculated and added up with other measures. The Cronbach’s alpha of this measure was .89

Future time perspective is measured by the 10-item scale from Lang and Carstensen (2002). Items were adjusted to measure employees’ time perception toward the current occupation with higher score indicate an expansive occupational opportunities and time perception. The present study divided the scale into two subscales namely occupational future opportunities and occupational future time (Zacher & Frese, 2009). Example of items include “Do you think many job opportunities await you in the future?”, and “Do you think there be not much changes as your career is determined from now on?”. Responses are indicated by 5-point scale ranging from 1 (Totally not true) to 5 (Totally true). The Cronbach’s alpha of occupational future opportunities was .78 and occupational future time was .82.

OCB is measured by the Organizational Citizenship Behavior Scale (Organ, 1988). According to the factor analysis by Dalton and Cosier, (1988), the 16 items of OCB measures altruistic behaviors, punctuality, effective use of time and work non-tardiness. Sample item includes “Help absent colleagues to finish their work” and “Make early notice for absence”. Responses are instructed to indicate by “As an employee, in what extend do you think the following behaviors are important?” with a 4-point scale ranging from 1 (Very unimportant) to 4 (Very important). The Cronbach’s alpha of this measure was .74.
Statistical Procedures

Hypotheses 1 – 3 and 4 – 6 were two mediation models and were tested by using Baron and Kenny’s (1986) procedures. The mediation analysis includes four steps. Step 1 tests the relationship between independent variables \( X \) and dependent variable \( Y \) \((c\) path). Step 2 tests the relationship between \( X \) and mediator \((a\) path). Step 3 tests the relationship between mediator and \( Y \) \((b\) path). Step 4 tests the relationship between \( X \) and \( Y \) with mediator controlled \((c'\) path). A full mediation exists when steps 1 to 3 are significant while step 4 is not. If all steps yield significant result, it is regarded as partial mediation (Preacher & Hayes, 2004). To claim any mediation effect, the indirect effect of independent variable \( X \) on dependent variable \( Y \) through mediator should be proved by significant test such as Sobel test (Sobel, 1982). According to Zacher et al. (2010), Baron and Kenny (1986) step 1 requirement that \( X \) must be significantly associated with \( Y \) is recently challenged by other methodologists because the effect of \( X \) on \( Y \) is attenuated when there are several mediating paths that eliminate the effect of each other as evidenced in age-performance relationship. Thus, researcher has suggested that step 1 can be discarded from mediation analysis and examine the indirect effect instead (i.e. the product of \( X \) on mediator and mediator on \( Y \) when controlling for \( X \)) (Hayes, 2009).

Present study adopted the traditional procedures from Baron and Kenny (1986) for mediation analysis and determined the indirect effect with the SPSS macro developed
by Preacher and Hayes (2008). This macro includes the mediation steps from Baron and Kenny (1986) and bootstrapping procedures to determine the confidence interval to confirm the significance of indirect effect (Shrout & Bolger, 2002). Hypothesis 7 represents a moderation analysis. This was tested by hierarchical regression and confirmed the conditional effect by another SPSS macro developed by Hayes & Matthes (2009). The interaction pattern is plotted using three age groups divided by 33.33% percentile to show the pattern of age difference. Hypothesis 8 represents a moderated mediation model. This was tested with another SPSS macro developed by Preacher, Rucker and Hayes (2007). In order to produce range of values of age for plotting the conditional mediating effect, age was analyzed as continuous variable and standardized in the analysis.
Chapter 3: Results

Descriptive Statistics

Table 1 summarized the means, standard deviation, intercorrelation and internal consistencies (Cronbach’s alpha) of measurements used in the present study. Age was not correlated with OCB but positively correlated with PsyCap and work engagement, and age negatively correlated with occupational future time and opportunities. As expected, correlations were all positive between PsyCap, work engagement and OCB. Occupational future opportunities were positively correlated with OCB whereas occupational future time yields no relationship with OCB. Job resources, education and position were used for statistical control in subsequent analysis as these variables significantly correlated with PsyCap, work engagement and OCB.

