



Faculty of Cognitive Sciences and Human Development

**New Ways of Working (NWOW) and Work Engagement: The Mediating
Roles of Proactive Personality and Job Crafting**

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New Ways of Working (NWOW) and Work Engagement: The Mediating
Roles of Proactive Personality and Job Crafting

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DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Malaysia Sarawak. Except where due acknowledgements have been made, the work is that of the author alone. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.



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ABSTRACT

Despite increasing research on work engagement, more empirical studies are needed to enhance our understanding in this area pertaining to specific contextual and cultural setting. Organizations recognize that work engagement is crucial for talent retention, especially when New Ways of Working (NWOW) were implemented and created uncertainty. Employees with a proactive personality, who take initiative and pursue goals, play a key role in navigating these changes. Additionally, job crafting, which is shaping job resources and demands, also fosters engagement. Therefore, this study integrates proactive personality and job crafting as mediators to study the relationship between NWOW and work engagement. A total of 158 respondents in the Real Estate (REI) and Architecture, Engineering, and Construction (AEC) industries participated via an online questionnaire. The data were analyzed using Spearman's correlation and Hayes's PROCESS Macro in SPSS Version 23. The correlation analysis revealed significant relationship between NWOW and work engagement. The PROCESS Macro analysis showed that proactive personality and job crafting partially mediate this relationship. These results have important implications for literature on work engagement, human resource development (HRD) and the REI and AEC industry. It is suggested that organizations should promote proactive traits and job crafting behaviors through training while creating environments that encourage autonomy and innovation.

Keywords: New Ways of Working (NWOW), work engagement, proactive personality, job crafting, human resource development

Cara Kerja Baharu (NWOW) dan Penglibatan Kerja: Peranan Pengantara Personaliti Proaktif dan Pengubahsuaian Kerja

ABSTRAK

Walaupun penyelidikan mengenai penglibatan kerja semakin meningkat, lebih banyak kajian empirikal diperlukan untuk meningkatkan pemahaman kita dalam bidang ini yang berkaitan dengan konteks dan latar budaya tertentu. Organisasi menyedari bahawa penglibatan kerja adalah penting untuk pengekalan bakat, terutamanya apabila Cara Kerja Baharu (NWOW) dilaksanakan dan mewujudkan ketidakpastian. Pekerja yang mempunyai personaliti proaktif, yang mengambil inisiatif dan mengejar matlamat, memainkan peranan penting dalam mengemudi perubahan ini. Selain itu, pengubahsuaian kerja, yang membentuk sumber dan permintaan pekerjaan, juga memupuk penglibatan. Oleh itu, kajian ini mengintegrasikan personaliti proaktif dan pengubahsuaian kerja sebagai mediator untuk mengkaji hubungan antara NWOW dan penglibatan kerja. Seramai 158 responden dalam industri Hartanah (REI) dan Senibina, Kejuruteraan, dan Pembinaan (AEC) telah mengambil bahagian melalui soal selidik dalam talian. Data dianalisis menggunakan korelasi Spearman dan Makro PROCESS Hayes dalam SPSS Versi 23. Analisis korelasi mendedahkan hubungan yang signifikan antara NWOW dan penglibatan kerja. Analisis Makro PROCESS menunjukkan bahawa personaliti proaktif dan pengubahsuaian kerja bertindak sebagai mediator separa dalam hubungan ini. Keputusan ini mempunyai implikasi penting untuk literatur mengenai penglibatan kerja, pembangunan sumber manusia (HRD) dan industri REI dan AEC. Organisasi disyorkan untuk menggalakkan sifat proaktif dan tingkah laku pengubahsuaian kerja melalui latihan sambil mewujudkan persekitaran yang menggalakkan autonomi dan inovasi.

Kata kunci: *Cara kerja baharu (NWOW), penglibatan kerja, personaliti proaktif, pengubahsuaian kerja, pembangunan sumber manusia*

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LIST OF ABBREVIATIONS

NWOW	New Ways of Working
WE	Work Engagement
PP	Proactive Personality
JC	Job Crafting
CGS	Centre for Graduate Studies
UNIMAS	Universiti Malaysia Sarawak
REI	Real estate industry
AEC	Architecture, engineering and construction industry
JD-R Model	Job Demands-Resources Model
SDT	Self-Determination Theory

SHARING OF RESEARCH

Some parts of this research have been presented in the following:

Conference (Presented by Cheryl Dhewina Wong)

Wong, C.D., & Jonathan, V. (2021, November 16-18). *The influence of New Ways of Working (NWOW) on work engagement with proactive personality and job crafting as mediators* [Refereed working paper presentation]. The Joint Virtual Conference of the Academy of Human Resource Development in Asia and the Conference of the Asian Regional Association for Career Development, Kuala Lumpur, Malaysia

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CHAPTER 1

INTRODUCTION

1.1 Introduction

This study aims to find out the relationship between New Ways of Working (NWOW) and work engagement, as well as to investigate the mediating roles of proactive personality and job crafting in real estate industry (REI) and also architecture, engineering and construction industry (AEC). This chapter highlights the background of the study, statement of the problem, research objectives, hypotheses, research questions, conceptual framework, and definition of terms.

1.2 Background of Study

Organizations recognise that employees' work engagement is vital to steer organisational success (Chanana & Sangeeta, 2021; Oksa et al., 2020; Park et al., 2019; Wood et al., 2020). Scholars also performed research to thoroughly comprehend work engagement and the resources for achieving it (Kwon & Kim, 2020; Lee et al., 2020).

While in Malaysia, research highlights that Malaysia's high power distance, collectivist values, and cultural differences significantly influence workplace behaviours and work values, underscoring the importance of considering cultural nuances in work engagement studies (Gom et al., 2015). Besides, the rapid pace of industrialization and economic growth also presents unique challenges for maintaining employee engagement amidst technological advancements in Malaysia (Zaharah Jamaluddin et al., 2019). Malaysian studies of work engagement focused on different fields of work such as academics, nurses and hospital while lacking exploration of dynamic industries like AEC and REI, where

flexibility and technology play a significant role (Arokiasamy & Tat, 2020; Khairuddin & Baputey, 2019; Othman & Nasurdin, 2019; Rabiul & Yean, 2021). The studies highlight factors influencing work engagement but emphasize traditional organizational drivers such as leadership, job characteristics, or person-job fit, while overlooking modern work environments (NWOW) and employee-driven strategies (proactive personality and job crafting) to enhance engagement (Arokiasamy & Tat, 2020; Khairuddin & Baputey, 2019; Othman & Nasurdin, 2019; Rabiul & Yean, 2021).

Despite the increased interest in work engagement studies in Malaysia, Qualtrics (2024) stated that the work engagement score in Malaysia is 67% which is lower compared to neighbouring countries such as Indonesia (86%) and Thailand (76%). Engagement scores provide benchmarks that enable comparisons across countries, helping to identify where Malaysia's workforce engagement aligns with industry leaders and highlighting gaps where incorporating best practices could enhance competitiveness (Camp, 2024). Since work engagement relates to positive outcomes in the workplace, it is crucial to understand factors that may lead to employee higher engagement levels at work. Therefore, work engagement as describe by Schaufeli et al., p. (2002, p. 74) — “positive, fulfilling, work-related state of mind that is characterized by vigour, dedication and absorption” was studied as the dependent variable.

There are numerous reasons to study the employees from real estate industry (REI) and architecture, engineering and construction (AEC) industry. Firstly, these industries are key areas of the economy, requiring a significant amount of capital and a large workforce (Siniak et al., 2020). The REI, in particular, is booming globally and is one of the most profitable sectors in the world economy (Lakhani et al., 2024).

Secondly, the AEC industry stands out due to its unique challenges. It is characterized by labour-intensive and complex manufacturing processes, a scattered and often unsafe business environment, as well as demanding and hazardous working conditions (Cheung et al., 2023).

Moreover, workforce dynamics in these industries are shifting, the transition from Generation X to Generation Y, who are known for their tendency to change jobs more frequently, has introduced new challenges, intense competition among local real estate developers has led to aggressive poaching tactics, while the collapse of the real estate market, hiring freezes, and wage reductions have compounded difficulties in acquiring and retaining talent (Foo & Adam, 2021; Herliana et al., 2021; Yongkui et al., 2022).

Furthermore, the study of work engagement in the AEC and REI industries has broader implications because these sectors exemplify dynamic, project-based work environments that require adaptability, innovation, and collaboration (Emmanuel, 2021; Wang, 2021). By exploring work engagement in these industries, the research provides strategies for fostering engagement in similarly demanding environments, contributing to a deeper understanding of how engagement thrives in flexible and fast-evolving workplaces (Rasool et al., 2021). Given these factors, understanding work engagement among employees in these industries is essential as it provides valuable insights to help organizations attract and retain talent, ensuring the sustainability and growth of these pivotal sectors.

With the aftermath of COVID-19, many organisations have implemented New Ways of Working (NWOW) in their organisational structure (Duque et al., 2020). NWOW is uniquely relevant to the REI and AEC industries due to their project-based, highly collaborative nature, requiring flexible and innovative approaches to manage dispersed teams

and dynamic workflows (El Khatib et al., 2023). According to Gerards et al. (2018), there are five facets of New Ways of Working (NWOW) which are independent working time and location, independent production management, accessibility of organizational knowledge, flexibility in working arrangement and readily available open-plan office. NWOW also occurred because of management's desire to maintain a company's competitive edge in the talent market (Attaran et al., 2019). Thus, many companies are interested in implementing NWOW as a means of modernising work practices (Jemine et al., 2020). Independent working time and location enhance work engagement by providing employees with the autonomy to balance work and personal life (Weideman & Hofmeyr, 2020). Independent production management fosters work engagement by empowering employees to take ownership of their work, creating a sense of purpose and commitment (Dai et al., 2021). Accessibility to organizational knowledge promotes work engagement by ensuring that employees can quickly find the information they need, keeping them focused and immersed in their tasks (Juan et al., 2018). Flexibility in working arrangements supports engagement by accommodating diverse needs and preferences (Gašić & Berber, 2023). Open-plan offices encourage collaboration and connection, boosting engagement through informal learning (Gerards et al., 2020).

In recent years, researchers and practitioners are concerned about proactive components in employees due to the needs for the organisation to deal with the dynamically changing work environment (Huynh et al., 2019; Tuan, 2022; Zhu & Li, 2021). People with proactive personalities take the initiative to make changes to reach their goals and actively look for better ways to complete tasks at work when given the chance (Li et al., 2020). Proactive personality has been studied as antecedents of positive work outcomes (Alikaj et al., 2021; Chong et al., 2021; Dai & Wang, 2023; McCormick et al., 2019). A proactive

personality is essential in highly competitive and challenging industries like REI and AEC, as it enables individuals to anticipate challenges, take initiative, and implement solutions effectively (Yi-Feng Chen et al., 2021). Therefore, proactive personality by Bateman and Crant (1993) is chosen to be included in this study as one of the mediators in the relationship between NWOW and work engagement.

Job crafting has a positive effect on employees' performance and wellbeing (Bakker et al., 2020; Bohnlein & Baum, 2022). Previous studies focused on job crafting as both work-related antecedent and outcomes (Teng, 2019; Teng & Chen, 2019; Zhang & Li, 2020). Moreover, job crafting also is studied as mediator in workplace studies (Meijerink et al., 2020; Robledo et al., 2019; Van Wingerden & Poell, 2017). NWOW provides opportunities for job crafting by offering flexibility and autonomy that enable employees to reshape their work tasks, relationships, and environment (Gerards et al., 2018). Hence, proactive personality and job crafting are the fundamental aspects to include as factors influencing the relationship between NWOW and work engagement.

The theoretical base for this study is job demands-resource model and self-determination theory. The Job Demands-Resources Model, or JD-R model, is a model that promotes employee well-being and stimulates engagement (Demerouti et al., 2001). The model emphasizes the balance between job demands and job resources in predicting work engagement and well-being. Proactive personality and job crafting act as personal resources that help employees manage job demands more effectively while maximizing the benefits of job resources. A proactive personality drives individuals to seek challenges and opportunities, enabling them to leverage job resources like autonomy, feedback, and support (Chong et al., 2021). Similarly, job crafting allows employees to reshape their tasks, interactions, and work

environment, aligning them with personal strengths and preferences, which mitigates the effect of job demands and fosters engagement (Zhang & Liu, 2021).

Self-determination theory (SDT) suggests persons are motivated and capable of becoming self-determined when their needs for autonomy, competence, and relatedness are fulfilled (Deci & Ryan, 1985). In this context, NWOW facilitates the fulfilment of psychological needs by providing autonomy through flexible working times and locations, competence through access to organizational knowledge and supportive tools, and relatedness through collaborative open-plan office environments. By satisfying these needs, NWOW enhances intrinsic motivation, leading to greater work engagement.

By integrating these theories, the framework positions the JD-R model to explain proactive personality and job crafting as key mediators that help employees manage job demands and maximize job resources, thereby enhancing engagement. Meanwhile, SDT explains how NWOW fulfills psychological needs—autonomy, competence, and relatedness—serving as the foundation for intrinsic motivation and engagement. This dual theoretical lens offers a valuable perspective on how organizational factors and individual mediators interact to influence work engagement.

1.3 Statement of Problem

Work engagement is beneficial to organizations as it fosters innovative work behavior and positive task performance (Gemedda & Lee, 2020). This is important in industries like AEC and REI, where creativity, precision in project execution, and strong client relationships are critical in highly competitive markets (Almashhour et al., 2024; Sao et al., 2022). Disengagement, on the other hand, can have severe consequences, such as turnover intention (Memon et al., 2020) and counterproductive work behavior (Xiong & Wen,

2020). In the AEC sector, disengagement often leads to missed deadlines, decreased quality, and increased costs (Jaime Alvarez, n.d.), while in REI, it results in delayed response times to client inquiries and minimal property viewings conducted (Space Of The Greats, 2025). The real estate and AEC industries are currently growing (Fasano & Atherton, 2023; Gupta, 2021). In the first quarter of 2024, Malaysia's construction industry contributed 11.9% to the GDP. As of the most recent data available in 2022, the construction sector employed approximately 1,170,500 workers, whereas the real estate sector employed 83,700 workers. However, these industries are facing problem in retaining talents (Ayodele et al., 2020; Mosquera et al., 2020).

Employee retention is a significant driver for organisational performance, along with lowering unnecessary costs and boosting employees' motivation and abilities (Aman-Ullah et al., 2020). Besides, some workers in the real estate industry are forced to work long, irregular shifts, which can be stressful and exhausting (Lakhani et al., 2024). The AEC industry also differs from other business environments due to its incredibly labour-intensive and complicated production processes, dispersed and dangerous business environment, and demanding and dangerous working circumstances (Cheung et al., 2023). Therefore, the employees of these industries claimed that the quality of work life are low (Fasano & Atherton, 2023; Lakhani et al., 2024). Hence, the work engagement of employees from these industries is vital since it helps to retain employees (Rodrigues da Costa & Maria Correia Loureiro, 2019). Retaining talent by work engagement is crucial in these industries, as employees often prioritize the working environment and benefits over income (Rodrigues da Costa & Maria Correia Loureiro, 2019). High work engagement not only mitigates turnover but also ensures a motivated workforce capable of driving innovation and meeting the complex demands of these kind of sectors (Koroglu & Ozmen, 2022; van Zyl et al., 2021).

This highlights a key empirical gap: the potential of work engagement as a solution for retaining talent in industries of REI and AEC.

NWOW has been implemented for quite some time, particularly in developed nations (Kwon & Jeon, 2020; Ozimek, 2020). Certain components of NWOW, such as flexible working hours, self-determined working locations, and autonomy in work arrangements, were already being practiced by some organizations in Malaysia, thus, the concept is not entirely new to the country (Ismail et al., 2019; Joyce & Fauziah, 2019). However, the global shift towards NWOW, particularly post-COVID-19, has had a more pronounced influence on Malaysia, as organizations were compelled to adopt these practices more abruptly due to the pandemic. This sudden implementation—often without adequate preparation—has led to notable effects on work engagement, areas that are still underexplored in the Malaysian context (Kotera & Vione, 2020; Renard et al., 2021). Therefore, there is a significant empirical gap, particularly regarding how NWOW has influenced employee engagement and well-being in Malaysia after the pandemic.

The majority of the cited research on the antecedents of work engagement has been conducted in other nations (Bonaiuto et al., 2022; Decuyper & Schaufeli, 2020; Greenier et al., 2021; Monje Amor et al., 2020; Ree & Wiig, 2020). The global studies of work engagement involve variety fields of workers such as education (Greenier et al., 2021), information and communications technology (Gemed & Lee, 2020), tourism (Monje Amor et al., 2020) and nursing (Ree & Wiig, 2020). While the study of work engagement in Malaysia so far are limited to academician (Arokiasamy & Tat, 2020), nurses (Khairuddin & Baputey, 2019; Othman & Nasurdin, 2019) and hospitality workers (Rabiul & Yean, 2021).

This study expands work engagement research within the real estate and AEC industries, addressing a conceptual gap in understanding its dynamics in these critical sectors.

The importance of NWOW remains underexplored in the Asian context compared to Europe (Jemine et al., 2020; Kotera & Vione, 2020). This study is particularly relevant in Malaysia, where the collectivist culture, dynamic economy, and growing adoption of NWOW offer unique insights. Unlike individualistic contexts, Malaysian workers may value social connectedness, teamwork, and shared goals over personal autonomy. Findings from this study could inform culturally relevant HR strategies, such as fostering collaboration, inclusive leadership, and balanced job roles. Additionally, insights into how NWOW meets psychological needs in Malaysia can guide policies on flexible work and technology adoption. Therefore, this study addresses the conceptual gap in NWOW by exploring its effects in a collectivist, Asian context.

Both academics and practitioners have argued the importance of proactive behaviour at work — which is a self-initiated behaviour, rather than involving conformity to rules and involves the worker actively taking charge (Parker et al., 2019). Therefore, proactive personality is chosen to be studied as the mediator as it is stated that persons who possess proactive personality are more likely to participate in proactive behaviour of their own free will (Yi-Feng Chen et al., 2021). By recognising proactive personality as a crucial antecedent of proactive behaviour, organisations can decide on the best approaches to encourage proactive work behaviour within their organisations.

Furthermore, personality should not be reduced to the predictable, unchangeable status of an independent variable; rather, it should be viewed as a dependent variable—the result of an individual's efforts to improve themselves, as well as the favourable work

surroundings, positions, and interactions they have at work (Tasselli et al., 2018). Although the Big Five personality is still the most widely used framework of personality in workplace literatures (Mahmoud et al., 2020; Şahin et al., 2019; Yao & Li, 2021), proactive personality has a greater impact than any of the Big 5 personality traits when predicting employees' engagement at work (Young et al., 2018). Proactive personality also has been proven to have contribution towards work engagement (Chong et al., 2021; Hu et al., 2021; Mubarak et al., 2021).

Proactive employees, known for their self-starting nature and persistence, demonstrate high work engagement by anticipating challenges and implementing solutions (Chong et al., 2021). Proactive behaviors differ across cultures. In Malaysia's collectivist context, they emphasize team harmony and shared objectives, whereas in Western individualistic cultures, they prioritize independent initiative (Noordin, 2004).

NWOW, which disrupted traditional workplace norms, requires proactive strategies like job crafting to align individual and organizational goals (Wessels et al., 2019). Job crafting, as a bottom-up approach, helps employees balance job demands and resources, fostering engagement and adaptability in dynamic environments (Demerouti et al., 2021). While job crafting theory originated in Western contexts with low power distance and high individualism (Lee & Lee, 2018), its application in Malaysia's collectivist culture emphasizes team cohesion and shared goals. For example, Malaysian employees may prioritize tasks that alleviate team challenges and seek consensus before implementing changes. This culturally nuanced approach to job crafting under NWOW can enhance well-being, performance, and engagement.

The Job Demands-Resources (JD-R) model offers a comprehensive framework to explain how job demands and resources influence work engagement. However, the model's application to New Ways of Working (NWOW) remains underexplored, particularly in understanding how NWOW aligns with the framework to foster engagement in evolving work environments. Current research lacks clarity on how NWOW influences the balance between job demands and resources, especially in contexts where flexibility, autonomy, and technology play critical roles. Additionally, while proactive personality and job crafting have been identified as factors that affect individual experiences of job demands and resources, their role within the NWOW context requires further investigation to address this theoretical gap.

Similarly, Self-Determination Theory (SDT) emphasizes the fulfillment of three psychological needs—autonomy, competence, and relatedness—as essential for fostering work engagement. However, there is a gap in understanding how NWOW facilitates these needs, particularly in non-Western, collectivist contexts where cultural norms and organizational practices may differ significantly from those in Western, individualistic settings. Addressing these theoretical gaps, this study explores how NWOW interacts with both the JD-R model and SDT, offering new insights into the mechanisms that drive engagement and well-being in diverse cultural and organizational environments.

This study investigates proactive personality and job crafting as the mediators between NWOW and work engagement in Malaysia. By addressing these relationships in the collectivist, high power distance context, this research aims to contribute valuable insights for academia, HR practices, and industries of REI and AEC.

1.4 Research Objectives

1.4.1 Main objective

To examine the relationship between NWOW and work engagement with the mediating effects of proactive personality and work engagement.