There is high correlation between PsyCap and work engagement that may suggests multicollinearity which may reduce the predictive power of the mediation model. To prove these two constructs are different, the present study also conducted a factor analysis to discriminate the construct of PsyCap and work engagement as shown in table 2.
Table 1
Summary of Means, Standard Deviation and Correlations of Variables

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<td>6.PsyCap</td>
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<td>.32**</td>
<td>.12</td>
<td>.18*</td>
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<td>7.UWES</td>
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<td>.29**</td>
<td>.16*</td>
<td>.15*</td>
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<td>8.Job Resources</td>
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<td>.36**</td>
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<td>9.FTP (Opportunities)</td>
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<td>.12</td>
<td>-.20**</td>
<td>-.02</td>
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<td>.43**</td>
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<td>-.20**</td>
<td>-.17*</td>
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<td>.60**</td>
<td>.52**</td>
<td>.43**</td>
<td>.03</td>
<td>( .74)</td>
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\[ M = 42.93 \quad 3.16 \quad 2.37 \quad 16.23 \quad 1.80 \quad 4.22 \quad 4.92 \quad 92.87 \quad 3.28 \quad 3.07 \quad 2.80 \]

\[ SD = 9.04 \quad 1.06 \quad 1.31 \quad 9.41 \quad 0.40 \quad 0.53 \quad 0.99 \quad 17.33 \quad 0.59 \quad 0.91 \quad 0.28 \]

*Note. N = 183. Reliability ( \( \alpha \) ) are shown in parentheses on the diagonal.*


* \( p < .05 \), ** \( p < .01 \).
In table 2, factor loadings shows that all items of work engagement heavily loaded on single factor without any items of PsyCap loaded on it. Rather, PsyCap shows 6 factors structure that is different with work engagement. With the confirmatory procedure, the discriminant validity between PsyCap and work engagement is established and improve the results in the present study.
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<td>Item 17</td>
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<td>Item 18</td>
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<td>Item 19</td>
<td>.736</td>
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</tbody>
</table>
Notes. Factor loadings smaller than .05 were suppressed.

Statistical Analysis

Hypotheses 1 – 3 and 4 – 5 represent two mediation models. Hypotheses were tested by a SPSS macro that allows testing multiple mediating effects with statistical controls (Preacher and Hayes, 2008). The effects of each path in mediation analysis are graphically shown in figure 2 and 3.

Figure 2 illustrates a mediation model to test hypotheses 1 – 3.

Figure 2: Graphic illustration of the mediation analysis for hypothesis 1 – 3.

Notes: $N = 183$

* $p < .05$, ** $p < .01$

Bootstrapping of indirect effect ($B = -0.02$, $SE = 0.01$; 95% CI [-0.04, -0.00]).

The results were controlling for job resources, education and position.

According to hypothesis 1, age was expected to be negatively associated with the two subscales in occupational FTP. Hypothesis 1 is supported as age is negatively
associated with the two subscales of occupational FTP with the association in
occupational future time stronger \((a \text{ path: } B = -0.23, SE = 0.07, t = -3.30, p < .01)\).

According to hypothesis 2, occupational FTP was expected to be negatively associated
with OCB. There was a negative but not significant association in occupational future
time \((b \text{ path: } B = -0.01, SE = 0.02, t = -0.49, p = .62)\). Conversely, occupational future
opportunities is positively associated with OCB \((b \text{ path: } B = 0.12, SE = 0.04, t = 3.09, p < .01)\). Hypothesis 2 is therefore not supported as there are inconsistent patterns of the
relationship. According to hypothesis 3, occupational FTP would mediate the positive
relationship between age and OCB. However, the total effect of age on OCB is not
significant \((c \text{ path: } B = 0.00, SE = 0.02, t = 0.10, p = .92)\). As the total effect \((c \text{ path})
which is essential for mediation analysis is not significant, the mediation model is
unable to establish. However, Hayes (2009) proposed that indirect effect is possible to
exist without the total effect between \(X\) and \(Y\) significant given competing mediating
paths, therefore an examination of indirect effect is also conducted. The bootstrapping
results indicates that the indirect effect of age and OCB through occupational FTP with
95% confidence interval include zero \((B = -0.01, SE = 0.01; 95\% \text{ CI } [-0.04, -0.00])\), thus
hypothesis 3 is rejected.
Figure 3 illustrates the results of the mediation model to test hypotheses 4 – 6.