1.4.2 Specific objectives

1. To examine the relationship between NWOW and work engagement.
2. To examine the relationship between NWOW and proactive personality.
3. To examine the relationship between NWOW and job crafting.
4. To examine the relationship between proactive personality and work engagement.
5. To examine the relationship between job crafting and work engagement.
6. To examine whether proactive personality mediates the relationship between NWOW and work engagement.
7. To examine whether job crafting mediates the relationship between NWOW and work engagement.

1.5 Research Questions

RQ1: What is the relationship between NWOW and work engagement?

RQ2: What is the relationship between NWOW and proactive personality?

RQ3: What is the relationship between NWOW and job crafting?

RQ4: What is the relationship between proactive personality and work engagement?

RQ5: What is the relationship between job crafting and work engagement?

RQ6: Does proactive personality mediate the relationship between NWOW and work engagement?

RQ7: Does job crafting mediate the relationship between NWOW and work engagement?

1.6 Research Hypotheses

The hypotheses of this study will use alternate hypotheses rather than null hypotheses as to demonstrate that there is a relationship between the variables, as guides to select appropriate test statistic and design the study to have a high probability of rejecting the null when the alternative is true. The hypotheses for this study are:

Ha1: There is a significant relationship between NWOW and work engagement.

Ha2: There is a significant relationship between NWOW and proactive personality.

Ha3: There is a significant relationship between NWOW and job crafting.

Ha4: There is a significant relationship between proactive personality and work engagement.

Ha5: There is a significant relationship between job crafting and work engagement.

Ha6: Proactive personality mediates the relationship between NWOW and work engagement.

Ha7: Job crafting mediates the relationship between NWOW and work engagement

1.7 Conceptual Framework

The conceptual framework of current study is shown in Figure 1.1.

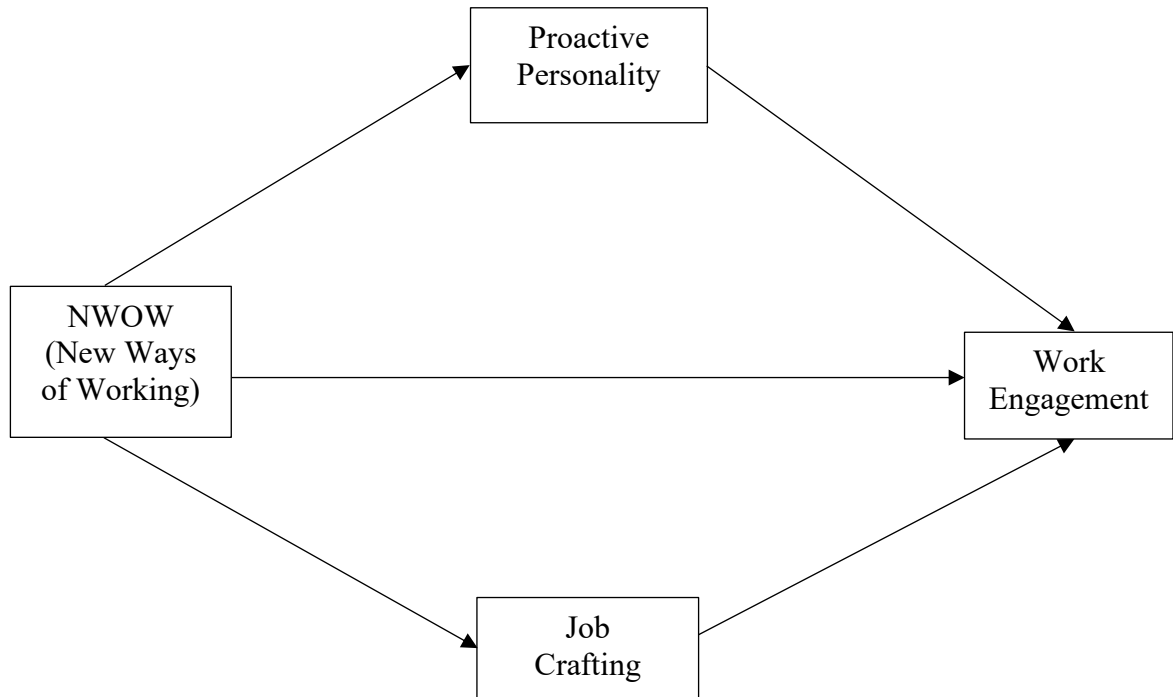


Figure 1.1: Conceptual Framework of New Ways of Working (NWOW) and Work Engagement mediated by Proactive Personality and Job Crafting

1.8 Definition of Terms

In this section are the conceptual and operational definitions for the terms used in the study.

1.8.1 New Ways of Working

Conceptual definition:

New Ways of Working is the ways of work that allow workers to select when and where they work by utilising information and communication technologies (ICT) that are accessible anywhere, at any time (ten Brummelhuis et al., 2012).

Operational definition:

NWOW is operationally defined by the following measurable dimensions adapted from Gerards et. al (2018):

1. independently working time and location

Employees' self-reported ability to choose their work hours and locations, assessed using a 5-point Likert-scale questionnaire item (1=Strongly Disagree, 5=Strongly Agree) (e.g., "I am able to set my own working hours").

2. independent production management

Employees' self-reported ability to manage their own work processes and outputs, assessed using a 5-point Likert-scale questionnaire item (1=Strongly Disagree, 5=Strongly Agree) (e.g., "I am able to determine the way I work").

3. accessibility of organizational knowledge

Employees' self-reported ability to access and utilize organizational knowledge, assessed using a 5-point Likert-scale questionnaire item (1=Strongly Disagree, 5=Strongly Agree) (e.g., "I have the ability to adapt my working scheme to my phase of life and ambitions").

4. flexibility in working arrangement

Employees' self-reported ability to adapt their working schemes to align with their current phase of life and personal ambitions, assessed using a 5-point Likert-scale questionnaire item (1=Strongly Disagree, 5=Strongly Agree) (e.g., "I have the ability to adapt my working scheme to fit my phase of life and aspirations").

5. readily available open-plan office

Employees' self-reported access to and satisfaction with the availability of open-plan office spaces designed to support collaboration and productivity, assessed using a 5-point Likert-scale questionnaire item (1=Strongly Disagree, 5=Strongly Agree) (e.g., "My work building/office is arranged so that colleagues are easily accessible").

1.8.2 Work Engagement

Conceptual definition:

Work engagement refers to when an individual experiences a high energy, confident, affective-motivational state related to high devotion and good concentration on job (Schaufeli & Bakker, 2010).

Operational definition:

Work engagement is a good work-related mental state and operationally defined by the following measurable dimensions adapted from Schaufeli et. al (2002):

1. Vigour

Employees' self-reported levels of energy and enthusiasm toward their work, assessed using a 5-point Likert-scale questionnaire item (1=Strongly Disagree, 5=Strongly Agree) (e.g., "At my work, I feel bursting with energy").

2. Dedication

Employees' self-reported sense of significance, pride, and enthusiasm in their work, assessed using a 5-point Likert-scale questionnaire item (1=Strongly Disagree, 5=Strongly Agree) (e.g., "When I get up in the morning, I feel like going to work").

3. Absorption

Employees' self-reported state of being fully immersed and focused in their work, assessed using a 5-point Likert-scale questionnaire item (1=Strongly Disagree, 5=Strongly Agree) (e.g., "I get carried away when I am working").

1.8.3 Proactive Personality

Conceptual definition:

Proactive personality is less bound by external influences, look for opportunities, take initiative, and act (Crant, 2000).

Operational definition:

Employees' self-reported tendency to take initiative and effect change in their environment, assessed using a 5-point Likert-scale questionnaire item (1=Strongly Disagree, 5=Strongly Agree) adapted from Trifiletti et al. (2009) which is shorten version of Bateman and Crant (1993) (e.g., "I have been a powerful force for constructive change in my workplace").

1.8.4 Job Crafting

Conceptual definition:

Job crafting is a behaviour which is self-initiated by the employees to alter their job according to their own preferences (Wrzesniewski & Dutton, 2001).

Operational definition:

Job crafting is operationally defined by the following measurable dimensions adapted from Sora et al. (2018) which is shorten version of Tims et al. (2012):

1. increasing job resources

Employees' self-reported efforts to enhance the availability of job resources, such as seeking support, feedback, or tools, assessed using a 5-point Likert-scale questionnaire item (1=Strongly Disagree, 5=Strongly Agree) (e.g., "I try to develop my capabilities at work").

2. increasing challenging job demands

Employees' self-reported efforts to take on more challenging tasks or responsibilities to foster growth and development, assessed using a 5-point Likert-scale questionnaire item (1=Strongly Disagree, 5=Strongly Agree) (e.g., "If there are new developments, I am one of the first to learn about them and try them out").

3. decreasing hindering job demands

Employees' self-reported efforts to reduce or manage job demands that may hinder their productivity or well-being, assessed using a 5-point Likert-scale questionnaire item

(1=Strongly Disagree, 5=Strongly Agree) (e.g., "I make sure that my work is mentally less intense").

1.9 Significance of Study

1.9.1 Significance to Body of Knowledge

This research provides further empirical evidence and validates NWOW as the antecedent of work engagement. This study also looks at how work engagement is valued at the workplace. This research provides results to contribute to insights that may lead us to understand the factors that lead to work engagement. Besides, this study adds to a better understanding the work engagement of employees after implementing NWOW. This study also contributes to more empirical research of NWOW, work engagement, proactive personality and job crafting in the Asian context generally and Malaysia specifically.

1.9.2 Significance to Human Resource Development Practitioner

This study has the potential to significantly contribute to the field of Human Resource Development (HRD) by demonstrating the relationship between New Ways of Working (NWOW) and work engagement. By understanding this relationship, HRD practitioners can underscore the importance of regularly evaluating work engagement. Additionally, the study highlights the value of fostering proactive personality traits and job crafting behaviours among employees. This, in turn, can enhance work engagement and contribute to the overall effectiveness and sustainability of organizational practices.

1.9.3 Significance to the Real Estate Industry and AEC Industry

This study will assist the industries in better understanding of work engagement among their employees. It will also provide insights into the implementation of NWOW and

whether applying NWOW enhances work engagement in employees. Besides, companies will gain a deeper understanding of the proactive behaviours in their workforce, particularly in relation to proactive personality and job crafting. This knowledge can help organizations foster an environment that promotes employee initiative and active role-shaping, further driving work engagement.

1.10 Summary

This chapter has discussed the current research main ideas on the relationship between NWOW and work engagement. This chapter also discussed on the important information needed to conduct the research such as the objectives, hypotheses, significance and definition for important terms for present research. Work engagement is critical for Malaysia's real estate and AEC industries as it drives productivity, innovation, and talent retention, ensuring employees adapt to dynamic challenges. This alignment enhances organizational performance and supports the nation's economic growth. Next chapter delves with review of literature.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter begins with literature reviews on the variables of current study which are New Ways of Working (NWOW), work engagement, proactive personality and job crafting from previous scholars. It then discusses related model and theories, which are Self-Determination Theory and Job Demands-Resources model (JD-R model). Following this, the chapter will examine past empirical studies that explore the relationships between these variables and conclude with a summary of the findings.

2.2 Issues of Research

2.2.1 Work Engagement

Work engagement is first theorised by Kahn (1990). He defines engagement as to describe a psychological state in which workers invest their full personal self into their jobs by investing physical, cognitive, and emotional resources, with the amount of energies expended resulting in significantly different outcomes. Kahn's idea was expanded by Schaufeli and colleagues in 2006 in which they described engagement at work as "a positive, satisfying, work-related state of mind characterised by vigour, dedication, and absorption" (Schaufeli et al., 2006, p. 702). Vigour refers to physically and mentally energetic while working; dedication refers to high involvement in the job; while absorption refers to high concentration to be attached in work.

Different terms are being used to describe the engagement of employee. For example, work engagement by Bakker & Demerouti (2008) and employee engagement by Macey &

Schneider (2008). Employee or work engagement is used interchangeably to describe an overarching framework that includes physical, cognitive, and emotional energies and manifests as a state of devoting all of one's energies to work in order to make a difference (Mackay et al., 2017). More specifically, employee engagement includes both interactions between employees and the organisation as well as their relationship with their work but work engagement refers to the connection between people and their jobs (Schaufeli, 2013).

Utrecht Work Engagement Scale (UWES) was developed for measuring work engagement (Schaufeli & Bakker, 2004). Utrecht Work Engagement Scale includes the three components that make up work engagement which are vigour, dedication, and absorption. The UWES originally had 24 items, but following psychometric analysis, 7 ineffective items were removed, leaving three scales with a combined total of 17 items: the Vigour (VI, 6 items), Dedication (DE, 5 items), and Absorption (AB, 6 items) scales (Schaufeli et al., 2002). Schaufeli et al. (2006) has shorten the UWES to 9 items (UWES-9): Vigour (VI, 3 items), Dedication (DE, 3 items), and Absorption (AB, 3 items) as lengthy questionnaires raise the chance of attrition and respondents should not be unduly inconvenienced. UWES-9 is chosen to measure the work engagement in this study as it is the mostly widely used measurement (Baghdadi et al., 2021; Monje Amor et al., 2020).

The widely conducted studies of work engagement recently are leadership style as the predictor of work engagement (Arokiasamy & Tat, 2020; Gemeda & Lee, 2020; Monje Amor et al., 2020; Ree & Wiig, 2020). The leadership style studied as predictor are transformational leadership (Arokiasamy & Tat, 2020; Gemeda & Lee, 2020; Monje Amor et al., 2020; Ree & Wiig, 2020), transactional leadership (Gemeda & Lee, 2020) and laissez-faire leadership (Gemeda & Lee, 2020).

Recent studies focus on personal resources as the predictors of work engagement (Contreras et al., 2020; Solms et al., 2019; Truong et al., 2021). Work engagement also is studied as a significant mediator in the relationship between human resources management practices and organizational commitment (Aboramadan et al., 2020), in the relationship between the linkages of job characteristics with organizational engagement and job satisfaction (Rai & Maheshwari, 2021) and in the relationship between personal characteristics and job performance and also mental health (Tisu et al., 2020).

Global studies on work engagement cover a wide range of fields and professions. For instance, Greenier et al. (2021) examined work engagement among British and Iranian English language teachers, while Gemedda and Lee (2020) focused on information and communication technology professionals from Ethiopia and South Korea. Additionally, Monje Amor et al. (2020) explored work engagement among employees in the tourism sector in Spain.

In Malaysia, recent studies have explored work engagement as an outcome in various contexts. For example, Arokiasamy & Tat (2020) examined the influence of transformational leadership on work engagement, while Othman & Nasurdin (2019) studied the relationship between job characteristics and work engagement among nurses. Additionally, Rabiul & Yean (2021) investigated the connection between leadership style, motivating language and work engagement among hospitality workers. Furthermore, Khairuddin & Baputey (2019) analyzed work engagement as a mediator in the relationship between person-job fit and nurses' intentions to leave. These studies highlight the growing focus on understanding work engagement across different industries in Malaysia.

Therefore, this study aims to examine work engagement across two different sectors in Malaysia: the real estate industry (REI) and the architecture, engineering, and construction (AEC) industry. These industries were chosen due to the challenging working conditions often faced by their employees. Workers in the real estate industry frequently endure long, irregular, and stressful shifts (Lakhani et al., 2024). Similarly, the AEC industry is characterized by labour-intensive, complex production processes, and hazardous, demanding working conditions (Cheung et al., 2023). Employees in these sectors also reported low quality of work life (Fasano & Atherton, 2023; Lakhani et al., 2024), making it crucial to study work engagement within these industries to better understand and improve employee well-being.

Focusing on work engagement is crucial right now because employees are more concerned with other benefits and working conditions than they are with pay (Rodrigues da Costa & Maria Correia Loureiro, 2019). Work engagement resulted in job satisfaction, job performance, wellbeing of employees and reduce turnover intention on individual level (Asghar et al., 2021; Radic et al., 2020; Rita Perangin-Angin et al., 2020). At the organisation level, work engagement brings internal communication satisfaction and higher team performance (Tkalac Verčič, 2021; Uddin et al., 2019).

Work engagement is a critical issue in Malaysia, as highlighted by Qualtrics (2024) which shows that work engagement in Malaysia is lower (67%) compared to nearby countries such as Indonesia (86%) and Thailand (76%). Employees disengagement is worrying as it is linked to negative outcomes such as counterproductive work behaviour and turnover intention (Memon et al., 2020; Xiong & Wen, 2020). Given these risks, studying

on work engagement in Malaysia is essential, as it plays important roles in enhancing productivity and reducing negative organizational effects.

2.2.2 New Ways of Working (NWOW)

The advance of technology has evoked new norm to the working life, initiating the rise of New Ways of Working (NWOW). NWOW is a concept in which the employees do not just work in a fixed period of time at a specific location. In the 1990s, NWOW was developed in the Netherlands and later pioneered by Veldhoen & Company, a Dutch consulting firm (V&C) (Kingma, 2019). It is defined as a form of work design that allows employees to select when and where they work, with the use of technology (ten Brummelhuis et al., 2012). The implementation of NWOW also reflects management's ambition to compete in the talent market since young talent loves a work environment that prioritises work-life balance and also thinks that having access to information and communication technology (ICT) will make them more productive (Attaran et al., 2019; Tlaiss et al., 2017).

Table 2.1: Facets of New Ways of Working (NWOW)

Author	Facets	Number of facets
Peters et al. (2014)	Teleworking, worker autonomy and management of output.	3
De Leede & Kraijenbrink (2014)	Flexibility, operating from home, and collaborating remotely	3
Baane et al. (2011)	Time- and location-independent work, production control, access to organisational information, and flexibility in working relationships	4
Gerards et al. (2018)	Independently working time and location, independent production management, accessibility of organizational knowledge, flexibility in working arrangement and readily available open-plan office	5

Different researchers interpreted the NWOW into different facets as shown in Table 2.1. Peters et al. (2014) segregate NWOW to three facets which are teleworking, worker autonomy and management of output. Although De Leede & Kraijenbrink (2014) also divide to three facets, they focus on flexibility, operating from home, and collaborating remotely. NWOW is divided into four facets by Baane et al. (2011): time- and location-independent work, production control, access to organisational information, and flexibility in working relationships. However, Baane et al. (2011) failed to account for the interplay between the physical and mental work environments which is the core of NWOW, as organisations that adopt NWOW often convert closed offices to open-office layouts.

Gerards et al. (2018) expanded the four facets into five facets which are independently working time and location, independent production management, accessibility of organizational knowledge, flexibility in working arrangement and readily available open-plan office. Independently working time and location is where the employees can choose the time and location to work, independent production management is the employees are managed based on their productivity and performance. Accessibility of organizational knowledge is the function employees can freely connect to colleague and available knowledge in the organisation, flexibility in working arrangements is employees can arrange their work which suites their private life and readily available open-plan office is where the employees can access to their workplace anytime they want to.

Majority of NWOW studies in the past were focused on single dimension which is solely on independently working time and location (Belzunegui-Eraso & Erro-Garcés, 2020; Edelman & Millard, 2021), independent production management (Palvalin et al., 2017), accessibility of organizational knowledge (Malik & Kanwal, 2018; Nguyen, 2021),

flexibility in working arrangements (Wheatley, 2017) or readily available open-plan office (Lai et al., 2021; Manca et al., 2018). Despite the fact that these studies yielded useful findings, they overlooked all facets of NWOW, which incorporate the five dimensions.

Besides, most studies on NWOW have been conducted in the Netherlands, where the concept first emerged in the 1990s (Gerards, de Grip, et al., 2020; Gerards, van Wetten, et al., 2020; Kingma, 2019). The studies have demonstrated various positive outcomes of NWOW, including increased innovative behaviour (Almahamid & Ayoub, 2022), intrapreneurial behaviour (Gerards, van Wetten, et al., 2020), in-role performance (Cornu, 2022) and enhanced informal learning (Gerards, de Grip, et al., 2020). Studies on NWOW have been more limited in the Asian context compared to Europe (Brunia et al., 2016; Kotera & Vione, 2020; Manca et al., 2018). NWOW is understudied in Asia compared to Europe, as many Asian countries have been slower to adopt flexible work practices, with only NWOW gaining widespread application primarily during the COVID-19 pandemic (Seong et al., 2022). This study addresses the gap by exploring NWOW in the Malaysian context, particularly in real estate and AEC industries, providing insights into how these practices influence work engagement, job crafting, and proactive behaviors within a collectivist culture.

Prior to COVID-19, the AEC and REI sectors implemented certain aspects of NWOW but were mainly limited to providing time and space flexibility (Bryce et al., 2019; Jayantha & Oladinrin, 2019). The pandemic led to a significant increase in the adoption of NWOW within organizations (Duque et al., 2020). Although the situation has shifted to an endemic phase, with most employees returning to their offices, many organizations continue to maintain NWOW practices (Adekoya et al., 2022; Ozimek, 2020). Despite its growing

relevance, current studies on NWOW are limited in addressing various of methodological gaps and involving different populations (Kotera & Vione, 2020; Renard et al., 2021). Therefore, it is essential to further explore the effects of NWOW on organizations and individuals, both for research and practical application (Duque et al., 2020; Renard et al., 2021).

2.2.3 Proactive Personality

Proactive personality is a person who “influences environmental change and is mostly unrestricted by external factors” (Bateman & Crant, 1993, p. 105). Bateman & Crant (1993) introduced proactive personality to measure the inclination of different individuals for taking action to affect their surroundings. A proactive person takes initiative to take action and continue until improvement happened whereas a non-proactive person exhibit the opposite patterns, such as failing to recognise problems, giving up on themselves, and missing opportunities to make improvements (Bateman & Crant, 1993). Proactive personality is often linked to a sense of personal responsibility for positive change, or how often one believes redefining performance is a personal responsibility (McCormick et al., 2019).

Proactive personalities also are known to have an impact when people are dealing with uncertainty (Hu et al., 2020; Sari & Najmudin, 2021; Yi-Feng Chen et al., 2021). Persons with high proactive personality qualities are more inclined to purposefully modify the circumstances on their own initiative (Buil et al., 2019). Proactive personality's active nature allows persons who are experiencing uncertainty and difficulty to gather a vital job-related motivational resource, which leads to improved job performance and well-being (Yi-Feng Chen et al., 2021).

Although there is a lack of studies examining proactive personality as a dependent variable or mediator, it has been widely explored as an independent variable and moderator. Proactive personality has been studied as an antecedent of service (Yang et al., 2020), creative behavior (Alikaj et al., 2021), well-being (Wahab & Blackman, 2023), job performance (Johari & Subramaniam, 2020), and strain responses to challenge and hindrance stressors (Nielsen et al., 2023). Additionally, it has been linked to coworker envy, helping, and undermining behaviors (Sun et al., 2020). Proactive personality has been examined as a moderator in the relationship between positive traits and self-leadership (Abid et al., 2021). In the study by Johari et al. (2022), proactive personality is the moderator between institutional leadership competencies and job performance. Besides, proactive personality also acts as a moderator in the relationship between perceived organizational support and job satisfaction (Maan et al., 2020).

Global studies of proactive personality cover in various industries, including hospitality industry in China (Yang et al., 2020), healthcare industry also in China (Yi-Feng Chen et al., 2021; Alikaj et al., 2021), financial and information technology sectors in China (Alikaj et al., 2021), the manufacturing and service sectors in Pakistan (Maan et al., 2020) and among architects in United States (Nielsen et al., 2023). In Malaysia, it has been investigated among employees in the banking sector (Johari & Subramaniam, 2020), retail sector (Wahab & Blackman, 2023), education sector (Johari et al., 2022), and among students (Mohammadi et al., 2022).

In Malaysia's high power distance culture, individuals with proactive personalities often navigate hierarchical structures by taking initiative in ways that respect authority and maintain group harmony (Johari & Subramaniam, 2020). They may use indirect

communication or seek approvals to propose changes, ensuring their actions align with organizational goals. This adaptability allows them to contribute to collective success while fostering trust within the power dynamics. Proactive behaviours are often framed as benefiting the group, making them culturally acceptable and impactful (Hu et al., 2020).

Given the range of industries where proactive personality has been explored, the study of proactive personality as a mediator in the REI and AEC industries in Malaysia is highly valuable. These industries are pivotal to Malaysia's economic development and are characterized by rapid change, innovation, and project-based work environments (Cheung et al., 2023; Lakhani et al., 2024; Siniak et al., 2020). Proactive personality can act as a crucial factor in fostering adaptability and improved performance within these sectors (Yi-Feng Chen et al., 2021). By examining proactive personality as a mediator in these industries, we can better understand its role in facilitating NWOW to enhance work engagement and supporting the development of proactive workforces.

2.2.4 Job Crafting

There are two concepts of job crafting which are role-based job crafting (Wrzesniewski & Dutton, 2001) and resource-based job crafting (Tims et al., 2012). Role-based job crafting is the employees' physical (e.g., types of job tasks, interaction requirements at work) and cognitive (e.g., changing one's views about work) shifts in their task or relational work boundaries (Wrzesniewski & Dutton, 2001). The components of resource-based job crafting are based on JD-R theory describe the employees craft their jobs by altering the levels of job resources and job demands which are increasing structural job resources, increasing social job resource, increasing challenging job demands and decreasing hindering job demands (Tims et al., 2012). This study focused on resource-based job crafting

to study the job crafting as NWOW has provided resources to the employees (Gerards et al., 2018).

According to Bakker & Demerouti (2017), job resources are defined as the aspects of the job that are functional in achieving job objectives, reducing job demands and related physiological and psychological costs, or promoting personal development such as feedback for performance, autonomy and growth opportunities while job demands refer to those aspects of the job where constant effort are needed therefore associated with physiological and psychological costs such as dealing with demanding clients and high work pressure.

Tims et al. (2012) developed job crafting scale based on JD-R theory. The job crafting scale which consisted of 21 items also is the most frequently used measurement (Lee & Lee, 2018). In the constructing of the job crafting scale, Tims et al. (2012) first created a pool of 42 items to represent all three aspects of job crafting which are “increasing job resources”, “increasing challenging job demands” and “decreasing hindering job demands”. The authors began by capturing the dimension “increasing job resources” with 19 items, created 14 new items that adhere to “increasing challenging job demands” and 9 items were added for the dimension “decreasing hindering job demands”. After that, principal factor analysis (maximum likelihood) with oblique rotation in SPSS is utilised to determine if the three components could be meaningfully discriminated from one another. Content analysis showed the conceptual distinction between “increasing structural job resources” and “increasing social job resources”. Therefore, the findings indicated that 21 items and four distinct job crafting dimensions which are “increasing structural job resources”, “increasing social job resources”, “increasing challenging job demands” and “decreasing hindering job demands” should be incorporated.

Job crafting brings benefits to the organisation as it improves employees' job performance (Zhang & Liu, 2021), job satisfaction (Li et al., 2023) and lower their turnover intention (Zhang & Li, 2020). Job crafting also allows employees to make decisions about how they do their work, they can opt to change their job or the psychological experience of working to make it more meaningful and engaging, which is beneficial for job performance (Bakker et al., 2020).

Job crafting was previously studied as predictors of customer service behaviour (Teng, 2019), work engagement (Bakker & Oerlemans, 2019) and turnover intention (Zhang & Li, 2020). Job crafting has also been studied as outcomes of intrinsic motivation and team knowledge sharing (Lee & Song, 2020), and proactive personality (Teng & Chen, 2019). Moreover, job crafting was studied as mediator in the workplace studies such as between (i) employees' perceptions of human resource management (HRM) and work engagement (Meijerink et al., 2020), (ii) work engagement and wellbeing outcomes (Robledo et al., 2019) and (iii) personality and performance (Peral & Geldenhuys, 2020).

Globally, job crafting has been studied across various industries, including hospitality industry in Taiwan (Teng, 2019), manufacturing industry in Korea (Lee & Song, 2020), the service sector in Korea and China (Lee & Song, 2020; Zhang & Li, 2020), tourism industry in Taiwan (Teng & Chen, 2019), and educational organizations in Netherland (Meijerink et al., 2020). In the Malaysian context, job crafting has been studied in the academic sector (Mohd Rasdi et al., 2023; Pari et al., 2019) and government-related companies (Hussein & Amiruddin, 2020).

Despite these previous studies, there is a notable gap in research regarding job crafting in Malaysia's REI and AEC industries. As these sectors are highly dynamic, project-

based, and central to the country's development, examining job crafting in this context is critical (Cheung et al., 2023; Lakhani et al., 2024; Siniak et al., 2020). Studying job crafting as a mediator could reveal how employees proactively reshape their work environments to boost engagement and expanding its understanding beyond traditional industries.

2.3 Theories

2.3.1 Job demands-resources model

Demerouti et al. (2001) introduced the Job Demands-Resources (JD-R) model, which is illustrated in Figure 2.1. JD-R model is an occupational stress model that suggests that strain is a reaction to an imbalance between an individual's demands and the resources available to meet those demands. According to Bakker & Demerouti (2007), the previous job model has been constrained to a specified and limited set of predictor factors that may not be applicable for all work situations. Therefore, JD-R model is preferable as it analyses organisations and employees under a wide range of working settings.

The model divided all the job characteristics into job demands and job resources. Job demands are defined as elements of the job that need skills or effort occurs as in mental or physical state such as workplace relationships and work pressure. Job resources, which include support, autonomy, and feedback, are defined as elements of the working environment that can help in self-development. The model also demonstrates stress and the risk of burnout (strain) become more likely when job resources are low and job demands are high. Work engagement and well-being (motivation) are increased when job demands are high but sufficient job resources are accessible. Organisational outcomes are reduced by stress, but are increased by motivation.

In this study, the JD-R model is used to understand the roles of proactive personality and job crafting in attaining work engagement. According to Bakker et al. (2012), employees with a proactive personality are more likely to perform job crafting which are mobilising their own resources and establishing their own challenges. Increased job resources and the correct quantity of job demands are the key drivers of work engagement (Bakker & Demerouti, 2014). Vogt et al. (2015) also proved that workers who proactively created a resourceful and demanding work environment for themselves improved their own psychological resources and work engagement. Therefore, proactive personality and job crafting are playing roles in achieving work engagement among employees. When work engagement is achieved, engaged people are also driven over time to remain engaged and build own resources (Bakker & Demerouti, 2017). Thus, through proactive personality or through job crafting, the job characteristics can be altered to lower job demands while enhancing job resources to attain and maintain work engagement.

The Job Demands-Resources (JD-R) model uniquely justifies the mediators' role by showing how Malaysian collectivism heightens the impact of social job resources like support and collaboration in reducing job demands and improving engagement. Proactive personality and job crafting enable individuals to better utilize these resources, enhancing their ability to adapt and thrive in a flexible work environment. As workplace norms shift, these personal resources become critical for navigating changes while maintaining well-being and engagement. Together, JD-R explains how proactive personality and job crafting operate within Malaysia's cultural context to support NWOW initiatives.

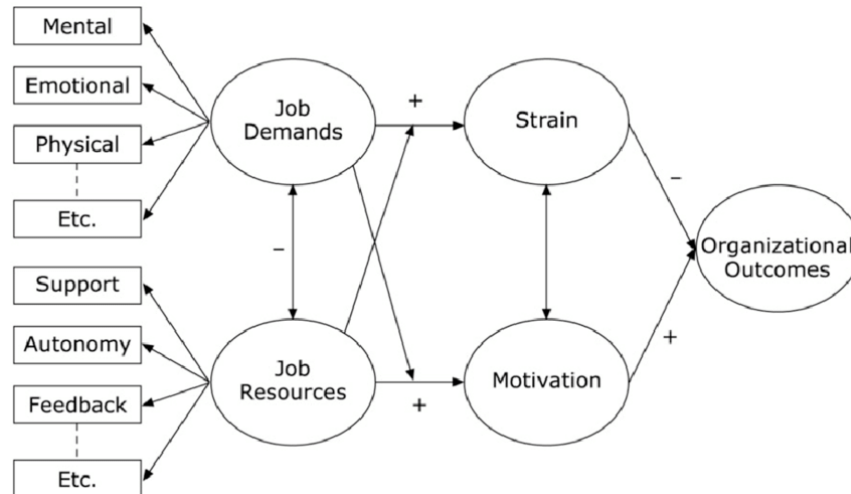


Figure 2.1: Job Demands-Resources Model

Note. Adapted From “How job demands, resources, and burnout predict objective performance: A constructive replication,” by Bakker et al. (2008). Copyright 2008 by Routledge.

2.3.2 Self-Determination Theory

Figure 2.2 shows the Self-Determination Theory (SDT) by Deci & Ryan (1985) which emphasizes the satisfaction of the three basic psychological needs which are autonomy, relatedness and competence to be central for maintaining intrinsic motivation and self-regulation of external drives. When people have autonomy, they feel in control of their own behavior and goals. When they have competence, they can perform tasks successfully and efficiently. When they have relatedness, they experience a sense of belonging and connection. SDT has been primarily focused with promoting and fostering workplace conditions where employees feel supported in their autonomy, enable to self-motivate and, as a result, work effectively and feel great (Deci et al., 2017).

This theory helps to demonstrate the relationship between the NWOW and work engagement. NWOW which increases employee process control has given the employees more autonomy, competence and relatedness (Gerdenitsch, 2017). Autonomy, a key element

of SDT, is fostered when employees are given more control over their personal and professional decisions, empowering them to shape their work according to their preferences. As NWOW offer management of output and flexibility in working relations, the employees are able to efficiently complete their job according to their own preferred condition which contributes to the feeling of competence. NWOW also provide relatedness to the employees as the employee can freely access to organisational knowledge which they can experience knowledge sharing, access to collective organisational intellectual and also quick reach to their colleagues and managers.

SDT is a good fit for today's workplace engagement and motivation (Gagné et al., 2017). SDT's focus on the three essential demands of autonomy, competence, and relatedness which is accessible, consumable, and intuitive, allowing managers to help one another in their attempts to develop a strong, driven culture (Rigby & Ryan, 2018). With self-determination, employees are likely to possess self-initiative characteristics such as proactive personality and job crafting behaviours that bring favourable results. Individuals who are more proactive at work are more likely to thrive at work, which helps the development of career adaptability (Jiang, 2017). Performance and well-being are improved through job crafting (seeking challenges and resources) when people reflect, share, and act on their job crafting goals (Gordon et al., 2018). As proactive personality and job crafting are able to increase the work engagement (Bakker & Oerlemans, 2019; Young et al., 2018), therefore, proactive personality and job crafting both may mediate the relationship between NWOW and work engagement adhering to the self-determination theory.

In the Malaysian context, Self-Determination Theory (SDT) highlights the importance of relatedness, autonomy, and competence as fundamental psychological needs

that drive motivation. Collectivism amplifies the relevance of relatedness, as strong social connections and a sense of belonging are deeply valued. At the same time, the increasing adoption of flexible work practices elevates the importance of autonomy, with employees seeking more control over their tasks and work environment. Proactive individuals support this shift by balancing their need for autonomy with maintaining harmonious relationships, aligning motivation with cultural values.

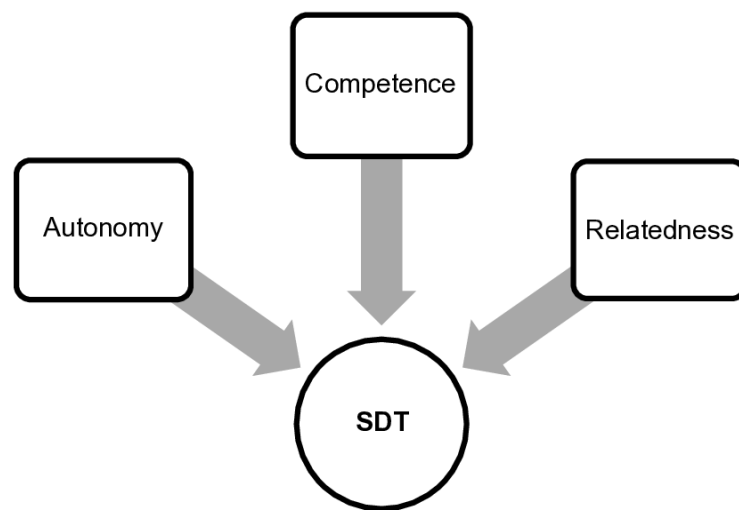


Figure 2.2: Self-determination Theory

Note. Adapted From “Achieving Digital Inclusion of Older Adults through Interest-Driven Curriculums,” by Beh et al. (2018). Copyright 2018 by Jeanie Beh, Sonja Pedell and Bruno Mascitelli.

2.4 Past Empirical Studies

2.4.1 New Ways of Working (NWOW) and Work Engagement

Previously, the studies on the effect of NWOW towards work engagement are limited and mostly conducted in western context (Duque et al., 2020; Gerards et al., 2018; Van Steenbergen et al., 2018). Literature review showed that NWOW has increased the work engagement in several studies: (i) NWOW and physical environment improve employee engagement among employees working in the administrative, academic, managerial, and

strategic sectors in the cities of Brazil which are Rio de Janeiro and São Paulo (Gerards et al., 2018), (ii) Experiencing NWOW during COVID-19 affected job-related affective well-being for a sample of employees from the Dutch working population, with technostress, need for recovery, and work engagement acting as serial mediators (Andrulli & Gerards, 2023) and (iii) the effects of NWOW on employees' job demands, job resources and their levels of burnout and work engagement among employees of a large Dutch provider of financial services in Netherlands (Van Steenbergen et al., 2018).

However, there are earlier research demonstrated the relationship between some facets of NWOW and work engagement (Gerards et al., 2018; Nagata et al., 2021). Independently working time and location especially home based has been proven to increase the work engagement among working adults in Japan (Nagata et al., 2021). Furthermore, in a study by Gerards et al. (2018) on the impact of various facets of NWOW on work engagement have shown independent production management, accessibility of organisational knowledge, and readily available open-plan office fosters the interpersonal communication that stimulates work engagement among employees in Netherlands.

A prior study in Malaysia explored the relationship between flexible work arrangements (FWA) instead of NWOW and employee engagement in the banking industry (Che Malek, 2020). According to Che Malek (2020), flexible work arrangements enhance employee engagement by promoting responsibility and autonomy, enabling workers to efficiently manage their job duties and balance work-life priorities. Nonetheless, there are studies stated that time and location flexibility that allows by NWOW causes workers to undertake more unpaid overtime and exhibit lower levels of engagement at work (Chung & van der Horst, 2020; Schaufeli, 2018). Therefore, there is need to study the relationship

between NWOW and work engagement in Malaysia since NWOW was also introduced hastily following the COVID-19 pandemic with a lack of planning and administration.

Previous NWOW studies also are constrained in their ability to address different types of methodological gaps and engage different populations (Kotera & Vione, 2020; Renard et al., 2021). Aside from studying the direct relationship of NWOW and work engagement, it is also relevant to include mediators to study the relationship as there are variables which can mediate the direct relationship to increase work engagement.

The real estate and AEC industries provide a unique context for NWOW due to their dynamic, project-based nature and reliance on flexibility, collaboration, and innovation (Rasool et al., 2021; Wang, 2021). NWOW enhances client interactions, remote work, and digital tools, improving productivity in a competitive market (Gerards et al, 2018). As key drivers of Malaysia's economy, both industries benefit from NWOW's ability to modernize operations and enhance work engagement.

2.4.2 NWOW and Proactive Personality

The abrupt implementation of NWOW has forced employees to suffer uncertainty, as traditional office environments have been disturbed (Diab-Bahman & Al-Enzi, 2020). However, NWOW has provided flexibility in terms of time, location, working style, and the ability to adapt work to one's personal situation (Gerards et al., 2018). With increased job control and autonomy, proactive person would actively look for better ways to do their job (Li et al., 2020). This is due to proactive individuals possess more personal resources than passive individuals, enabling them to display positive work behaviours that align with their values and self-image, allowing them to acquire and develop additional resources (Li et al., 2020). This aligns with the study by Horng et al. (2016) among employees in the tourism and

hospitality industry, which suggests that the flexibility of the work environment may be particularly relevant to the success of proactive individuals.

Previously, proactive personality has been primarily studied as both a predictor and a moderator (Abid et al., 2021; Alikaj et al., 2021; Buil et al., 2019; Maan et al., 2020; McCormick et al., 2019). However, Tasselli et al. (2018) stated that personality should be seen as a dependent variable rather than being relegated to the predictable, unchangeable status of an independent variable as a result of an individual's attempts to better themselves as well as the favourable work environment, positions, and interactions they have at work. Employees with proactive personality have an easier time adjusting to a new culture as they have a natural tendency to take initiative and shape their environment, rather than being limited by it (Hu et al., 2020).

Furthermore, Ullah et al. (2024) found that employees with proactive personalities in Pakistani software firms experience higher satisfaction, hope, and self-efficacy, leading to enhanced creativity and positively impacting innovative work behaviour. Employees with a proactive personality may thrive in work settings that provide them with the autonomy and resources to identify and address problems proactively (Wang et al., 2017). Conversely, a lack of flexibility and support in the workplace may hinder the ability of proactive employees to capitalize on their natural tendencies (Wang et al., 2017). A study by Adhyke et al. (2023) on employees of the Indonesian Ministry of Law and Human Rights revealed that those with proactive personalities were able to seek opportunities and drive meaningful changes within the organization.

Therefore, proactive personality is included as one of the mediators to study the relationship between NWOW and work engagement also to fill the research gap to study personality as a dependent variable.

2.4.3 NWOW and Job Crafting

New Ways of Working (NWOW) have an impact on employees' actual work spaces, technology, organisational structure, and management style, as well as the workplace culture (Gerards et al., 2018). According to Liu et al. (2021), NWOW which allow flexibility in time and location has significant beneficial effects on job crafting, suggesting that it helps effectively encourage employees to practice job crafting. NWOW enables employees to perform job crafting which are customising their occupations by selecting tasks, negotiating job content, and assigning meaning to fill their basic needs and drive intrinsic motivation (Saragih et al., 2020). NWOW also further provided employees the authority to make decisions about their job context; with increasing levels of autonomy, people actively invest their resources in their surroundings through job crafting (Li et al., 2022).

NWOW has given employees much greater autonomy than before, as employees' autonomy increases, they are more likely to perform job crafting (Dierdorff & Aguinis, 2018). Employees often alter tasks to suit their preferences and skill levels when given a sufficient amount of flexibility within the job requirements (Saragih et al., 2021). A higher level of job autonomy also encourage job crafting as employees know they have the freedom and chance to make changes on their own (Saragih et al., 2021). According to a study by Seinsche et al. (2023) involving employees from various public sectors in Germany, those new to New Ways of Working (NWOW) developed personal job crafting strategies to optimize their

working conditions, manage challenging job demands, and enhance both their social and structural resources.