According to hypothesis 4, PsyCap was expected to be positively related to work engagement.

![Diagram showing mediation model with paths a, b, and c, and their significance levels.]

**Figure 3:** Graphic illustration of the mediation analysis for hypotheses 4 – 6.

**Notes:** N = 183.

* p < .05, ** p < .01.

Bootstrapping of indirect effect (B = 0.10, SE = 0.03; 95% confidence interval [0.05, 0.19]). The results were controlling for job resources, education and position.

Hypothesis 4 is supported as figure 3 shows that PsyCap is significantly associated with work engagement (a path: B = 0.92, SE = 0.14, t = 6.50, p < .01). According to hypothesis 5, work engagement was expected to be positively related to OCB.

Hypothesis 5 is supported as figure 3 shows that work engagement is significantly associated with OCB (b path: B = 0.11, SE = 0.02, t = 5.29, p < .01). According to hypothesis 6, work engagement was expected to mediate the positive relationship between PsyCap and OCB. According to Baron and Kenny (1986), a full mediation
exist when steps 1 to 3 (i.e. \( a, b \) and \( c \) path) are significant and step 4 (i.e. \( c' \) path) in which the relationship between \( X \) and \( Y \) is not significant when controlling for the mediator. As shown in figure 3, the relationship between PsyCap and OCB when controlling for work engagement is however significant (\( c' \) path: \( B = 0.15, SE = 0.05, t = 3.24, p < .01 \)). Given that all paths were significant, work engagement did not fully mediate but only partially mediates the relationship between PsyCap and OCB. In addition, bootstrapping results indicates that the indirect effect of PsyCap and OCB through work engagement with 95% confidence interval do not include zero (\( B = 0.10, SE = 0.03; 95\% \text{ CI } [0.05, 0.19] \)). Thus, hypothesis 6 received support with partial mediation evidence and was confirmed by bootstrapping method.
Table 2 presents the moderation analysis to test hypotheses 7. According to hypothesis 7, age would moderate the positive effect of PsyCap on work engagement, with a stronger association on older adults than younger adults.

Table 2

*Hierarchical Regression Summary on Moderation Analysis*

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>SE</th>
<th>t</th>
<th>R^2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Regressed on work engagement</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>4.17**</td>
<td>0.43</td>
<td>9.86</td>
<td></td>
</tr>
<tr>
<td>Job resources</td>
<td>0.01*</td>
<td>0.00</td>
<td>2.25</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>-0.15</td>
<td>0.08</td>
<td>-1.88</td>
<td>0.32</td>
</tr>
<tr>
<td>Position</td>
<td>0.15*</td>
<td>0.07</td>
<td>2.33</td>
<td></td>
</tr>
<tr>
<td>PsyCap</td>
<td>0.90**</td>
<td>0.14</td>
<td>6.58</td>
<td>0.45</td>
</tr>
<tr>
<td>Age</td>
<td>0.05</td>
<td>0.06</td>
<td>0.76</td>
<td></td>
</tr>
<tr>
<td>Age X PsyCap</td>
<td>-0.36**</td>
<td>0.09</td>
<td>-3.86</td>
<td>0.50</td>
</tr>
</tbody>
</table>

*Conditional effects of age × PsyCap on work engagement*

<table>
<thead>
<tr>
<th>Age</th>
<th>B</th>
<th>SE</th>
<th>t</th>
<th>LL95%CI</th>
<th>UL95%CI</th>
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</thead>
<tbody>
<tr>
<td>Young</td>
<td>1.26**</td>
<td>0.17</td>
<td>7.56</td>
<td>0.93</td>
<td>1.59</td>
</tr>
<tr>
<td>Mid</td>
<td>0.90**</td>
<td>0.14</td>
<td>6.58</td>
<td>0.63</td>
<td>1.18</td>
</tr>
<tr>
<td>Old</td>
<td>0.55**</td>
<td>0.16</td>
<td>3.37</td>
<td>0.23</td>
<td>0.87</td>
</tr>
</tbody>
</table>

Note. N = 183; CI = Confidence interval
* p < .05; ** p < .01.