Demerouti et al. (2020) studied on the effects of job crafting intervention on organisational change in blue-collar context and found out that job crafting intervention which initiates job crafting behaviour is an efficient means of achieving successful adaptation to organizational change. Moreover, the study by Dierdorff and Aguinis (2018), which focused on the United States workforce, demonstrated that job autonomy serves as a precursor to job crafting, which, in turn, plays a crucial role in transmitting the positive effects of job autonomy on individual outcomes. Therefore, it is important to study job crafting in this dynamic changing workplace.

2.4.4 Proactive Personality and Work Engagement

Personality traits is the individual's consistent behaviour patterns and intrapersonal processes (Anglim et al., 2019). Personality traits also are proven to be reliable predictors of work engagement (Janssens et al., 2019; Li et al., 2021; Tisu et al., 2020). A meta-analysis study by Young et al. (2018) indicated that personality contributes 48.10 percent of the variance in work engagement, implying that personality is useful additions to organisational selection processes for maximising engagement. Therefore, it is vital to study personality traits that influence employees' work behaviour, which leads to work engagement (Young et al., 2018). Although the Big Five is still the most used personality framework in workplace literatures (Mahmoud et al., 2020; Şahin et al., 2019; Yao & Li, 2021) but proactive personality outperforms the Big 5 personality traits when predicting employee work engagement (Young et al., 2018).

Moreover, employees with proactive personalities tend to be highly engaged and motivated in their work (Sumaneeva et al., 2021). Previous studies have explored work engagement as a mediator in examining proactive personality as the antecedent of various job outcomes. For example, work engagement has been studied as a mediator in the relationship between proactive personality and job performance (Chong et al., 2021; Hu et al., 2021), proactive personality and innovative behaviour (Mubarak et al., 2021) and also between proactive personality and job crafting. These studies demonstrated a positive relationship between proactive personality and work engagement (Bajaba et al., 2021; Chong et al., 2021).

2.4.5 Job Crafting and Work Engagement

Zampetakis (2023) stated that the proactive measure taken by the employees in the form of job crafting increases their work engagement. A study by Baghdadi et al. (2021) in the nursing sector in Saudi Arabia found that nurses who engage in high levels of job crafting also experience higher levels of work engagement. Similarly, employees who enhance the challenging demands and resources of their job roles experience greater work engagement (Zhang & Li, 2020). Job crafting improves employees' positive attitudes, which in turn inspires them to work harder and provide better results helping to attain work engagement (Garg et al., 2021). Furthermore, job resources and personal resources are found to enhance work engagement (Chen & Fellenz, 2020; Dominguez et al., 2020). Dubbelt et al. (2019) also stated that through job crafting, favourable job resources can be obtained, and work engagement can be increased.

Job crafting is chosen as mediator in this study because it has been found to promote work engagement (Baghdadi et al., 2021; Bakker & Oerlemans, 2019; Letona-Ibañez et al.,

2021; Nguyen et al., 2019). For example: (i) Baghdadi et al. (2021) studied the relationship of job crafting and work engagement among hospital nurses in Saudi Arabia and found out that work engagement and job crafting were significant and associated positively, (ii) Bakker & Oerlemans (2019) showed job crafting is positively related to work engagement among Dutch employees, (iii) the positive relationship between job crafting and work engagement is also supported in the study by Letona-Ibañez et al. (2021), which explored the relationship between job crafting and work engagement among Spanish employees and (iv) Nguyen et al. (2019) found a positive relationship between job crafting and work engagement among employees of a Vietnamese commercial bank.

2.4.6 Mediating Roles of Proactive Personality and Job Crafting

The sudden implementation of NWOW has introduced uncertainty for employees by disrupting traditional office environments (Diab-Bahman & Al-Enzi, 2020). However, NWOW has provided with increased job control and autonomy for workers (Gerards et al., 2018). With this greater control, individuals with proactive personalities are more inclined to seek improved ways of completing tasks (Li et al., 2020) , and more easily adjust to new organizational cultures (Hu et al., 2020). A key element in the success of proactive individuals is the flexibility of the work environment (Urquijo et al., 2019) as they thrive in work settings that offer both autonomy and resources. This enables them to proactively identify and address problems (Z. Wang et al., 2017), which in turn increases their work engagement (Bajaba et al., 2021).

NWOW influences multiple aspects of work, including physical workspaces, technology, organizational structures, management styles, and workplace cultures (Gerards et al., 2018). The high degree of job autonomy associated with NWOW allows employees

the freedom to make changes independently, which encourages job crafting (Saragih et al., 2021). NWOW facilitates job crafting by enabling employees to customize their roles, select tasks, negotiate job content, and assign meaning to meet their basic needs and drive intrinsic motivation (Saragih et al., 2020). The proactive measure taken by the employees in the form of job crafting increases their work engagement (Zampetakis, 2023). Employees who enhance the challenging demands and resources of their job roles experience greater work engagement (Zhang & Li, 2020). Additionally, job crafting fosters positive attitudes in employees, motivating them to work harder and achieve better results, which ultimately leads to higher work engagement (Garg et al., 2021).

Based on previous research, it is pertinent to include proactive personality and job crafting as mediators when examining relationship between NWOW and work engagement. NWOW provides the resources necessary for employees to develop proactive personalities and engage in job crafting, which, in turn, fosters greater work engagement.

2.5 Summary

This chapter discusses the main issues and past findings related to New Ways of Working (NWOW), work engagement, proactive personality and job crafting. It also explores related theories including Job-Demands Resources Model and Self-Determination theory as they pertain to the focus of the current study. The following chapter outlines the methodology for conducting the study.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter discusses the research methodology that was used to conduct the current study. It includes information about research design, population and sample, sampling procedure, instrument, validity and reliability, unit of analysis, ethics of study, data collection and data analysis procedure. This chapter is important to ensure that the research is conducted in the appropriate method and the right procedure to serve as guidelines on how this study was conducted.

3.2 Research Design

The research was done with quantitative approach which is a positivist approach to study the direct effect of New Ways of Working (NWOW) on work engagement and the mediating effects of proactive personality and job crafting. In this approach, the researcher collected numeric data through standardised questionnaires in a structured context, allowing the researcher to have more control over study factors, environment, and research question (Rutberg & Bouikidis, 2018). This study used correlational study design where the researcher used correlational statistic to define and assess the degree of relationship between two or more variables (Creswell & Guetterman, 2024). By studying a sample of a population, survey research can provide a quantitative or numeric account of the population's trends, attitudes, or opinions. It encompasses cross-sectional and longitudinal studies that collect data using questionnaires or structured interviews with the goal of interpreting findings from a sample to the entire population (Fowler, 2009).

For this study, cross-sectional survey method was used as data was collected to draw conclusions about a population of interest at a specific point in time (Lavrakas, 2008). Cross-sectional survey method was used through online to targeted samples which are the employees from real estate industry (REI) and architecture, engineering and construction (AEC) industry after the construction of the close-ended questionnaire. The relationship was observed through the analysis of collected data using Statistical Package for the Social Sciences (SPSS) Version 23. The information obtained from a targeted sample was effectively used to draw the conclusion about the studied population.

Online surveys were chosen for data collection due to their efficiency in reaching a diverse and geographically dispersed workforce in the real estate and AEC sectors, where professionals often work remotely, on-site, or across multiple locations. Given the hierarchical nature of these industries, direct access to respondents can be challenging, making online surveys a practical solution for ensuring broad participation while minimizing disruptions to their work. Additionally, online surveys facilitate anonymity, encouraging more honest responses, and enable the collection of large-scale data efficiently, making them ideal for studying in these dynamic industries.

3.3 Population and Sample

Population is a group of people, events or objects which have similar characteristics and is served as the focus for the research purpose (Sekaran, 2000). Population includes people or items that researcher intends to study such as characteristics. This means that a population will be the subject of the study, while the sample will serve as a group of respondents that will provide information needed by researcher for the study. In this study,

the population were the employees from the real estate industry (REI) and also architecture, engineering and construction industry (AEC) in Sarawak, Malaysia.

However, the total population of the employees from REI and AEC industries are too large and unknown. Therefore, the sample was calculated using power analysis by G*Power version 3.1.9.6. The small-medium effect size of 0.3 is chosen, the alpha of 0.05 was entered and the power level of 0.95 was entered, the sample size needed was 138. G*Power was chosen as it is reliable when compared to established sample size determinator and is free to access. The data collection was conducted from June 2023 until May 2024. The initial distribution comprised 2120 questionnaires. However, some potential respondents either declined to participate or failed to complete the questionnaire. Following the distribution and subsequent data cleaning process—where only full-time employees with a minimum tenure of one year were included—the final obtained sample size was 158.

3.4 Sampling Procedure

In this study, convenience sampling method was employed due to the large and unknown total population of workers in the REI and AEC industries. Additionally, many companies were unwilling to disclose their employees' information, and some declined participation in the survey due to privacy regulations. These factors made it difficult to obtain a complete list of potential participants, reinforcing the decision to use convenience sampling.

A total of 158 employees from the REI and AEC industries participated in the study. To gather responses, companies based in Kuching and Kota Samarahan were approached through a combination of email outreach and door-to-door visits. This approach allowed for direct engagement with potential respondents, where the purpose and objectives of the

research, along with the data collection procedures, were clearly explained. The research team ensured that permission was granted from each participant prior to collecting data.

Moreover, the researchers took steps to address concerns related to confidentiality. All collected data were treated with strict confidentiality, ensuring that participants' privacy was maintained throughout the research process. By taking these measures, the study aimed to foster trust and encourage honest and voluntary participation from the employees in both industries.

3.5 Instrument

The main instrument in this study was survey questionnaire, which helped to identify the relationship between New Ways of Working (NWOW) and work engagement including the mediating effects of proactive personality and work engagement. For this study, online close-ended questionnaire (Google Form) was used. By using questionnaire to collect needed data from respondents, it is flexible, faster and cheaper. The questionnaire was constructed by adapting from published research. The language of the questionnaire was in English.

Table 3.1: Research Instrument

Section	Number of items	Sample Question	Sources
A (Demographic) • Gender • Age • Ethnicity • Highest education level • Current Position • Duration of work experience in current job • Current Work Position	7	-	-
B (New Ways of Working) • Time and Location • Management of Output • Access to organizational knowledge • Flexibility in working relations • Freely accessible open workplace	10	I am able to set my own working hours.	Gerards et al. (2018)
C (Work Engagement) • Vigour • Dedication • Absorption	9	At my work, I feel bursting with energy.	Schaufeli et al. (2006)
D (Proactive Personality)	7	I have been a powerful force for constructive change in my workplace.	Trifiletti et al. (2009)
E (Job Crafting) • Increase job resource • Increase challenging job demands • Decrease hindering job demands	12	I try to develop my capabilities.	(Sora et al., 2018)

Table 3.1 shows the content of the questionnaire which includes the section in questionnaires, facets for the sections, number of items, sample questions and adapted

sources. There are 5 sections in this questionnaire with a total of 44 questions. Section A comprises the demographic information. There are 7 questions in this section on acquiring respondents' personal information which includes gender, age, ethnicity, highest education level, position, years of service and working location. Section B comprises 10 questions on New Ways of Working adapted from Gerards et al. (2018) with the facets of time and location, management of output, access to organizational knowledge, flexibility in working relations and freely accessible open workplace. Section C comprises 9 questions on work engagement adapted from Schaufeli et al. (2006) with the facets of vigour, dedication and absorption. Section D comprises 7 questions on proactive personality adapted from Trifiletti et al. (2009) which is shorten version adapted from Bateman & Crant (1993) and Section E has 12 questions on job crafting adapted from Sora et al. (2018) which is shorten version adapted from Tims et al. (2012) with the facets of increase job resources, increase challenging job demands and decrease hindering job demands.

Aside from the demographic questions, the respondents were instructed to answer to each question according to a 5-point Likert scale. The Likert Scale was used in this questionnaire as it is a good measure of a close-ended questionnaire and easily indicates the degree of agreement or disagreement of respondents. Following Table 3.2 indicates the 5-Point Likert scale of measurement used in this study. Each number indicates the level of agreement from the least of strongly disagree to the highest of strongly agree.

Table 3.2: Likert Scale

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Note. Likert Scale. Adapted from “A technique for the measurement of attitudes,” by Likert (1932). Copyright 1932 by Archives of psychology.

3.6 Validity and Reliability

3.6.1 Pilot Study

The quality of the instrument used can be assured by its validity and reliability. The validity refers to the quality is valid and acceptable. Reliability refers to the accuracy of the instrument. The questionnaire was constructed by adapting established questionnaires which were claimed high in validity and reliability. A pilot test was conducted before the questionnaires were distributed to collect data for determining the suitable number of respondents, also to avoid grammatical errors and ambiguities. Normality test was used to determine the distribution of data.

Pilot study describes both the pre-testing of a specific research instrument, such as a questionnaire or interview schedule, as well as small-scale versions of research (Van Teijlingen & Hundley, 2001). Before the pilot test, face validity was done by supervisors and two master students from UNIMAS to ensure the statement was simple to comprehend, brief, and error-free. The relevance and reliability of the questionnaire were ensured through a reliability test where the Cronbach's alpha value is expected to be more than 0.7 to be acceptable. In this research, the pilot study was conducted among the 30 employees from IT industry, tourism and insurance company. Those 30 respondents varied in terms of academic level, age, and gender. To ensure the actual study was reliable and valid, pilot study respondents were not selected again to answer the real study questionnaire. Table 3.3 shows the results of pilot study.

Table 3.3: Results of Pilot Study

Variables	Item	Cronbach's Alpha Value	Interpretation
New Ways of Working (NWOW)	10	0.814	Acceptable
Work Engagement	9	0.907	Acceptable
Proactive Personality	7	0.774	Acceptable
Job Crafting	12	0.775	Acceptable

The pilot study served to validate the survey instrument, which was adapted from established and widely recognized resources. It confirmed that the questionnaire effectively captured the intended constructs, demonstrating clarity, relevance, and appropriateness for respondents. Additionally, the pilot ensured that the survey platform functioned smoothly, with no technical issues or navigation challenges reported. The reliability of the survey items was further supported by Cronbach's alpha values, all of which met the accepted threshold for reliability. As no significant issues were identified, the pilot study strengthened confidence in the survey design, confirming its readiness for full deployment without modifications.

3.6.2 Normality Test

A normality test compares the scores in a sample to a normally distributed set of scores with the same mean and standard deviation, with the null hypothesis stating that the sample distribution is normal (Ghasemi & Zahediasl, 2012). Shapiro-Wilk test was used to check the normality of the data as this test is used to test small sample data but up to 2000 (Flynn, 2003). To determine if a sample distribution is normal, the p-value from the normality test must be greater than 0.05. A p-value larger than 0.05 indicates that there is insufficient evidence to reject the null hypothesis, suggesting that the sample distribution

does not significantly deviate from normality (Ghasemi & Zahediasl, 2012). Conversely, a p-value of 0.05 or less implies that the distribution is significantly different from normal, indicating non-normality.

Table 3.4: Result of Normality Test

<i>Tests of Normality</i>						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
NWOW	.101	158	.000	.977	158	.010
Work	.096	158	.001	.960	158	.000
Engagement						
Proactive	.086	158	.006	.977	158	.009
Personality						
Job Crafting	.084	158	.009	.988	158	.221

a. Lilliefors Significance Correction

Table 3.4 shows the result of normality test. The normality test in this study used Shapiro-Wilk test. The p-value of NWOW is 0.10, work engagement is 0.00, proactive personality is 0.009 and job crafting is 0.221. The variables NWOW, work engagement and proactive personality are not normally distributed only job crafting is normally distributed as its p-value is greater than 0.05.

3.7 Unit of Analysis

The unit of analysis defines not only our perspective or observation field but also our action domain, influencing both our understanding and practical implications (Damşa & Jornet, 2021). The unit analysis of this study was in individual level which was the employees from real estate (REI) and architecture, engineering and construction (AEC) industries. The experience and perception of the employees were examined to determine the relationship between NWOW and work engagement and the mediating effects of proactive personality and job crafting.

3.8 Ethics of Study

The research purpose was explained briefly to the respondents, and a consent letter was attached to the questionnaire to ensure transparency and informed participation. All participants were explicitly informed that their participation in this study was entirely voluntary, and they had the right to withdraw at any time without any consequences. Respondents were assured that their responses would be kept in strict confidence, and the findings would be used solely for academic purposes. By completing and submitting the questionnaire, respondents provided implied consent to participate in the study.

Ethical measures were implemented to safeguard the rights and well-being of participants. Data confidentiality was strictly maintained, ensuring that all responses were securely stored and accessible only to the researcher and supervisors. Identifiable information was not collected, thereby preserving participant anonymity and minimizing any risk of identification. Ethical compliance was further reinforced by adhering to institutional and regulatory guidelines for conducting research involving human participants. These

measures not only upheld the integrity of the research process but also fostered trust and respect between the researcher and the respondents.

3.9 Data Collection

The data were collected from the employees of Real Estate Industry and AEC Industry by using convenient sampling method. Data was collected from June 2023 until May 2024. Before collecting the data, permission was acquired from the employees, the research objectives and the procedures for collecting data were explained to the respondents.

After the employees agreed to be the respondents, the link of online survey questionnaire which included the consent letter was given to them through QR code. The respondents only answered the questionnaire after acknowledging the consent letter. After data collection, the data were keyed in, screened and analysed.

3.10 Data Analysis

Before further data analysis, the data was initially screened. Data screening was done to check for missing values and outliers. For data analysis, SPSS Version 23 was used to analyse the collected data. Hypothesis testing was used to test whether the hypotheses are accepted or rejected. The conclusion in this study was drawn from obtaining the information through data analysis. The data collected were analysed through descriptive and inferential statistics.

3.10.1 Descriptive Statistics

Descriptive statistics are simple and effective method for summarizing data and describing a sample (Marshall & Jonker, 2010). In this study, the data were analysed and presented in tables. Descriptive statistics were used to represent the demographic data of the

selected samples, including gender, age, ethnicity, education level, location, years of service and working position. The demographic data were tabulated and interpreted to provide a clear overview of the respondents' basic information. Furthermore, descriptive statistics in this study comprised the minimum score, maximum score, mean score, and standard deviations of the items for each variable (NWOW, work engagement, proactive personality, and job crafting), which were also tabulated and interpreted.

3.10.2 Inferential Statistics

Inferential statistics draw conclusions about a population from a sample. This kind of statistics also provides the statistical significance of the relationships (Byrne, 2007). Based on the sample size chosen for the study, this data analysis technique was used to test hypotheses about the relationships between independent and dependent variables. Inferential statistics were used to evaluate hypotheses regarding relationships in this study. The hypotheses were tested using analysis tool as stated in Table 3.5:

Table 3.5: Chosen Analysis Tools for Hypotheses

Hypothesis	Analysis Tool
Ha1: There is a significant relationship between NWOW and work engagement.	Spearman Correlation
Ha2: There is a significant relationship between NWOW and proactive personality.	Spearman Correlation
Ha3: There is a significant relationship between NWOW and job crafting.	Spearman Correlation
Ha4: There is a significant relationship between proactive personality and work engagement.	Spearman Correlation
Ha5: There is a significant relationship between job crafting and work engagement.	Spearman Correlation

Table 3.5: continued

Ha6: Proactive personality mediates the relationship between NWOW and work engagement.	PROCESS
Ha7: Job crafting mediates the relationship between NWOW and work engagement.	PROCESS

Spearman's correlation was chosen for its suitability with non-normally distributed, making it ideal for analyzing monotonic relationships. The Hayes PROCESS Macro was selected for its ability to efficiently conduct mediation analysis, using bootstrapping to ensure robustness without relying on normality assumptions. These methods were more appropriate than alternatives like Pearson's correlation or SEM, given the data characteristics and sample size constraints of the study. Together, they provided robust and interpretable insights into the complex relationships between variables of NWOW, work engagement, proactive personality, and job crafting.

3.10.2.1 Correlation

According to McCormick et al. (2015), the term correlation relates to the concept of a link or pattern between variables, as well as a specific statistical technique. Spearman correlation (non-parametric) was used instead of Pearson correlation (parametric) as the data which were collected was not normal (DeCoster & Claypool, 2004). The results of this test show a value range of -1.00 to +1.00. A value of -1.00 for the correlation coefficient, r , indicates a perfect negative linear link, whereas a value of +1.00 indicates a perfect positive linear relationship. When a study project receives a zero value during the analysis stage, it means that there is no relationship between the two variables. When the correlation coefficient, r , is greater than 0.70, it shows a high correlation between variables; if it is less

than 0.40, it suggested a weak association between variables. Table 3.6 shows rule of thumb of the strength of correlation coefficient.

Table 3.6: Rule of Thumb of Correlation

Size of Correlation	Interpretation
± 0.91 to ± 1.00	Very Strong
± 0.71 to ± 0.90	High
± 0.41 to ± 0.70	Moderate
± 0.21 to ± 0.40	Low
± 0.00 to ± 0.20	Negligible

Note. Adapted From “Research Methods for Business,” by Jnr et al. (2007). Copyright 2007 by John Wiley and Sons.

3.10.2.2 Mediators

Field (2018) explained that mediation occurs when the relationship between a predictor variable and an outcome variable is explained by their relationship with a third variable, known as the mediator. In this study, a parallel multiple mediator model was employed, and the mediating effects were tested using Hayes's PROCESS Macro analysis in SPSS Version 23. According to Hayes (2022), in a parallel multiple mediator model, the mediators do not influence each other, and the antecedent variable (X) affects the outcome variable (Y) both directly and indirectly through two or more mediators. Model 4 from Hayes' PROCESS framework was used to examine the mediation effect, as this model applies to both simple mediation and parallel multiple mediation models (Hayes, 2022).