In table 2, the main effect of independent variable PsyCap on work engagement is significant (B = 0.90, SE = 0.14, t = 6.58, p < .01) and the main effect of age on work engagement is not significant (B = 0.05, SE = 0.06, t = -0.46, p = .64). The interaction between age and PsyCap significantly predicted work engagement (R^2 = .50, B = -0.36, SE = 0.09, t = -3.86, p < .01). However, inconsistent with the prediction, the conditional effect of PsyCap in older age group (B = 0.55, SE = 0.16, t = 3.37, p < .01) was weaker.
than that in younger age group \((B = 1.26, SE = 0.17, t = 7.56, p < .01)\). The conditional effect of all age groups is confirmed by the bootstrapping results with 95% confidence interval do not include zero \([0.23, 0.87], [0.63, 1.18], [0.93, 1.59]\). The interaction pattern is illustrated in figure. 4.

**Figure 4.** Age and PsyCap interaction on work engagement.

Although the interaction effect is significant, the prediction that older workers with higher PsyCap show higher work engagement than that in younger workers is not supported. Rather, figure 4 shows that the level of work engagement in younger workers is higher than older workers when PsyCap is high. As the patterns of association contrasted with prediction, hypothesis 7 is not supported.

Table 3 presented the moderated mediation analysis. According to hypothesis 8, age moderates the positive relationship of PsyCap on OCB through work engagement, in which work engagement mediates the relationship only when age is high.
Table 3

Hierarchical Regression Summary on Moderated Mediation Analysis

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>SE</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regressed on work engagement (Mediator variable model)</td>
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<tr>
<td>Constant</td>
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<tr>
<td>Education</td>
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<td>0.08</td>
<td>-1.88</td>
</tr>
<tr>
<td>Position</td>
<td>0.15*</td>
<td>0.07</td>
<td>2.33</td>
</tr>
<tr>
<td>PsyCap</td>
<td>0.93**</td>
<td>0.14</td>
<td>6.72</td>
</tr>
<tr>
<td>Age</td>
<td>1.56**</td>
<td>0.39</td>
<td>3.99</td>
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<tr>
<td>Age X PsyCap</td>
<td>-0.36**</td>
<td>0.09</td>
<td>-3.86</td>
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</table>

<table>
<thead>
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<th>Variables</th>
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<th>t</th>
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<tr>
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<td>Position</td>
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<td>0.05</td>
<td>3.55</td>
</tr>
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<tr>
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<td>0.04</td>
<td>-1.19</td>
</tr>
<tr>
<td>Age X work engagement</td>
<td>0.05**</td>
<td>0.02</td>
<td>2.83</td>
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Conditional effects of age × work engagement on OCB

<table>
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<th>SE</th>
<th>Z</th>
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<th>UL95%CI</th>
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<td>-1 SD</td>
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<td>0.05</td>
<td>1.68</td>
<td>-0.00</td>
<td>0.20</td>
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<tr>
<td>Mean</td>
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<td>0.03</td>
<td>3.50</td>
<td>0.05</td>
<td>0.17</td>
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<tr>
<td>+1 SD</td>
<td>0.09**</td>
<td>0.03</td>
<td>3.07</td>
<td>0.04</td>
<td>0.16</td>
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Conditional effects of ranges of values of age

<table>
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<th></th>
<th>B</th>
<th>SE</th>
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<tr>
<td>-2.21</td>
<td>0.01</td>
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<td>0.13</td>
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<tr>
<td>-0.98</td>
<td>0.09</td>
<td>0.05</td>
<td>1.77</td>
</tr>
<tr>
<td>0.06</td>
<td>0.11**</td>
<td>0.03</td>
<td>3.51</td>
</tr>
<tr>
<td>1.09</td>
<td>0.09**</td>
<td>0.03</td>
<td>2.85</td>
</tr>
<tr>
<td>1.50</td>
<td>0.07*</td>
<td>0.04</td>
<td>1.98</td>
</tr>
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</table>

Note. N = 183; CI = Confidence interval
* p < .05; ** p < .01.
The upper part of table 3 represents the mediator model. The lower part of table 3 represents the dependent variable model of the moderated mediation. The interaction effect between age and PsyCap through the interaction between age and work engagement on OCB is significant ($B = 0.05$, $SE = 0.02$, $t = 2.83$, $p < .01$). The indirect effect on OCB through the mediating effect of work engagement is tested by Sobel test at ±1 standard deviation of age. The conditional effect is stronger when age is close to mean ($B = 0.11$, $SE = 0.03$, $Z = 3.50$, $p < .01$) and shows weaker effect when age is high ($B = 0.09$, $SE = 0.03$, $Z = 3.07$, $p < .01$). The conditional effect is not significant when age is low ($B = 0.09$, $SE = 0.05$, $Z = 1.68$, $p = .09$). Figure 5 illustrated the level of OCB between three age groups. The pattern shows that the highest level of OCB is observed among older workers with higher work engagement. Older workers show the lowest level of OCB when work engagement is low.

*Figure 5. Age and work engagement interaction on OCB.*
Figure 6 illustrated the moderated mediation effect of work engagement on OCB across ranges of values of age.

![Figure 6](image_url)

*Figure 6.* The interaction of age and PsyCap on OCB through the mediation of work engagement, with 95% confidence bands. The vertical line represents the boundary of significance region of the conditional indirect effect.

As the interaction pattern in figure 6 shows that the mediating effect is significant when age is old but not significant when age fall below 1 standard deviation below the mean, it is consistent with the prediction. Thus, hypothesis 8 received support.
Chapter 4: Discussion and Conclusion

With an increasing awareness of positive organizational scholarship, the present study provides a better understanding of the role of age and psychological states on positive organizational outcomes. This study examined four models. First, a mediation model tested the relationships between psychological capital (PsyCap) and organizational citizenship behaviors (OCB) through work engagement. Second, a multiple mediation model tested the relationships between age and OCB through occupational future opportunities and future time. Third, a moderation model tested the age difference in the relationship between PsyCap and work engagement. Forth, a moderated mediation model examined the mediating effect of work engagement between PsyCap and OCB at different age.

The present study showed that work engagement positively associated with OCB. It is consistent with previous research that employees’ engagement at work is a strong predictor for both in-role and extra-role job performance as employees enjoy their work thus are motivated to devote extra efforts and resources into their career (Schaufeli, Taris, & Bakker, 2006). Moreover, the present study provides support for the modification of Job-Demand Resources Model by adding personal resources in predicting work engagement as well as organizational outcomes (Bakker & Leiter, 2010). In previous research model, job demand and resources are viewed as major predictors of various organizational behaviors such as organizational commitment,
innovativeness and business outcome (Bakker & Demerouti, 2006). In order to examine the effect of employees’ psychological states in predicting OCB, the present study controlled the effect of job resources in the model to rule out the influence of external inducements or workplace support in affecting employees’ motivation to perform OCB. The results showed that the effect of job resources in the mediation model is quite small. Rather, personal resources PsyCap yields a strong effect in predicting work engagement. Moreover, the mediating effect of work engagement was also significant which supports previous research that high level of work engagement positively related to additional behaviors that beyond in-role work requirement (Hakenen et al, 2008).

The mediation analysis of occupational FTP yields an inconsistent result. The present study is unable to supports that occupational FTP serves as a mediator between age and OCB. However, the relationship between the two constructs of occupational FTP and OCB shows an inconsistent pattern. Occupational future time shows a very weak and not significant negative relationship with OCB while occupational future opportunities show a weak but significant positive relationship with OCB. This finding suggests that employees perceive their future career opportunities as expansive may predicts higher involvement in OCB. This pattern is consistent with previous findings that when individuals perceive their future with lots of novel goals, choices and chances were associated with higher work performance (Zacher et al, 2010). Given that occupational future opportunities is negatively associated with age but positively
associated with OCB, it may suggests that younger employees engage in extra-role work behaviors when they perceive more career opportunities ahead. As OCB includes various non-core work performances such as altruism and non-tardiness, employees who have stronger aspiration on future career objectives (e.g. promotion or compliments) may in turns motivate them to participate in more non-core work behaviors to achieve career objectives. However, this also suggests that younger workers who involve in OCB may not merely an expression of altruism or good citizenship but instead a strategy to attain benefits and facilitate career development.