3.11 Summary

In this chapter, the research design was outlined, incorporating a quantitative approach through a cross-sectional survey method. The study population consisted of employees from the real estate and AEC industries, with a total sample size of 158. Convenience sampling was employed as the sampling method due to the constraints of

accessing a full population list. The research instrument was adapted from existing validated sources, with its reliability and validity further confirmed through a pilot study and normality tests. Additionally, the chapter discussed key aspects such as the unit of analysis, ethical considerations, data collection methods, and the procedures used for data analysis.

CHAPTER 4

FINDINGS

4.1 Introduction

This chapter discusses the result and findings of this research. Data collected were analyzed using SPSS Version 23. Demographic characteristics were further explained by using descriptive statistics in SPSS. Spearman correlations was used to investigate the relationship between two continuous variables. Meanwhile, parallel multiple mediator model of PROCESS analysis was used with SPSS to test the mediating effect of proactive personality and job crafting in the relationship between NWOW and work engagement. The chapter ends with a summary.

4.2 Demographic Profile of Respondents

Table 4.1: Demographic Profile of Respondents

Variables		N	%
Gender	Male	50	31.6
	Female	108	68.4
Age	20-29 years Old	65	41.1
	30-39 years Old	52	32.9
	40-49 years Old	30	19.0
	50 years old and above	11	7.0
Ethnicity	Malay	52	32.9
	Chinese	61	38.6
	Bumiputera Sarawak	44	27.8
	Others	1	0.6
Highest Education Level	SPM	17	10.8
	STPM	9	5.7
	Diploma	38	24.1
	Bachelor's degree	81	51.3
	Master's degree	11	7.0
	Others	2	1.3

Table 4.1 shows that majority of the respondents were female employees representing 68.4%, male employees represent 31.6%. Majority of the respondents belong to the 20-29 (41.1%) age group, followed by 30-39 (32.9%), 40-49 (19.30%) and 50 years old above (7.0%) age group. This study also captures the ethnicity of the participant, Chinese (38.6%), followed by Malay (32.9%), Bumiputera Sarawak (27.8%) and others (0.6%). As for highest education level, majority are bachelor's degree holders (51.3%) followed by diploma (24.1%), SPM (10.8%), master's degree (7.0%), STPM (5.7%) and others (1.3%).

4.3 Descriptive Statistics Findings

4.3.1 Levels of the Variables

Table 4.2: Levels of the Variables

Variables	Statement									
	Strongly disagree		Disagree		Neutral		Agree		Strongly Agree	
	Frequency	Percent (%)	Frequency	Percent (%)	Frequency	Percent (%)	Frequency	Percent (%)	Frequency	Percent (%)
New Ways of Working (NWOW)	1	0.6	12	7.6	89	56.3	49	31.0	7	4.4
I am able to set my own working hours.	10	6.3	25	15.8	32	20.3	63	39.9	28	17.7
I am able to determine where I work.	15	9.5	29	18.4	30	19.0	60	38.0	24	15.2
I am able to determine the way I work.	7	4.4	2	1.3	47	29.7	85	53.8	17	10.8
I can access all necessary information on my computer, smartphone, and/or tablet.	1	0.6	8	5.1	16	10.1	91	57.6	42	26.6
I am able to reach colleagues within the team quickly.	1	0.6	2	1.3	34	21.5	84	53.2	37	23.4
I am able to reach managers quickly.	2	1.3	6	3.8	45	28.5	81	51.3	24	15.2

Table 4.2: continued

I am able to reach colleagues outside the team quickly.	1	0.6	9	5.7	49	31.0	74	46.8	25	15.8
I have the ability to adapt my working scheme to my phase of life and ambitions	2	1.3	7	4.4	45	28.5	83	52.5	21	13.3
My work office building is arranged so that colleagues are easily accessible.	0	0	4	2.5	33	20.9	94	59.5	27	17.1
My work office building is arranged so that managers are easily accessible.	1	0.6	3	1.9	34	21.5	93	58.9	27	17.1
Work Engagement	1	0.6	2	8.9	113	71.5	28	17.7	2	1.3
At my work, I feel bursting with energy.	4	2.5	18	11.4	81	51.3	47	29.7	8	5.1
At my job, I feel strong and vigorous	1	0.6	8	5.1	82	51.9	58	36.7	9	5.7
I am enthusiastic about my job.	4	2.5	5	3.2	63	39.9	74	46.8	12	7.6
My job inspires me.	1	0.6	9	5.7	58	36.7	75	47.5	15	9.5
When I get up in the morning, I feel like going to work.	3	1.9	17	10.8	78	49.4	48	30.4	12	7.6
I feel happy when I am working intensely.	3	1.9	14	8.9	69	43.7	63	39.9	9	5.7
I am proud of the work that I do.	1	0.6	2	1.3	36	22.8	91	57.6	28	17.7
I am immersed in my work.	1	0.6	8	5.1	65	41.1	71	44.9	13	8.2

Table 4.2: continued

I get carried away when I am working.	3	1.9	15	9.5	68	43.0	59	37.3	13	8.2
Proactive Personality	1	0.6	11	7.0	109	69.0	35	22.2	2	1.3
I have been a powerful force for constructive change in my workplace.	4	2.5	10	6.3	75	47.5	61	38.6	8	5.1
No matter what the odds, if I believe in something I will make it happen.	2	1.3	4	2.5	48	30.4	88	55.7	16	10.1
I love being a champion for my ideas, even against others' opposition.	4	2.5	25	15.8	75	47.5	48	30.4	6	3.8
I excel at identifying opportunities at work.	1	0.6	6	3.8	70	44.3	72	45.6	9	5.7
I am always looking for better ways to do things.	0	0	0	0	30	19.0	104	65.8	24	15.2
If I believe in an idea, no obstacle will prevent me from making it happen.	0	0	11	7.0	63	39.9	74	46.8	10	6.3
I can spot a good opportunity long before others can.	0	0	5	3.2	92	58.2	53	33.5	8	5.1
Job Crafting	0	0	6	3.8	95	60.1	56	35.4	1	0.6
I try to develop my capabilities at work.	2	1.3	0	0	36	22.8	102	64.6	18	11.4
I try to develop myself professionally.	0	0	1	0.6	30	19.0	95	60.1	32	20.3

Table 4.2: continued

I try to learn new things at work.	0	0	0	0	22	13.9	89	56.3	47	29.7
I make sure that my work is mentally less intense.	0	0	9	5.7	43	27.2	83	52.5	23	14.6
I try to ensure that my work is emotionally less intense.	0	0	9	5.7	45	28.5	82	51.9	22	13.9
I manage my work so that I try to minimize contact with people whose problems affect me emotionally.	1	0.6	6	3.8	54	34.2	75	47.5	22	13.9
I ask my supervisor to coach me.	1	0.6	8	5.1	54	34.2	67	42.4	28	17.7
I ask whether my supervisor is satisfied with my work.	1	0.6	12	7.6	53	33.5	72	45.6	20	12.7
I look to my supervisor for inspiration.	0	0	12	7.6	53	33.5	63	39.9	30	19.0
When an interesting project comes along, I offer myself proactively as project co-worker.	2	1.3	12	7.6	64	40.5	66	41.8	14	8.9
If there are new developments, I am one of the first to learn about them and try them out.	1	0.6	6	3.8	71	44.9	65	41.1	15	9.5
When there is not much to do at work, I see it as a chance to start new projects.	2	1.3	9	5.7	67	42.4	70	44.3	10	6.3

Table 4.2 shows the analysis of the survey results reveals insights into the levels of NWOW, work engagement, proactive personality, and job crafting among respondents. Overall, for NWOW, 4.4% strongly agreed, 31.0% agreed, 56.3% were neutral, 7.6% disagreed, and 0.6% strongly disagree. High levels of flexibility and accessibility were reported for NWOW. For the statement, "I am able to set my own working hours," 17.7% strongly agreed, 39.9% agreed, 20.3% were neutral, 15.8% disagreed, and 6.3% strongly disagreed. On determining where they work, 15.2% strongly agreed, 38% agreed, 19% were neutral, 18.4% disagreed, and 9.5% strongly disagreed. Regarding determining how they work, 10.8% strongly agreed, 53.8% agreed, 29.7% were neutral, 1.3% disagreed, and 4.4% strongly disagreed. For accessing necessary information, 26.6% strongly agreed, 57.6% agreed, 10.1% were neutral, 5.1% disagreed, and 0.6% strongly disagreed.

When asked about reaching team colleagues quickly, 23.4% strongly agreed, 53.2% agreed, 21.5% were neutral, 1.3% disagreed, and 0.6% strongly disagreed. For reaching managers quickly, 15.2% strongly agreed, 51.3% agreed, 28.5% were neutral, 3.8% disagreed, and 1.3% strongly disagreed. Regarding reaching colleagues outside the team quickly, 15.8% strongly agreed, 46.8% agreed, 31% were neutral, 5.7% disagreed, and 0.6% strongly disagreed. Adaptability of working schemes to life phases and ambitions was rated as 13.3% strongly agreed, 52.5% agreed, 28.5% were neutral, 4.4% disagreed, and 1.3% strongly disagreed.

When evaluating whether office buildings allow accessibility to colleagues, 17.1% strongly agreed, 59.5% agreed, 20.9% were neutral, 2.5% disagreed, and no one strongly disagreed. Similarly, accessibility to managers had 17.1% strongly agreed, 58.9% agreed, 21.5% were neutral, 1.9% disagreed, and 0.6% strongly disagreed.

Overall, for work engagement, 1.3% strongly agreed, 17.7% agreed, 71.5% were neutral, 8.9% disagreed, and 0.6% strongly disagree. In terms of work engagement, respondents showed moderate to high levels of emotional and cognitive connection to their work. For the statement, "At my work, I feel bursting with energy," 5.1% strongly agreed, 29.7% agreed, 51.3% were neutral, 11.4% disagreed, and 2.5% strongly disagreed. On feeling strong and vigorous, 5.7% strongly agreed, 36.7% agreed, 51.9% were neutral, 5.1% disagreed, and 0.6% strongly disagreed. Regarding enthusiasm about their job, 7.6% strongly agreed, 46.8% agreed, 39.9% were neutral, 3.2% disagreed, and 2.5% strongly disagreed.

When asked if their job inspires them, 9.5% strongly agreed, 47.5% agreed, 36.7% were neutral, 5.7% disagreed, and 0.6% strongly disagreed. On feeling like going to work in the morning, 7.6% strongly agreed, 30.4% agreed, 49.4% were neutral, 10.8% disagreed, and 1.9% strongly disagreed. For happiness from intense work, 5.7% strongly agreed, 39.9% agreed, 43.7% were neutral, 8.9% disagreed, and 1.9% strongly disagreed.

When evaluating pride in their work, 17.7% strongly agreed, 57.6% agreed, 22.8% were neutral, 1.3% disagreed, and 0.6% strongly disagreed. On being immersed in their work, 8.2% strongly agreed, 44.9% agreed, 41.1% were neutral, 5.1% disagreed, and 0.6% strongly disagreed. Lastly, for getting carried away during work, 8.2% strongly agreed, 37.3% agreed, 43% were neutral, 9.5% disagreed, and 1.9% strongly disagreed.

Overall, for proactive personality, 1.3% strongly agreed, 22.2% agreed, 69.0% were neutral, 7.0% disagreed, and 0.6% strongly disagree. The results for proactive personality highlight strong proactive behaviours. Regarding being a powerful force for constructive change, 5.1% strongly agreed, 38.6% agreed, 47.5% were neutral, 6.3% disagreed, and 2.5% strongly disagreed. When asked if they would make things happen despite odds, 10.1%

strongly agreed, 55.7% agreed, 30.4% were neutral, 2.5% disagreed, and 1.3% strongly disagreed. On championing their ideas against opposition, 3.8% strongly agreed, 30.4% agreed, 47.5% were neutral, 15.8% disagreed, and 2.5% strongly disagreed. For excelling at identifying opportunities, 5.7% strongly agreed, 45.6% agreed, 44.3% were neutral, 3.8% disagreed, and 0.6% strongly disagreed. Regarding looking for better ways to do things, 15.2% strongly agreed, 65.8% agreed, 19% were neutral, and there were no disagreements. In response to overcoming obstacles to make ideas happen, 6.3% strongly agreed, 46.8% agreed, 39.9% were neutral, 7% disagreed, and no one strongly disagreed. For spotting good opportunities early, 5.1% strongly agreed, 33.5% agreed, 58.2% were neutral, 3.2% disagreed, and no one strongly disagreed.

Overall, for job crafting, 0.6% strongly agreed, 35.4% agreed, 60.1% were neutral, 0.6% disagreed, and 0% strongly disagree. Job crafting emerged as a significant strength, with respondents actively shaping their roles. When asked about developing capabilities, 11.4% strongly agreed, 64.6% agreed, 22.8% were neutral, 0% disagreed, and 1.3% strongly disagreed. On developing professionally, 20.3% strongly agreed, 60.1% agreed, 19% were neutral, 0.6% disagreed, and no one strongly disagreed. Regarding learning new things, 29.7% strongly agreed, 56.3% agreed, 13.9% were neutral, and no one disagreed or strongly disagreed. For mentally reducing work intensity, 14.6% strongly agreed, 52.5% agreed, 27.2% were neutral, 5.7% disagreed, and no one strongly disagreed. On emotionally reducing work intensity, 13.9% strongly agreed, 51.9% agreed, 28.5% were neutral, 5.7% disagreed, and no one strongly disagreed. Regarding minimizing contact with emotionally impactful individuals, 13.9% strongly agreed, 47.5% agreed, 34.2% were neutral, 3.8% disagreed, and 0.6% strongly disagreed. When asking supervisors for coaching, 17.7% strongly agreed, 42.4% agreed, 34.2% were neutral, 5.1% disagreed, and 0.6% strongly disagreed. Asking

supervisors for feedback yielded 12.7% strongly agreed, 45.6% agreed, 33.5% were neutral, 7.6% disagreed, and 0.6% strongly disagreed. Seeking inspiration from supervisors had 19% strongly agreed, 39.9% agreed, 33.5% were neutral, 7.6% disagreed, and no one strongly disagreed. Proactively offering for projects had 8.9% strongly agreed, 41.8% agreed, 40.5% were neutral, 7.6% disagreed, and 1.3% strongly disagreed. Learning and trying new developments showed 9.5% strongly agreed, 41.1% agreed, 44.9% were neutral, 3.8% disagreed, and 0.6% strongly disagreed. Finally, starting new projects when idle had 6.3% strongly agreed, 44.3% agreed, 42.4% were neutral, 5.7% disagreed, and 1.3% strongly disagreed.

4.3.2 Minimum Scores, Maximum Scores, Mean Scores and Standard Deviation for the Variables

Table 4.3 shows the minimum score, maximum score, mean score, standard deviations, of the items for each variable which are NWOW, work engagement, proactive personality and job crafting. The minimum score for NWOW is 1.90, maximum score is 5.00 while mean score for the NWOW shows moderately high ($\mu=3.74$) and the standard deviation is 0.60. For the work engagement, the minimum score is 1.22, maximum score is 5.00, mean scores show moderately high ($\mu=3.48$) and standard deviation of 0.55. The minimum score for proactive personality is 1.86 and maximum score is 5.00, the mean shows moderately high proactive personality ($\mu=3.52$) and standard deviation of 0.51. The minimum score for job crafting is 2.42, the maximum score is 5.00, has moderately high mean score ($\mu=3.73$) and standard deviation of 0.49.

The item of NWOW with the highest mean score of 4.04 and standard deviation of 0.79 is 'I can access all necessary information on my computer, smartphone, and/or tablet'. The following is the item 'I am able to reach colleagues within the team quickly.' with the

mean score of 3.97 and standard deviation of 0.75. Next, 'My work office building is arranged so that colleagues are easily accessible.' has a mean score of 3.91 and standard deviation of 0.69. The next item is 'My work office building is arranged so that managers are easily accessible.' has the means score of 3.90 and standard deviation of 0.72. 'I am able to reach managers quickly' has the mean score of 3.75 and standard deviation of 0.80. Next, 'I am able to reach colleagues outside the team quickly' and 'I have the ability to adapt my working scheme to my phase of life and ambitions' are the items have the same mean score, which is 3.72, with standard deviation of 0.82 and 0.80 respectively. The next item is 'I am able to determine the way I work.' have a mean score of 3.65 and standard deviation is 0.86. The following item is 'I am able to set my own working hours.' with mean score of 3.47 and standard deviation of 1.14. The item of NWOW with the lowest mean score is 'I am able to determine where I work.', mean score which of 3.31 and standard deviation of 1.21.

The item with highest mean score for work engagement is 'I am proud of the work that I do' which is 3.91 and the standard deviation is 0.71. Followed by 'My job inspires me' has a mean score of 3.59 and standard deviation of 0.77. 'I am immersed in my work' has a mean of 3.55 and standard deviation 0.74. The item 'I am enthusiastic about my job.' has the mean score of 3.53 and standard deviation of 0.79. Next, 'At my job, I feel strong and vigorous.' has the mean score of 3.42 and standard deviation of 0.71. The next item for this variable is 'I get carried away when I am working.' has the mean score of 3.41 and standard deviation 0.84. Subsequently, 'I feel happy when I am working intensely.' has the mean score 3.39 and standard deviation of 0.80. Next, the item 'When I get up in the morning, I feel like going to work has the mean score of 3.31 and standard deviation of 0.84. 'At my work, I feel bursting with energy.' with the lowest mean score which is 3.23 and standard deviation of 0.55.

‘I am always looking for better ways to do things.’ is the item of proactive personality with the highest mean score, which is 3.96, standard deviation 0.59. The following item is ‘No matter what the odds, if I believe in something I will make it happen.’ with the mean score of 3.71 and standard deviation is 0.73. The next item is ‘If I believe in an idea, no obstacle will prevent me from making it happen.’ has the mean score of 3.53 and the standard deviation is 0.72. The subsequent item is ‘I excel at identifying opportunities at work.’ has the mean score of 3.52 and standard deviation of 0.69. ‘I can spot a good opportunity long before others can.’ has the mean score of 3.41, standard deviation of 0.64. Next, ‘I have been a powerful force for constructive change in my workplace.’ has the mean score of 3.37 and standard deviation of 0.79. ‘I love being a champion for my ideas, even against other’s opposition.’ has the lowest mean score of 3.17 and standard deviation of 0.83 among items of proactive personality.

The item ‘I try to learn new things at work.’ is the item of job crafting with the highest mean score, 4.16 with standard deviation 0.65. The next item is ‘I try to develop myself professionally.’, its mean score is 4.00 with standard deviation 0.65. The following item for this variable is ‘I try to develop my capabilities at work.’ has the mean score of 3.85, standard deviation 0.66. Next, ‘I make sure that my work is mentally less intense.’ has a mean score of 3.76 and standard deviation 0.77. The following item is ‘I try to ensure that my work is emotionally less intense.’ has mean score of 3.74 and 0.77 standard deviation. The subsequent item is ‘I ask my supervisor to coach me.’ has the mean score of 3.72 and the standard deviation of 0.84. The mean score for ‘I manage my work so that I try to minimise contact with people whose problems affect me emotionally’ is 3.70 with standard deviation of 0.78. The next item ‘I look to my supervisor for inspiration.’ has a mean score of 3.70 and standard deviation of 0.86. The mean score of ‘I ask whether my supervisor is satisfied with

my work.’ is 3.62 and standard deviation is 0.83. The item ‘If there are new developments, I am one of the first to learn about them and try them out.’ has a mean score of 3.55 and standard deviation of 0.74. Both items ‘When an interesting project comes along, I offer myself proactively as project co-worker.’ and ‘When there is not much to do at work, I see it as a chance to start new projects.’ have the same lowest mean score which is 3.49 with standard deviation of 0.81 and 0.75 respectively.

Table 4.3: Minimum, Maximum, Mean and Standard Deviation for the Variables

Variables	N	Min	Max	Mean	SD
New Ways of Working (NWOW)	158	1.90	5.00	3.74	0.60
I am able to set my own working hours.	158	1.00	5.00	3.47	1.14
I am able to determine where I work.	158	1.00	5.00	3.31	1.21
I am able to determine the way I work.	158	1.00	5.00	3.65	0.86
I can access all necessary information on my computer, smartphone, and/or tablet.	158	1.00	5.00	4.04	0.79
I am able to reach colleagues within the team quickly.	158	1.00	5.00	3.97	0.75
I am able to reach managers quickly.	158	1.00	5.00	3.75	0.80
I am able to reach colleagues outside the team quickly.	158	1.00	5.00	3.72	0.82
I have the ability to adapt my working scheme to my phase of life and ambitions	158	1.00	5.00	3.72	0.80
My work office building is arranged so that colleagues are easily accessible.	158	2.00	5.00	3.91	0.69
My work office building is arranged so that managers are easily accessible.	158	1.00	5.00	3.90	0.72
Work Engagement	158	1.22	5.00	3.48	0.55
At my work, I feel bursting with energy.	158	1.00	5.00	3.23	0.82
At my job, I feel strong and vigorous	158	1.00	5.00	3.42	0.71
I am enthusiastic about my job.	158	1.00	5.00	3.54	0.79
My job inspires me.	158	1.00	5.00	3.59	0.77
When I get up in the morning, I feel like going to work.	158	1.00	5.00	3.31	0.84

Table 4.3: continued

I feel happy when I am working intensely.	158	1.00	5.00	3.39	0.80
I am proud of the work that I do.	158	1.00	5.00	3.91	0.71
I am immersed in my work.	158	1.00	5.00	3.55	0.74
I get carried away when I am working.	158	1.00	5.00	3.41	0.84
Proactive Personality	158	1.86	5.00	3.52	0.51
I have been a powerful force for constructive change in my workplace.	158	1.00	5.00	3.37	0.79
No matter what the odds, if I believe in something I will make it happen.	158	1.00	5.00	3.71	0.73
I love being a champion for my ideas, even against others' opposition.	158	1.00	5.00	3.17	0.83
I excel at identifying opportunities at work.	158	1.00	5.00	3.52	0.69
I am always looking for better ways to do things.	158	3.00	5.00	3.96	0.59
If I believe in an idea, no obstacle will prevent me from making it happen.	158	2.00	5.00	3.53	0.72
I can spot a good opportunity long before others can.	158	2.00	5.00	3.41	0.64
Job Crafting	158	2.42	5.00	3.73	0.49
I try to develop my capabilities at work.	158	1.00	5.00	3.85	0.66
I try to develop myself professionally.	158	2.00	5.00	4.00	0.65
I try to learn new things at work.	158	3.00	5.00	4.16	0.64
I make sure that my work is mentally less intense.	158	2.00	5.00	3.76	0.77
I try to ensure that my work is emotionally less intense.	158	2.00	5.00	3.74	0.77
I manage my work so that I try to minimize contact with people whose problems affect me emotionally.	158	1.00	5.00	3.70	0.78
I ask my supervisor to coach me.	158	1.00	5.00	3.72	0.84
I ask whether my supervisor is satisfied with my work.	158	1.00	5.00	3.62	0.83
I look to my supervisor for inspiration.	158	2.00	5.00	3.70	0.86
When an interesting project comes along, I offer myself proactively as project co-worker.	158	1.00	5.00	3.49	0.81
If there are new developments, I am one of the first to learn about them and try them out.	158	1.00	5.00	3.55	0.74
When there is not much to do at work, I see it as a chance to start new projects.	158	1.00	5.00	3.49	0.75

4.4 Internal Consistency Reliability

Cronbach's alpha was used to measure the internal consistency of the data. A high Cronbach's alpha value shows that the items inside the construct have a similar range and meaning.

Table 4.4: Cronbach's Alpha for Actual Study

<i>Reliability Statistics</i>			
Variables	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
NWOW	.874	.885	10
Work Engagement	.873	.876	9
Proactive Personality	.836	.840	7
Job Crafting	.872	.875	12

Table 4.4 above shows the Cronbach's Alpha value for each variable. For internal consistency to be considered reliable, the subscales should range from 0.7 to 0.9. In this study, the internal consistency for all subscales reliabilities for New Ways of Working (NWOW) and work engagement are considered good which are 0.874 and 0.873 respectively. Cronbach's alpha value for proactive personality and job crafting are 0.836 and 0.872 respectively which are good also.

4.5 Assumption of Tests

The validity and accuracy of the findings rely on whether all assumptions of the data and the statistical techniques used in the analysis have been met (Verma & Abdel-Salam, 2019). This section describes the tests used to ensure that the data collected for running the Spearman Correlation and Hayes' PROCESS Macro are valid and reliable.

4.5.1 Spearman Correlation

The assumptions of Spearman correlation are essential to ensure the validity of the results. The relationship between the two variables should be monotonic, meaning that as one variable increases, the other either consistently increases or decreases, though not necessarily at a constant rate.

Figure 4.1 shows the scatterplots demonstrate the relationships among the variables, assessing their monotonicity, which is a key assumption for Spearman's correlation analysis. In addition to the relationships involving NWOW, we also consider the relationships between proactive personality and work engagement, as well as job crafting and work engagement.

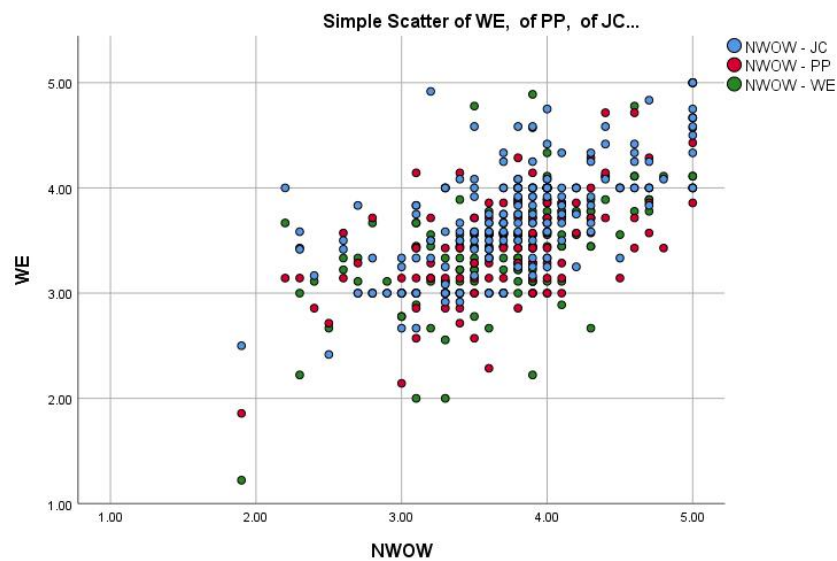


Figure 4.1: Scatterplots of Variables

1. NWOW and job crafting (blue points): The trend appears generally monotonic, with higher values of NWOW corresponding to higher values of job crafting. There is no

evident non-monotonic pattern, making it appropriate for Spearman's correlation analysis.

2. NWOW and proactive personality (red points): The relationship shows a consistent upward trend, indicating a monotonic relationship. As NWOW increases, proactive personality also tends to increase.
3. NWOW and work engagement (green points): While there is some variability in the data, the general trend suggests a monotonic relationship, with work engagement increasing as NWOW increases.

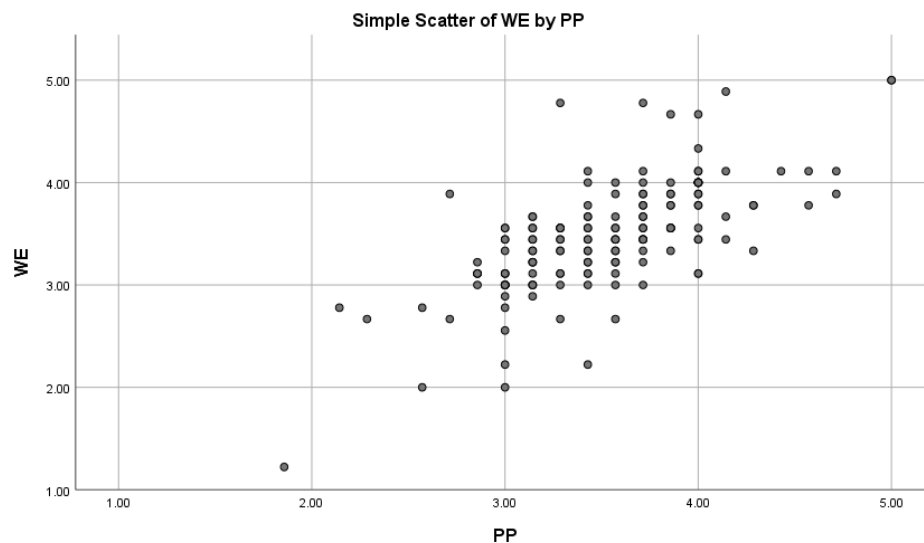


Figure 4.2: Scatterplot of Work Engagement by Proactive Personality

4. Proactive personality and work engagement: the relationship between proactive personality and work engagement also appears monotonic. Higher levels of proactive personality tends to correspond to higher levels of work engagement.

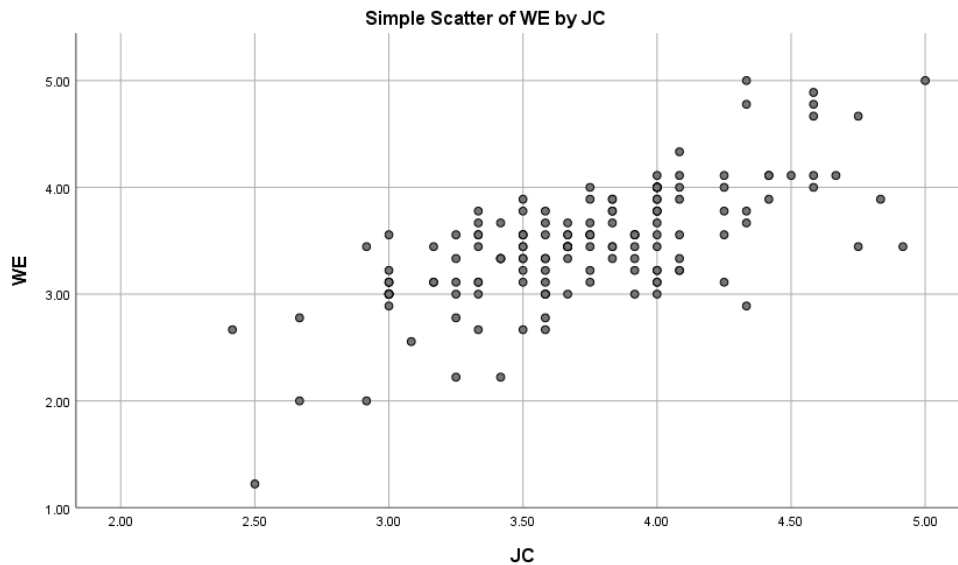


Figure 4.3: Scatterplot of Work Engagement by Job Crafting

5. Job crafting and work engagement: The trend between job crafting and work engagement is similarly monotonic. As job crafting increases, work engagement also tends to rise, supporting the suitability of using Spearman's correlation for this pair.

All examined relationships show monotonic patterns. This fulfills the assumption of monotonicity, confirming that Spearman's correlation is an appropriate statistical method for analyzing these associations.

Secondly, the data should be measured at an ordinal, interval, or ratio level. Since the data collected for this analysis used a 5-point Likert scale, this assumption was satisfied. While Spearman correlation is commonly applied to ordinal data, it is also suitable for interval or ratio data, provided the monotonicity assumption is met.

Lastly, as a non-parametric test, Spearman correlation does not require the data to follow a normal distribution. This makes it a robust alternative for analyzing non-linear relationships

or datasets that violate normality assumptions. Since the normality test indicated that the data was not normally distributed, Spearman correlation was deemed appropriate for this analysis.

4.5.2 Hayes' PROCESS Macro

The assumptions of the Hayes' PROCESS macro are essential for accurate mediation analysis. Firstly, the data should meet the assumption of no multicollinearity among the predictor variables. Multicollinearity, which occurs when predictors are highly correlated, can distort the estimation of regression coefficients. This can be checked by examining Variance Inflation Factor (VIF) values, where a VIF below 10 generally indicates no severe multicollinearity.

Table 4.5 shows the Variance Inflation Factor (VIF) test which was conducted to assess multicollinearity, which is a crucial assumption in regression analysis, including models analyzed using Hayes' PROCESS macro. Multicollinearity refers to the presence of high correlations among predictor variables, which can inflate the standard errors of the coefficients and reduce the reliability of the model.

For the predictors in this analysis, the VIF values for NWOW, proactive personality, and job crafting were 1.858, 2.043, and 2.035, respectively. These values are well below the commonly accepted threshold of 5, indicating no problematic multicollinearity. Additionally, the Tolerance values for NWOW (0.538), proactive personality (0.489), and job crafting (0.491) all exceed the minimum acceptable level of 0.2, further confirming that the predictors are not excessively correlated.

Since the VIF and Tolerance values fall within acceptable ranges, the assumption of no multicollinearity has been satisfied. This ensures that the regression model and the results

derived from Hayes' PROCESS macro are statistically valid and reliable for interpreting the relationships between the variables.

Table 4.5: Variance Inflation Factor (VIF) Test

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients		Sig.	Collinearity Statistics	
	B	Std. Error	Beta	t		Tolerance	VIF
1	(Constant)	.042		.183	.855		
	NWOW	.175	.064	.190	2.753	.007	1.858
	PP	.373	.079	.344	4.748	.000	2.043
	JC	.394	.081	.352	4.855	.000	2.035

a. Dependent Variable: WE

Secondly, the relationships between the predictor, mediator, and outcome variables should be approximately linear. This assumption ensures that the model can accurately estimate the effects and interactions of the variables. As shown in Figure 4.1, 4.2 and 4.3, the scatterplot of the variables indicates that the relationships are approximately linear.

Lastly, the data should exhibit independence of observations, meaning that the value of one data point does not influence another. This assumption is typically satisfied when data collection avoids clustering or dependency among participants. In this study, the data was collected from employees holding various positions across different companies, and each participant completed the questionnaire independently. Therefore, the assumption of independence of observations is likely satisfied.

4.6 Hypothesis Testing

4.6.1 Inferential Analysis for the Direct Relationship

Objective 1: To examine the relationship between NWOW and work engagement.

Ha1: There is a significant relationship between NWOW and work engagement.

A Spearman correlation test was done to determine whether there is a relationship between NWOW and work engagement. Based on the results in Table 4.6, there is a significant moderate, positive relationship between NWOW and work engagement ($r=0.603$, $p<0.001$). In sum, the more opportunities for NWOW, the higher work engagement will be. Therefore, Ha1 is accepted

Table 4.6: Spearman Correlation Test for NWOW and Work Engagement

<i>Correlations</i>			NWOW	WE
Spearman's rho	NWOW	Correlation Coefficient	1.000	.603**
		Sig. (2-tailed)	.	.000
		N	158	158
	WE	Correlation Coefficient	.603**	1.000
		Sig. (2-tailed)	.000	.
		N	158	158

** . Correlation is significant at the 0.01 level (2-tailed).

Objective 2: To examine the relationship between NWOW and proactive personality.

Ha2: There is a significant relationship between NWOW and proactive personality.

To determine whether there is a relationship between NWOW and proactive personality, a Spearman correlation test was conducted. Table 4.7 shows that there is a statistically significant moderate, positive relationship between NWOW and proactive personality ($r=0.608$, $p<0.001$). The more opportunities for NWOW, the higher the tendency to be proactive. Therefore, Ha2 is supported.

Table 4.7: Spearman Correlation Test for NWOW and Proactive Personality

<i>Correlations</i>			NWOW	PP
Spearman's rho	NWOW	Correlation Coefficient	1.000	.608**
		Sig. (2-tailed)	.	.000
		N	158	158
	PP	Correlation Coefficient	.608**	1.000
		Sig. (2-tailed)	.000	.
		N	158	158

** . Correlation is significant at the 0.01 level (2-tailed).

Objective 3: To examine the relationship between NWOW and job crafting.

Ha3: There is a significant relationship between NWOW and job crafting.

A Spearman correlation test was done to determine whether there is a relationship between NWOW and Job Crafting. Based on the results in Table 4.8, there is a significant moderate, positive relationship between NWOW and job crafting ($r=0.614$, $p<0.001$). In sum, the more opportunities for NWOW, the higher the tendency for job crafting. Therefore, Ha3 is accepted.

Table 4.8: Spearman Correlation Test for NWOW and Job Crafting

<i>Correlations</i>			NWOW	JC
Spearman's rho	NWOW	Correlation Coefficient	1.000	.614**
		Sig. (2-tailed)	.	.000
		N	158	158
	JC	Correlation Coefficient	.614**	1.000
		Sig. (2-tailed)	.000	.
		N	158	158

** . Correlation is significant at the 0.01 level (2-tailed).

Objective 4: To examine the relationship between proactive personality and work engagement.

Ha4: There is a significant relationship between proactive personality and work engagement.

To determine whether there is a relationship between proactive personality and work engagement, a Spearman correlation test was conducted. Table 4.9 shows that there is a statistically significant moderate, positive relationship between proactive personality and work engagement ($r=0.691$, $p<0.001$). The higher levels of proactive opportunities, the higher the levels of work engagement. Therefore, Ha4 is accepted.

Table 4.9: Spearman Correlation Test for Proactive Personality and Work Engagement

<i>Correlations</i>			PP	WE
Spearman's rho	PP	Correlation Coefficient	1.000	.691**
		Sig. (2-tailed)	.	.000
		N	158	158
	WE	Correlation Coefficient	.691**	1.000
		Sig. (2-tailed)	.000	.
		N	158	158

** . Correlation is significant at the 0.01 level (2-tailed).

Objective 5: To examine the relationship between job crafting and work engagement.

Ha5: There is a significant relationship between job crafting and work engagement.

A spearman correlation test was performed to see if there was a link between job crafting and work engagement. Table 4.10 shows that there is a significant moderate, positive relationship between job crafting and work engagement ($r=0.663$, $p<0.001$). The increase in job crafting opportunities, the higher the levels of work engagement. Therefore, Ha5 is supported.

Table 4.10: Spearman Correlation Test for Job Crafting and Work Engagement

<i>Correlations</i>			JC	WE
Spearman's rho	JC	Correlation Coefficient	1.000	.663**
		Sig. (2-tailed)	.	.000
		N	158	158
	WE	Correlation Coefficient	.663**	1.000
		Sig. (2-tailed)	.000	.
		N	158	158

** . Correlation is significant at the 0.01 level (2-tailed).

4.6.2 Mediation Analysis for the Mediating Role of Proactive Personality and Job Crafting

Objective 6: To examine whether proactive personality mediates the relationship between NWOW and work engagement.

Ha6: Proactive personality mediates the relationship between NWOW and work engagement.

Objective 7: To examine whether job crafting mediates the relationship between NWOW and work engagement.

Ha7: Job crafting mediates the relationship between NWOW and work engagement.

Figure 4.4 shows the visual diagram of the mediation analysis.

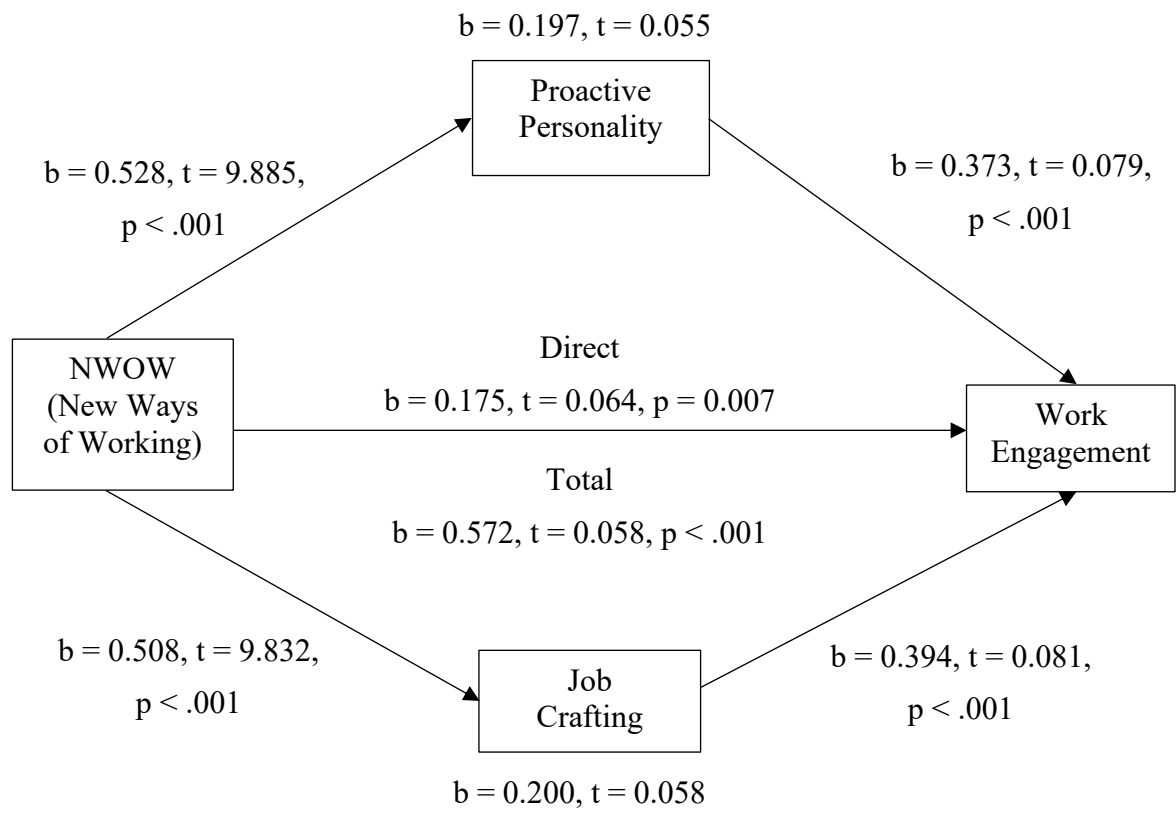


Figure 4.4: Visual Diagram for Mediation Analysis

Table 4.11: Mediation Analysis of Proactive Personality and Job Crafting

Variable/Effect	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	<i>95% Confidence Interval</i>	
NWOW→WE	0.175	0.064	2.753	0.007	0.495	0.301
NWOW→PP	0.528	0.204	9.885	<.001	0.422	0.633
NWOW→JC	0.508	0.052	9.832	<.001	0.406	0.610
PP→WE	0.373	0.079	4.748	<.001	0.218	0.528
JC→WE	0.394	0.081	4.855	<.001	0.234	0.554
<i>Effects</i>						
Direct	0.175	0.064	2.753	0.007	0.050	0.301
Indirect (PP)	0.197	0.055			0.095	0.309
Indirect (JC)	0.200	0.058			0.096	0.322
Total	0.572	0.058	9.914	<.001	0.458	0.686

Based on 5000 bootstrap samples

Table 4.11 displays the results of the mediation analysis. A bootstrapping method was performed using Hayes's PROCESS Macro for SPSS (Model 4) to examine if proactive personality and job crafting mediated the relationship between NWOW and work engagement. First, the results of the regression analysis show that NWOW (independent variable) was a significant predictor of proactive personality ($b = 0.528$, $t = 9.885$, $p < .001$). Similarly, NWOW was also a significant predictor of job crafting ($b = 0.508$, $t = 9.832$, $p < .001$).