Hypothesis 7 is supported that there is an interaction between age and PsyCap in predicting work engagement. However, the expectation on the pattern of association is not confirmed given the highest level of work engagement is demonstrated among younger employees with higher PsyCap but not the older employees with higher PsyCap. Nevertheless, as illustrated in figure 4, it is important to note that older employees with lower PsyCap still maintained a higher level of work engagement as compared with younger employees with lower PsyCap. It supports the previous finding from Warr (2001) that older workers can effectively maintain their job competence. The present study shows that older employees remain a higher level of work engagement than younger employees even their PsyCap is low. This result is encouraging. The values of older workers were demonstrated as the psychological robustness among older workers is considerably strong and its fluctuation influenced on their job performance.
when compared to that in among younger workers is relatively small. Besides, the effect of PsyCap on work engagement in younger employees may suggest their job performance is vulnerable to their psychological states such as low resilience and optimism. Such influence may explain the reasons behind the higher turnover rate among younger workers because their job satisfaction depends heavily on the psychological fulfillment derived from the job and workplace (Mobley, Griffeth, Hand, & Meglino, 1979). Therefore, a low psychological fulfillment jobs that younger employees may perceive fewer hope and efficacy would impact on their performance and driven their idea of leaving to seek better career development. Nevertheless, when younger employees possess high PsyCap such as hope and optimism, the rewards anticipated from future occupational opportunities and prospective tomorrow may greatly enhance their engagement and productive behaviors to cultivate for the fruitful future.

Hypothesis 8 is supported that work engagement mediates the relationship between PsyCap and OCB only when age is high. Figure 5 illustrated the mediating effect of work engagement in predicting OCB. The effect is stronger among middle-aged workers and slightly lower among older workers. The pattern also shows that this mediating effect in predicting OCB among younger workers was not significant. These results suggest that work engagement is critical for work performance among older workers group. Given that work engagement includes affective component of
one’s career (i.e. job enthusiasm), high work engagement may suggests high enjoyment which implies positive emotional meanings. Previous findings have shown that people who perceive their future as more limited pursuit goals related to emotional meaning and these goals are more important among older workers for achieving job performance and serves high motivation for OCB (Bal et al, 2010; Fung & Carstensen, 2004; Turnly, Bolino, Lester, & Bloodgood, 2003). If current job is not emotionally meaningful, older workers may shift their devotion to family or social aspects to obtain adequate emotional fulfillment which in turns lower their perceived obligations to organization (Bal et al, 2010). Furthermore, figure 6 illustrated the level of OCB predicted by work engagement across three age groups. These results may support the role of occupational FTP. Given that future career opportunities is a strong predictor on work performance (Zacher & Frese, 2009), this strong forces may override the demotivation of low work engagement. Therefore, younger workers may still involve in certain level of OCB to accomplish future career goals despite their low engagement in present occupation.

Limitations

Several limitations are suggested in the present study. First, the sample population was all male because the gender distribution in the occupation (i.e. railway technicians and engineers) was mostly male. The results may lower the generalizability towards other occupations that gender is in similar proportion. However, given that female are viewed as more altruistic and generous in general (Andreoni & Vesterlund, 2001),
homogeneity of gender in the present study may resolve the gender influence in OCB that includes the measurement of altruistic behaviors. Second, the present study adopted an older version of OCB that may not be able to capture themes of behaviors in modern company cultures. In fact, there is modern modification on OCB constructs includes cultural and context specific items to measure Chinese employees (Farh, Earley, & Lin, 1997). Therefore, using a modern measurement may provide more comprehensive understandings on the productive behaviors in Hong Kong employees. Third, there is increasing evidences suggest that OCB becomes an in-role rather an extra-role behaviors (Pond, Nacoste, Mohr, & Rodriguez, 1997; Vey & Campbell, 2004) whether a behavior regarded as in-role or extra-role is relative to people’s conception and role (Belogolovsky & Somech, 2010). As in the present study, the sample population is technicians and engineers where team spirits is necessary to perform daily maintenance work. This is evidenced in the present study that the interaction effect between age and work engagement on OCB across three age groups were similar despite the significant difference. As such, being punctual, effective and altruistic should be the essential qualities in an occupation require teamwork and high cohesiveness. Therefore, using OCB to contrast the extra-role performance between older and younger workers is less effective because employees are obligated to do such behaviors.