Next, while controlling proactive personality and job crafting (mediators), the results of the second regression analysis show that NWOW was a significant predictor of work engagement (dependent variable; $b = 0.175$, $t = 2.753$, $p = 0.007$). Proactive personality was found to have significant influence on work engagement ($b = 0.373$, $t = 0.079$, $p < .001$). Job crafting also was found to have significant influence on work engagement ($b = 0.394$, $t = 0.081$, $p < .001$).

The results of the indirect effects based on 5,000 bootstrap samples show significant positive relationships between NWOW and work engagement mediated by both proactive

personality ($a*b = 0.197$, Bootstrap $CI_{95} = 0.095$ and 0.309) and job crafting ($a*b = 0.200$, Bootstrap $CI_{95} = 0.096$ and 0.322). The mediators, proactive personality and job crafting, accounted for a substantial portion of the total effect.

On the other hand, the total effect of NWOW on work engagement was significant ($b = 0.572$, $t = 9.914$, $p < .001$), indicating that both direct and indirect effects contributed to the relationship. However, the direct effect of NWOW on work engagement was smaller ($b = 0.175$, $t = 2.753$, $p = 0.007$), suggesting partial mediation.

Table 4.12 summarises the findings of the study.

Table 4.12: Summary of Findings

Objective	Hypothesis	Result	Finding
To examine the relationship between NWOW and work engagement.	Ha1: There is a significant relationship between NWOW and work engagement.	Ha1 is accepted.	There is a significant moderate, positive relationship between NWOW and work engagement ($r=0.603$, $p<0.001$).
To examine the relationship between NWOW and proactive personality.	Ha2: There is a significant relationship between NWOW and proactive personality.	Ha2 is accepted.	There is a statistically significant moderate, positive relationship between NWOW and proactive personality ($r=0.608$, $p<0.001$).

Table 4.12: continued

To examine the relationship between NWOW and job crafting.	Ha3: There is a significant relationship between NWOW and job crafting.	Ha3 is accepted.	There is a significant moderate, positive relationship between NWOW and job crafting ($r=0.614, p<0.001$).
To examine the relationship between proactive personality and work engagement.	Ha4: There is a significant relationship between proactive personality and work engagement.	Ha4 is accepted.	There is a statistically significant moderate, positive relationship between proactive personality and work engagement ($r=0.691, p<0.001$).
To examine the relationship between job crafting and work engagement.	Ha5: There is a significant relationship between job crafting and work engagement.	Ha5 is accepted.	There is a significant moderate, positive relationship between job crafting and work engagement ($r=0.663, p<0.001$).
To examine whether proactive personality mediates the relationship between NWOW and work engagement.	Ha6: Proactive personality mediates the relationship between NWOW and work engagement.	Ha6 is accepted.	There is significant indirect effect via proactive personality, $b = 0.197, SE = 0.055$, 95% CI [0.097, 0.310].
To examine whether job crafting mediates the relationship between NWOW and work engagement.	Ha7: Job crafting mediates the relationship between NWOW and work engagement.	Ha7 is accepted.	There is significant indirect effect via job crafting, $b = 0.200, SE = 0.057$, 95% CI [0.098, 0.323].

4.7 Summary

In summary, this chapter included the descriptive statistics of the demographic profile and findings of the variables. Details about validity and reliability test about this study were

explained. The results of the hypothesis testing were included which were the results of Spearman correlation between variables and mediation effect of proactive personality and job crafting. The next chapter delves into the summary of the study which includes discussion, implication, limitation, future research and conclusion.

CHAPTER 5

DISCUSSION, IMPLICATION, LIMITATION, FUTURE RESEARCH AND CONCLUSION

5.1 Introduction

This chapter included a brief summary of each chapter and addresses the findings of the study while emphasising the contribution towards theory, methodology, and practices. In addition, this chapter outlines the limitations and recommendations of the study.

5.1.1 Summary

Work engagement is important for organisational success, particularly in industries like real estate (REI) and architecture, engineering and construction (AEC), which are experiencing growth and facing challenges to retain employees. Enhancing work engagement is crucial for these industries to retain employees, especially as New Ways of Working (NWOW) are increasingly implemented after COVID-19. Although some organizations had adopted these practices before the pandemic, their importance has grown in the post-pandemic work environment. In the current rapidly changing environment, proactive behaviours among employees are more important than ever. This study examines proactive personality and job crafting as mediators to determine whether they enhance the relationship between NWOW and work engagement in the REI and AEC industries. By exploring these components, the study aims to uncover how proactive behaviours boost work engagement. Specifically, this study tested the following hypotheses:

Ha1: There is a significant relationship between NWOW and work engagement.

Ha2: There is a significant relationship between NWOW and proactive personality.

Ha3: There is a significant relationship between NWOW and job crafting.

Ha4: There is a significant relationship between proactive personality and work engagement.

Ha5: There is a significant relationship between job crafting and work engagement.

Ha6: Proactive personality mediates the relationship between NWOW and work engagement.

Ha7: Job crafting mediates the relationship between NWOW and work engagement.

Work engagement is first theorised by Kahn (1990) then expanded by Schaufeli and colleagues (2006) where they described work engagement as vigour, dedication and absorption. In Malaysia, recent studies have explored work engagement as an outcome of various factors, such as transformational leadership (Arokiasamy & Tat, 2020), job characteristics among nurses (Othman & Nasurdin, 2019), leadership style, and motivating language among hospitality workers (Rabiul & Yean, 2021). Additionally, work engagement has also been examined as a mediator (Khairuddin & Baputey, 2019). Work engagement need greater focus in Malaysia, as Qualtrics (2024) found employee engagement is lower (67%) compared to Indonesia (86%) and Thailand (76%). Disengagement also leads to negative outcomes like counterproductive behaviour and turnover intention (Memon et al., 2020; Xiong & Wen, 2020), highlighting the importance of studying work engagement.

New Ways of Working (NWOW) is a form of work design which allows the employees to choose the location, time, ways and ease of accessing the knowledge of the organisation (Gerards et al., 2018). Most studies on NWOW have been conducted in the Netherlands, where the concept first emerged in the 1990s (Gerards, de Grip, et al., 2020; Gerards, van Wetten, et al., 2020; Kingma, 2019). These studies have demonstrated that NWOW leads to various outcomes, including innovative behavior (Almahamid & Ayoub,

2022), intrapreneurial behavior (Gerards, van Wetten, et al., 2020), in-role performance (Cornu, 2022), and informal learning (Gerards, de Grip, et al., 2020). Studies on New Ways of Working (NWOW) in Asia are limited compared to Europe (Brunia et al., 2016; Kotera & Vione, 2020). However, the rise of NWOW post-COVID-19 underscores its importance for both organizations and individuals (Duque et al., 2020; Renard et al., 2021). Despite returning to offices, organizations continue to implement NWOW practices, which highlights the need for further research, especially to address methodological gaps and diverse populations (Kotera & Vione, 2020; Renard et al., 2021).

Proactive personality is the inclination of an individual to make changes toward their environment to have positive outcomes (Bateman & Crant, 1993). Proactive personality has been identified as an antecedent to outcomes such as service performance (Yang et al., 2020), creative behaviour (Alikaj et al., 2021), well-being (Wahab & Blackman, 2023), job performance (Johari & Subramaniam, 2020), responses to stressors (Nielsen et al., 2023), and coworker dynamics (Sun et al., 2020), and has also been studied as a moderator in workplace research (Abid et al., 2021; Johari et al., 2022; Maan et al., 2020). In Malaysia, proactive personality has been studied in sectors like banking (Johari & Subramaniam, 2020), retail (Wahab & Blackman, 2023), education (Johari et al., 2022), and among students (Mohammadi et al., 2022), making its exploration in the REI and AEC industries valuable.

Job crafting describes the employees craft their job by altering the levels of job resources and job demands (Tims et al., 2012). Job crafting enhances job performance (Zhang & Liu, 2021), job satisfaction (Li et al., 2023), and reduces turnover intention (Zhang & Li, 2020). It has been examined as a predictor of customer service behaviour (Teng, 2019), work engagement (Bakker & Oerlemans, 2019), and turnover intention (Zhang & Li, 2020),

as well as an outcome of intrinsic motivation, team knowledge sharing (Lee & Song, 2020), and proactive personality (Teng & Chen, 2019). Additionally, job crafting has been studied as a mediator in workplace research (Meijerink et al., 2020; Peral & Geldenhuys, 2020; Robledo et al., 2019). Job crafting has been studied globally across various sectors, including the hospitality (Teng, 2019), manufacturing (Lee & Song, 2020), service (Lee & Song, 2020; Zhang & Li, 2020), tourism (Teng & Chen, 2019), and educational industries (Meijerink et al., 2020). In Malaysia, research has focused on the academic sector (Mohd Rasdi et al., 2023; Pari et al., 2019) and government-related companies (Hussein & Amiruddin, 2020). However, there remains a significant gap in the research on job crafting within Malaysia's REI and AEC industries.

Job-demands-resources model (JD-R model) is used to understand the roles of proactive personality and job crafting to achieve work engagement. JD-R model is an occupational stress model that suggests that strain is a reaction to an imbalance between individual's demands and resources available to meet those demands (Demerouti et al., 2001). Self-determination theory (SDT) by Deci & Ryan (1985) is referred to demonstrate the relationship between NWOW and work engagement. SDT is about the three basic psychological needs which are autonomy, relatedness and competence are satisfied to maintain the intrinsic motivation and self-regulation of external drives.

Past studies on the effect of New Ways of Working (NWOW) on work engagement are limited, particularly in non-Western contexts (Duque et al., 2020; Gerards et al., 2018). While NWOW has been shown to boost work engagement (Gerards et al., 2018; Andrulli & Gerards, 2023), previous Malaysian research has focused on flexible work arrangements (FWA) rather than NWOW (Che Malek, 2020). Some studies suggest NWOW's flexibility

in time and location can lead to unpaid overtime and reduced engagement (Chung & van der Horst, 2020; Schaufeli, 2018). Given NWOW's rapid adoption post-COVID-19 without sufficient planning, studying its effect on work engagement in Malaysia is necessary. Additionally, incorporating mediators in future research could provide a deeper understanding of how NWOW influences work engagement.

The sudden implementation of New Ways of Working (NWOW) has created uncertainty for employees (Diab-Bahman & Al-Enzi, 2020), but it has also enhanced job control and autonomy (Gerards et al., 2018). This autonomy allows individuals with proactive personality to find better ways to complete tasks (Li et al., 2020). A flexible work environment is crucial for their success (Urquijo et al., 2019), enabling them to address issues effectively (Wang et al., 2017) and increase work engagement (Bajaba et al., 2021). NWOW affects various aspects of work, including workspace and management style (Gerards et al., 2018). High job autonomy fosters job crafting (Saragih et al., 2021), allowing employees to tailor their roles to meet their needs and enhance motivation (Saragih et al., 2020). Job crafting boosts engagement by helping employees manage job demands and resources (Zhang & Li, 2020) and improving performance (Garg et al., 2021). Thus, incorporating proactive personality and job crafting as mediators is essential for studying the relationship between NWOW and work engagement.

The research used quantitative approach, gathering data through a close-ended online questionnaire. The targeted population consisted of employees from the real estate (REI) and architecture, engineering and construction (AEC) industries in Kuching and Kota Samarahan, Malaysia. However, due to the large and undefined size of the population, a power analysis was used to determine the sample size which was calculated at 138 respondents. After data

collection and data cleaning, the final sample consisted of 158 respondents. The sampling procedure used was convenience sampling method. A pilot study was conducted prior to the actual study to ensure the validity and reliability of the questionnaire. Data analysis included normality test, descriptive statistics (minimum, maximum, mean and standard deviation), and inferential statistics, using Spearman correlation and PROCESS analysis to assess relationships between variables.

A total of 158 respondents participated in this study. The findings show that a majority of the respondents were female, aged 20-29, predominantly of Chinese ethnicity, and degree holders. For each variable and item, the mean scores and standard deviations were presented. To assess internal consistency reliability of the variables, Cronbach's Alpha was tested, and the results confirmed that the measures were reliable. For hypothesis testing of direct relationships, Spearman correlation was used as the data was not normally distributed. Hypotheses 1-5 revealed significant relationships between the independent and dependent variables. Hypotheses 6-7, which examined the mediating effects of proactive personality and job crafting were analyzed using Hayes' PROCESS model 4. The results indicated partial mediation for both proactive personality and job crafting. Result of hypothesis testing is summarized in Table 5.1.

Table 5.1: Result of Hypothesis Testing

Hypothesis	Result
Ha1: There is a significant relationship between NWOW and work engagement.	Ha1 is accepted.
Ha2: There is a significant relationship between NWOW and proactive personality.	Ha2 is accepted.
Ha3: There is a significant relationship between NWOW and job crafting.	Ha3 is accepted.
Ha4: There is a significant relationship between proactive personality and work engagement.	Ha4 is accepted.
Ha5: There is a significant relationship between job crafting and work engagement.	Ha5 is accepted.
Ha6: Proactive personality mediates the relationship between NWOW and work engagement.	Ha6 is accepted.
Ha7: Job crafting mediates the relationship between NWOW and work engagement.	Ha7 is accepted.

5.2 Discussion of Findings

5.2.1 New Ways of Working (NWOW) and Work Engagement

For hypothesis Ha1, the result shows that there is a significant relationship between NWOW and work engagement ($r=0.603$, $p<0.001$). This suggests that as NWOW practices increase, work engagement among employees also tends to rise. The findings are consistent with previous studies, which have also reported a positive association between NWOW and work engagement (Andrulli & Gerards, 2023; Duque et al., 2020 Gerards et al., 2018).

In REI and AEC industries, where projects are often complex and require collaboration across various teams, NWOW practices are particularly beneficial. The flexibility and autonomy provided by NWOW enable professionals in these fields to manage their time effectively, coordinate with team members across different locations, and adapt to the dynamic demands of their projects which enhances their engagement and commitment to delivering high-quality outcomes (Duque et al., 2020). For example, the findings highlight

the importance of seamless access to information in the workplace. When employees can quickly and efficiently access organizational information through various digital devices, it empowers them to perform their tasks more effectively (Deng et al., 2023). Furthermore, when employees have the tools and information they need at their fingertips, they are better equipped to excel in their roles, which in turn fosters a greater sense of accomplishment and pride in their work (Bolli & Pusterla, 2022).

Another contributing factor is the ability to access necessary information through NWOW practices appears to enhance work engagement by making employees feel more capable and prouder of their contributions (Gerards et al., 2018). The provision of these resources not only aids in task completion but also reinforces the employee's connection to and satisfaction with their work (Bolli & Pusterla, 2022). Furthermore, NWOW also offers employees the flexibility of time and location, the ability to make independent decisions about how to perform their jobs, and easier communication between colleagues (Andrulli & Gerards, 2023). With these options, employees can align their work to fit their personal lives and needs, such as caring for children or elders, fetching children from school, doing household chores or running errands. This flexibility has made employees feel more motivated to contribute to their organization and more engaged in their work because the organization has provided them with these benefits (Duque et al., 2020).

5.2.2 New Ways of Working (NWOW) and Proactive Personality

For hypothesis Ha2, the finding shows that there is a significant relationship between NWOW and proactive personality ($r=0.608$, $p<0.001$). This suggests that as NWOW practices increase, employees are more likely to exhibit proactive personality traits. The findings are supported by prior studies, since the NWOW provides flexibility in work

arrangement, enabling proactive individuals to discover more effective methods to accomplish tasks and excel in their roles (Li et al., 2020; Wang et al., 2017).

The findings revealed that easy access to organizational information allows employees to discover more efficient ways of performing their tasks, enhancing their proactive personality. NWOW, which facilitates access to essential information online, encourages communication among employees and features open office layouts, empowers individuals to take initiative and develop innovative solutions within their roles (Kotera & Vione, 2020). This adaptability not only improves their effectiveness but also drives innovation and problem-solving in REI and AEC industries. Besides, research suggests that environmental changes have the potential to influence personality traits (Bleidorn et al., 2021). In this case, NWOW appears to positively influence the proactive personality of employees by providing them with the flexibility and ease to perform their tasks more effectively (Urquijo et al., 2019). For example, architects and engineers who can adjust their work schedules or collaborate remotely can better manage project timelines and client expectations, while real estate professionals can seamlessly balance site visits with administrative tasks.

The options offered by NWOW also encourage employees to take the initiative to tailor their work to better suit their personal needs (Chung & van der Lippe, 2020). For instance, NWOW allows employees to integrate their work with personal responsibilities, such as caring for children or running errands. NWOW not only allows employees to control how they work but also fosters proactive behaviour by empowering them to take initiative and customize their work environments to suit their preferences (Li et al., 2020). To illustrate,

an architect who identifies alternative design approaches that align with their personal style is likely to make changes according to their own preferences.

5.2.3 New Ways of Working (NWOW) and Job Crafting

For hypothesis Ha3, the results found that there is significant relationship between NWOW and job crafting ($r=0.614, p<0.001$). This implies that as NWOW practices increase, employees are more likely to engage in job crafting. The findings align with previous studies indicating that the flexibility and autonomy provided by NWOW have a positive relationship with job crafting (Dierdorff & Aguinis, 2018; Saragih et al., 2021; Saragih et al., 2020).

Research suggests that the need to access essential information through digital devices encourages employees to engage in learning and perform job crafting. Job crafting involves modifying the tasks employees undertake, adjusting how they collaborate with colleagues, or reshaping their perspective on their work (Tims et al., 2012). NWOW facilitates easier access to crucial information, promoting knowledge sharing, which in turn enables employees to learn new skills and engage in job crafting (Lee & Song, 2020). For example, when engineers have access to colleagues' plans or solutions for specific construction cases, they can learn from previous approaches and apply improved solutions to current challenges. Besides, NWOW provides employees with various job resources, including flexibility in when and where they work, autonomy over how they complete tasks, enhanced access to organizational knowledge, and open office designs that promote collaboration (Gerards et al., 2018; Kotera & Vione, 2020). As employees' autonomy increases, they are more likely to engage in job crafting, as a high level of autonomy gives them the freedom and opportunity to make changes on their own (Dierdorff & Aguinis, 2018; Saragih et al., 2021). For example, architects and engineers can adjust their task management

and collaborate more effectively across different locations, while real estate professionals can tailor their schedules to balance client meetings with fieldwork.

NWOW facilitates job crafting by enabling employees to customize their roles, select tasks, negotiate job content, and assign meaning to meet their basic needs and drive intrinsic motivation (Saragih et al., 2020). Through job crafting, employees can adjust their tasks or reshape the psychological experience of their work, making it more meaningful and engaging (Bakker et al., 2020). For instance, in the AEC industries, architects might adjust their role by taking ownership of creative decisions, while engineers may experiment with different problem-solving methods learned through access to shared organizational knowledge. In the real estate industry, agents can tailor their work schedules to better engage with clients, collaborate more effectively across teams, and leverage digital tools to streamline property management or sales processes, all of which can make their work more fulfilling and productive.

5.2.4 Proactive Personality and Work Engagement

For hypothesis Ha4, the findings showed that there is relationship between proactive personality and work engagement ($r=0.691$, $p<0.001$). This correlation suggests that employees who exhibit proactive personality traits are more likely to be highly engaged in their work. The findings are consistent with prior research, which has found a link between proactive personality and work engagement (Bajaba et al., 2021; Chong et al., 2021; Hu et al., 2021; Mubarak et al., 2021).

Research indicates that employees who consistently seek to improve and innovate in their roles often experience a greater sense of pride and engagement in their work. Individuals with proactive personalities are defined by their forward-thinking approach,

anticipating future needs and challenges rather than waiting for instructions or reacting passively (Buil et al., 2019; McCormick et al., 2019). They actively pursue opportunities for growth and development, which leads to higher job satisfaction and motivation, ultimately enhancing work engagement (Bajaba et al., 2021; Sumaneeva et al., 2021). For example, in AEC industries, a proactive engineer might identify potential structural challenges in a project before they arise and propose innovative solutions, improving both project outcomes and personal fulfillment. Similarly, an architect might seek out new design technologies or sustainable materials, driving innovation and enhancing their role. In the REI, agents with proactive personalities might stay ahead of market trends by researching emerging neighborhoods or adopting new digital tools for property management, allowing them to better serve clients and feel more engaged in their work.