Finally, present study is unable to confirm the relationship between age, FTP and OCB. Present findings shown that the association with OCB among future opportunities
and future time is in different direction that may suggests several mediating paths
eliminate the effect of each other which make the mediation hypothesis unsupported.

The age-OCB relationship may be multidirectional because there maybe intra-individual
difference which is not best predicted by age which implies diversity in personal goals,
time perception and availabilities of future chances.

**Theoretical Implications and Future Directions**

To draw upon from COR and B&B theory, both resources and positive emotions
is hypothesized as a reciprocal interaction in strengthening employees’ ability to acquire
further resources and prevent them from occupational stress (Fredrickson, 2001;
Sweetman & Luthans, 2010). It is likely that employees with happiness and
psychological strength is motivated or more proactive in performing extra-role work
behaviors. The present study provides evidence on the positive effect of work
engagement limited in a cross-sectional fashion, therefore time lagged longitudinal
study is necessary to further investigate how employees accumulate their resources and
utilize strategies to deal with stress and challenges overtime. The present study showed
that there is no relationship between age and OCB. However, it is possible that different
factors influence the relationship between OCB and workers in different cohorts. The
essence of occupational FTP in this study is incorporating the developmental influence
in workplace behaviors. Though the findings were rudimentary, it provides support for
future study to examine the effect of future opportunities and time in influencing
different organizational behaviors and work motivation that may provide better understandings on the age-performance relationships. As mentioned, increasing evidences suggest that OCB become an in-role rather than extra-role performance. The study by Belogolovsky and Somech (2010) found that whether a behavior is regarded as in-role or extra-role is relative to people’s conception and current role. As such, future research should address this discrepancy of perception by measuring OCB from different perspective such as supervisory rating, employee self-evaluation and observation to discover what types of behaviors genuinely represent the conception of citizenship in the ever-changing work culture which would definitely contribute to job designs and performance appraisal systems.

**Practical Implication**

Ng and Feldman (2008) stated that the relationship between age and work performance largely depends on the measurements of job performance and research design, therefore it is too arbitrary to claim whether younger or older workers show higher work performance. In fact, with different motivational forces, both younger and older workers could highly involve in their jobs and contribute to the organization. Present findings suggest that psychological capital and future opportunities in career is crucial for younger employees’ engagement at work whereas older workers could maintain higher level of psychological capital in general and work engagement is crucial for OCB. Also, the effect of personal resources PsyCap is comparable to job
resources in predicting work performance. As such, this study offers two practical implications. First, personnel practitioners could design jobs and work environment that enable employees perceive prospective future. For example, the job nature should provide a realistic and reachable career development pathways and effective communication platform between managers and employees. This would provide constructive feedback to employees to facilitate and motivate them to strive for excellence work performance. Second, given that emotional meaning is more emphasized among older workers, organization could assign duties such as mentorship or ambassador to older employees (Calo, 2005). This could provide a platform for older workers to impart their accumulated knowledge to bring up future leaders which result a win-win situation that fulfill older workers’ personal goals while contribute to the organization growth.

Conclusion

With the ageing population in the world, older workers are expected to occupy significant proportion in the society. The present study demonstrated that there is no single factors determine the relationships between age and work performance. Both younger and older workers possess different strength and potentials. Thus, organization should provide resources and modify jobs to match with the concerns among employees in different cohort in order to retain and unleash the power of them to help organization flourish.
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