In the REI and AEC industries, where project demands are often complex and require innovative solutions, proactive employees are particularly valuable. Research by Hu et al. (2021) and Mubarak et al. (2021) underscores that proactive personality traits significantly boost employee work engagement. For example, a proactive architect might explore new design techniques or materials, enhancing project outcomes and increasing their sense of ownership, which boosts work engagement. Similarly, an engineer who anticipates construction issues and implements preventive measures feels more empowered, leading to higher engagement. In real estate, agents who stay ahead of market trends and adapt to client needs achieve better results and satisfaction, which in turn heightens their motivation and engagement.

5.2.5 Job Crafting and Work Engagement

For hypothesis Ha5, the finding confirms a relationship between job crafting and work engagement ($r=0.663$, $p<0.001$). This implies that as employees engage more in job crafting, their level of work engagement tends to increase. The result is similar to the previous studies which showed there is positive link between job crafting and work engagement (Baghdadi et al., 2021; Bakker & Oerlemans, 2019; Letona-Ibañez et al., 2021; Nguyen et al., 2019).

Research indicates that employees who try to learn new things often experience a greater sense of pride and engagement in their work. Job crafting allows employees to adjust their job resources and demands to better align with their strengths, interests, and goals (Tims et al., 2012). By engaging in job crafting, employees can find more meaning in their work and experience a greater sense of accomplishment (Baghdadi et al., 2021; Letona-Ibañez et al., 2021). For instance, an employee from AEC industries who enjoys creative tasks may proactively seek out new projects that require innovative thinking, which can lead to a higher level of engagement. Job crafting, a bottom-up approach, allows employees to gain more control over how they perform tasks, leading to increased autonomy (Saragih et al., 2021). This heightened autonomy fosters a stronger sense of ownership and responsibility, making the work more fulfilling and engaging (Zampetakis, 2023; Zhang & Li, 2020). For example, in the AEC industry, an engineer might redesign their workflow to focus on more complex problem-solving tasks, enhancing their sense of control and resulting in greater job satisfaction. Similarly, in the real estate industry, an agent could tailor their client management strategy to better align with market trends, giving them more autonomy and increasing their engagement as they take ownership of the process.

Job crafting also improves employees' positive attitudes, inspiring them to work harder and achieve better results, thereby attaining higher work engagement (Garg et al., 2021). In sectors of REI and AEC, job crafting enables professionals to align their tasks with their expertise and interests. For example, a real estate agent who tailors their role to focus on market analysis and client relations can increase their sense of ownership and control, leading to higher job satisfaction and deeper work engagement. Similarly, an architect or engineer who crafts their job to emphasize design or innovative problem-solving tasks may feel more connected to their work, resulting in greater engagement with their projects. By allowing employees to shape their roles to better fit their strengths and interests, organizations can foster a more motivated, engaged, and productive workforce (Baghdadi, 2021).

5.2.6 Mediating Role of Proactive Personality

For hypothesis Ha6, the result proves that proactive personality mediates the relationship between NWOW and work engagement ($b = 0.197$, $SE = 0.055$, 95% CI [0.097, 0.310]). This finding highlights the critical role that proactive personality plays in enhancing the positive effects of NWOW on employee work engagement. This result, supported by Gerards et al. (2018) and Bleidorn et al. (2021), suggests that as NWOW transforms workplaces through significant environmental changes, it can influence employee behavior and attitudes, potentially leading to the development of more proactive personality traits. Employees with proactive personalities thrive in work settings that provide the autonomy and resources to identify and address problems proactively (Wang et al., 2017), enabling them to effectively leverage these resources and increase their work engagement (Bajaba et al., 2021), further supporting the role of proactive personality as a mediator between NWOW and work engagement.

The findings of this study revealed that when employees have the tools and information they need at their fingertips, they are better equipped to excel in their roles, empowering them to take initiative and develop innovative solutions. This, in turn, fosters a greater sense of accomplishment and pride in their work (Bolli & Pusterla, 2022; Kotera & Vione, 2020). When NWOW enhances employees' proactive personalities, it creates a virtuous cycle that further boosts work engagement. A proactive personality is characterized by an individual's inclination to take initiative, solve problems, and improve their work environment (Bateman & Crant, 1993). Employees with proactive personalities thrive in work settings that offer them the autonomy and resources needed to identify and address problems proactively (Wang et al., 2017). For example, in the AEC industry, a proactive engineer might use digital tools to analyze project data and identify potential design flaws before they become issues, leading to improved project outcomes and a greater sense of ownership in their work. In the real estate industry, a proactive agent might leverage market analytics to anticipate client needs and adapt their strategies accordingly, resulting in higher client satisfaction and enhanced personal motivation. Both examples illustrate how a proactive personality, supported by NWOW, can significantly enhance work engagement in these industries.

The sudden implementation of NWOW has led to employee uncertainty due to the disruption of traditional office environments (Diab-Bahman & Al-Enzi, 2020), but it has also enhanced job control and autonomy for workers (Gerards et al., 2018). With this increased autonomy, proactive individuals are more likely to seek improved methods for completing their tasks (Li et al., 2020) and find it easier to adapt to new cultures (Hu et al., 2020). For example, in the AEC industry, a proactive engineer might identify potential challenges in a construction project and develop innovative solutions to address them before they escalate,

thereby improving project efficiency and their own sense of accomplishment. In real estate, a proactive agent might analyze market trends to anticipate client needs and adjust their strategies accordingly, enhancing client satisfaction and personal motivation. These proactive employees can effectively utilize their resources, which in turn boosts their work engagement (Bajaba et al., 2021), demonstrating how proactive personality mediates the relationship between NWOW and work engagement.

5.2.7 Mediating Role of Job Crafting

For hypothesis Ha7, the finding shows that job crafting mediates the relationship between NWOW and work engagement ($b = 0.200$, $SE = 0.057$, 95% CI [0.098, 0.323]). This highlights the role of job crafting in enhancing the positive effect of NWOW on work engagement. The study's findings are supported by previous research demonstrating that job crafting mediates the relationship between NWOW and work engagement. Saragih et al. (2020) show that when NWOW enables employees to customize their roles, tasks, and job resources, it enhances intrinsic motivation. Zampetakis (2023) adds that proactive job crafting increases work engagement by allowing employees to better align their job with personal strengths and interests. Zhang and Li (2020) further support this, highlighting that employees who enhance their job's challenges and resources through crafting experience greater engagement. These insights validate the study's result that job crafting plays a mediating role in this relationship.

Current findings indicate that access to essential information via digital devices motivates employees to engage in learning and participate in job crafting, leading to a heightened sense of pride and engagement in their work. Job crafting allows employees to make decisions about how they do their work, enabling them to modify their job tasks or the

psychological experience of working to make it more meaningful and engaging (Bakker et al., 2020). In the AEC industry, employees can utilize digital project management tools to streamline design processes and track progress in real-time. This ability to adapt workflows and tasks to their preferences allows them to take ownership of their projects, fostering greater engagement and innovation. While in the real estate industry, agents can use customer relationship management software to personalize their interactions with clients, tailoring their marketing approaches and communication styles. This level of customization enhances their sense of autonomy and satisfaction in their roles. In both sectors, job crafting, facilitated by NWOW, empowers employees to enhance their work experiences, driving intrinsic motivation and work engagement.

The implementation of NWOW practices within organizations significantly enhances employees' job control, offering them greater autonomy and flexibility in how they perform their tasks (Gerards et al., 2018). This increased autonomy motivates employees to engage in job crafting (Dierdorff & Aguinis, 2018), as NWOW allows them to customize their roles, select tasks, negotiate job content, and assign meaning to their work. This personalization helps meet their basic needs and fosters intrinsic motivation (Saragih et al., 2020). Furthermore, research by Baghdadi et al. (2021) supports the idea that job crafting plays a crucial role in boosting work engagement, demonstrating how these elements are interconnected. In the AEC industry, team members might implement collaborative software to share ideas and make collective decisions about project direction, allowing them to choose roles that play to their strengths, which increases both engagement and teamwork. Meanwhile, in the real estate industry, professionals can develop personalized strategies for client outreach, selecting specific channels and methods that resonate with their individual styles. This autonomy in crafting their roles contributes to higher job satisfaction and

motivation. In both examples, job crafting acts as a vital mediator between NWOW and work engagement, illustrating how flexible work environments can help employees thrive.

5.3 Implication

5.3.1 Body of Knowledge

This research contributes additional empirical evidence to the existing human resource development literature by validating New Ways of Working (NWOW) as a precursor to work engagement in the real estate (REI) and architecture, engineering and construction (AEC) industries. This study addresses a notable gap in the existing literature by incorporating both proactive personality and job crafting as mediators. To the best of the author's knowledge, no prior research has simultaneously examined these two variables within a single framework.

This study also has expanded the understanding of New Ways of Working (NWOW), work engagement, proactive personality, and job crafting within the AEC industries and the REI in the Asian context, specifically focusing on Malaysia. To the best of the author's knowledge, local studies examining these factors within the AEC and REI sectors remain limited.

The empirical findings from this study enhance our understanding of how NWOW fosters work engagement. Additionally, the study sheds light on the work engagement of employees in the context of NWOW implementation. By assessing the effects of proactive personality and job crafting in mediating the relationship between NWOW and work engagement, this study illustrates how proactive traits and behaviours affect work engagement. Moreover, it contributes to the body of empirical research on NWOW, work engagement, proactive personality, and job crafting within the Asian context.

The results of the study which NWOW increase the proactive personality and job crafting behaviours supported the theory of JD-R model as a model to demonstrate the proactive personality and job crafting as the mediators in the relationship between NWOW and work engagement. By leveraging proactive personality and job crafting, employees can modify job characteristics to reduce demands while enhancing resources, ultimately achieving and maintaining work engagement.

SDT explains how the NWOW fulfils the three psychological requirements which are autonomy, competence and relatedness, and how it relates to gain work engagement. Findings indicate that by providing flexibility in work arrangements and emphasizing output management, employees can complete their tasks in ways that align with their preferences, enhancing their sense of competence. Moreover, NWOW facilitates relatedness by allowing employees to easily access organizational knowledge, participate in knowledge sharing, leverage collective intellectual resources, and connect swiftly with colleagues and managers. When these three psychological needs are met, it demonstrates that work engagement is achieved through NWOW.

5.3.2 HRD Practitioners

This study makes a significant contribution to the field of Human Resource Development (HRD) by demonstrating the relationship between New Ways of Working (NWOW) and work engagement. Through mediation model analysis, the research highlights the roles of proactive personality and job crafting in achieving work engagement when applying NWOW. The findings highlight the importance of cultivating proactive personality behaviours and job crafting behaviours among employees to maximize engagement.

Understanding this relationship allows HRD practitioners to emphasize the importance of regularly evaluating and promoting work engagement. There are a few different ways to promote work engagement: creating a system of defined performance goals inside the company or offering workshops or engagement development programmes where workers may learn different techniques to become more engaged in their work. HRD professionals could establish an atmosphere that encourages employees to take initiative, such as proactive training programmes where staff members are trained to modify their work environments, proactively address issues that arise at work, and develop skills for enhancing their workplace attributes. Consequently, this approach has the potential to improve work engagement, contributing to the overall effectiveness and sustainability of organisation.

5.3.3 Real Estate Industry and Architecture, Engineering and Construction Industry

The current study helps industries understand work engagement among their employees. It provides insights into how New Ways of Working (NWOW) can enhance work engagement. Additionally, companies can better comprehend the proactive components in their employees, such as proactive personality and job crafting, and how these elements contribute to work engagement. Recognizing the positive effects of proactive personality and job crafting on employees, management should implement a screening system to identify individuals with proactive personality or behaviours. This approach will assist in decision-making and assigning employees to the most suitable roles, leading to higher levels of work engagement. Management can also enhance their competitive edge by attracting and retaining employees who take the initiative to solve customer problems and improve their work environment. Additionally, offering a comprehensive set of job resources, such as training programs, career advancement opportunities, and job security, can be beneficial. Implementing detailed performance appraisals that make employees feel valued and essential

to the organization, along with providing other specific job resources, can significantly boost employee engagement. Proactive employees who receive organizational support in various ways can learn to utilize and develop their resources more effectively, becoming more engaged in their work and achieving higher performance levels.

Implementing New Ways of Working (NWOW) in the real estate and AEC sectors requires a blend of flexibility, technology, and cultural shifts tailored to these industries. Organizations can adopt hybrid work models, activity-based workspaces, and digital tools like BIM and cloud-based platforms to enhance collaboration and efficiency. Leadership should prioritize agility and trust, encouraging employee proactivity and well-being through role customization, skill development programs, and wellness initiatives. Sustainability can be integrated by using green practices, remote inspections, and smart building technologies, while performance evaluations should shift from time-based to outcome-based metrics. A phased implementation approach, beginning with pilot projects and regular feedback loops, ensures adaptability and alignment with industry demands and cultural values.

5.4 Limitation and Future Research

This study is only based on a survey conducted among the employees from Kuching and Kota Samarahan in Sarawak, Malaysia which may affect the generalizability of the results. The convenient sampling strategy, which prevents individuals in the population from being chosen at random, may have an effect on the overall representation. This approach was adopted because the overall population in these industries is unknown, and not all companies are willing to participate in the survey. Using online surveys poses limitations, including

potential biases such as social desirability and the exclusion of participants with limited internet access, leading to sampling constraints.

Additionally, cultural differences may affect how constructs like proactive personality and job crafting are interpreted, as these concepts are often rooted in Western individualistic frameworks that may not fully align with collectivist values prevalent in Malaysia. Aside from that, there is lacking existing research on the topic to provide theoretical underpinnings for the research topics in this study, particularly the mediation effect of proactive personality. Due to this gap, the researcher relied on established literature for the direct effect to create the groundwork for the research questions. These questions are based on the mediation analysis theory, which suggests that mediation is likely to occur when there are significant direct relationships between the independent variable, mediating variable, and dependent variable. Proactive personality and job crafting were prioritized in this study due to their relevance in fostering adaptability and innovation, particularly in dynamic industries like AEC and REI.

As a recommendation, future studies could explore the effect of other work antecedents on work engagement such as emotional intelligence, psychological safety and team dynamics. Future studies also could include other mediators such as work-life integration, job security, social support to study the relationship. While these factors were not prioritized in this study, they represent important dimensions of workplace well-being, particularly in collectivist cultures where interdependence and shared responsibilities are emphasized. Examining these mediators could offer a broader understanding of how NWOW impacts work engagement across diverse contexts. By focusing on proactive personality and job crafting, this study provides a foundation for future research while acknowledging the need to integrate

additional mediators to capture the multifaceted nature of employee experiences in evolving work environments. Future study could also focus on other industries such as manufacturing, healthcare, or financial services, to broaden the understanding of NWOW's effects. Besides that, different research methodologies such as qualitative or mixed-method approaches could be employed to gain different insights and complement the findings of this study.

5.5 Conclusion

This study examined the mediating effects of proactive behaviours in the relationship between NWOW and work engagement. A total of seven hypotheses were tested in this study, and the results supported all the alternate hypotheses. The findings confirmed that NWOW is positively associated with work engagement, as well as with proactive personality and job crafting. Proactive personality and job crafting are also positively related to work engagement. As mediators, proactive personality and job crafting partially mediated the relationship between NWOW and work engagement, highlighting their crucial role in strengthening this connection. It is highly recommended that future studies address any gaps not covered in this study to promote a better understanding of these variables. This can further refine the application of NWOW and its effect on employee engagement across various industries.

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APPENDICES

Appendix A: Questionnaire

New Ways of Working and Work Engagement: The Mediating Roles of Proactive Personality and Job Crafting

FACULTY OF COGNITIVE SCIENCES AND HUMAN DEVELOPMENT

* Indicates required question

Dear Mr/Ms,

I am Cheryl Dhewina Wong, a Master of Science (Human Resource Development) student from Faculty of Cognitive Sciences and Human Development, Universiti Malaysia Sarawak (UNIMAS), Kota Samarahan, Sarawak.

I am inviting you to participate in a study on the influence of new ways of working, proactive personality and job crafting on work engagement. I highly appreciate it if you can assist me by answering the survey. This survey consists of five (5) sections (Section A, B, C, D and E) and takes approximately 10 minutes to complete.

All responses will be strictly confidential and will only be used for academic purpose. The completion and return of the questionnaire acknowledges your willingness to participate voluntarily and anonymously. Should you have any inquiry, I can be contacted via the contact below.

Thank you for your time and cooperation.

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Skip to question 1

Section A: Demographic Information

Instructions: Please choose the most suitable answer for each question.

1. Gender *

Mark only one oval.

- ☐ Male
- ☐ Female

2. Age *

Mark only one oval.

- ☐ Below 20 years old
- ☐ 20-29 years old
- ☐ 30-39 years old
- ☐ 40-49 years old
- ☐ 50 years old and above

3. Ethnicity *

Mark only one oval.

- ☐ Malay
- ☐ Chinese
- ☐ Bumiputera Sabah
- ☐ Bumiputera Sarawak
- ☐ Other:

4. Highest Education Level *

Mark only one oval.

- ☐ PT3/PMR/SRP
 - ☐ Sijil Pelajaran Malaysia (SPM)
 - ☐ Sijil Tinggi Pelajaran Malaysia (STPM)
 - ☐ Diploma
 - ☐ Bachelor Degree
 - ☐ Master Degree
 - ☐ Doctorate Degree
 - ☐ Other:
-

5. Current Position *

6. Duration of work experience in current job (in years) *

7. Current Work Location *

Mark only one oval.

- ☐ Kuching
- ☐ Kota Samarahan

Skip to question 8

Section B: New Ways of Working (NWOW)

Instruction: Please indicate the extend of your agreement to each statement.

1. I am able to set my own working hours. *

Mark only one oval.

- ☐ Strongly disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly agree

2. I am able to determine **where** (e.g. WFH, office, shared space) I work. *

Mark only one oval.

- ☐ Strongly disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly agree

3. I am able to determine the **way** (e.g. ways to approach, dealing with clients) I work. *

Mark only one oval.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly Agree

4. I can access all necessary information on my computer, smartphone, and/or tablet.*

Mark only one oval.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly Agree

5. I am able to reach colleagues within my team quickly. *

Mark only one oval.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly Agree

6. I am able to reach my manager(s) quickly. *

Mark only one oval.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

7. I am able to reach colleagues outside the team quickly. *

Mark only one oval.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly Agree

8. I have the ability to adapt my working scheme to my phase of life and ambitions. *

Mark only one oval.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

9. My work building/office is arranged so that colleagues are easily accessible. *

Mark only one oval.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

10. My work office/building is arranged so that managers are easily accessible. *

Mark only one oval.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

Skip to question 18

Section C: Work Engagement

Instruction: Please indicate the extend of your agreement to each statement.

1. At my work, I feel bursting with energy. *

Mark only one oval.

- ☐ Strongly disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly agree

2. At my job, I feel strong and vigorous. *

Mark only one oval.

- ☐ Strongly disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly agree

3. I am enthusiastic about my job. *

Mark only one oval.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly Agree

4. My job inspires me. *

Mark only one oval.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

5. When I get up in the morning, I feel like going to work. *

Mark only one oval.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

6. I feel happy when I am working intensely. *

Mark only one oval.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

7. I am proud of the work that I do. *

Mark only one oval.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

8. I am immersed in my work. *

Mark only one oval.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

9. I get carried away when I am working. *

Mark only one oval.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

Skip to question 27

Section D: Proactive Personality

Instruction: Please indicate the extend of your agreement to each statement.

1. I have been a powerful force for constructive change in my workplace. *

Mark only one oval.

- ☐ Strongly disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly agree

2. No matter what the odds, if I believe in something I will make it happen. *

Mark only one oval.

- ☐ Strongly disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly agree

3. I love being a champion for my ideas, even against others' opposition. *

Mark only one oval.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

4. I excel at identifying opportunities at work. *

Mark only one oval.

- ☐ Strongly disagree
- ☐
- ☐
- ☐
- ☐
- Disagree
- Neutral
- Agree
- Strongly agree

5. I am always looking for better ways to do things. *

Mark only one oval.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

6. If I believe in an idea, no obstacle will prevent me from making it happen. *

Mark only one oval.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

7. I can spot a good opportunity long before others can. *

Mark only one oval.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

Skip to question 34

Section E: Job Crafting

Instruction: Please indicate the extend of your agreement to each statement.

1. I try to develop my capabilities at work. *

Mark only one oval.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly Agree

2. I try to develop myself professionally. *

Mark only one oval.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly Agree

3. I try to learn new things at work. *

Mark only one oval.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly Agree

4. I make sure that my work is **mentally** less intense. *

Mark only one oval.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

5. I try to ensure that my work is **emotionally** less intense. *

Mark only one oval.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly Agree

6. I manage my work so that I try to minimize contact with people whose problems affect me emotionally. *

Mark only one oval.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly Agree

7. I ask my supervisor to coach me. *

Mark only one oval.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

8. I ask whether my supervisor is satisfied with my work. *

Mark only one oval.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly Agree

9. I look to my supervisor for inspiration. *

Mark only one oval.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly Agree

10. When an interesting project comes along, I offer myself proactively as project co-worker.*

Mark only one oval.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly Agree

11. If there are new developments, I am one of the first to learn about them and try them out.*

Mark only one oval.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

12. When there is not much to do at work, I see it as a chance to start new projects. *

Mark only one oval.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

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Appendix B: Raw SPSS Results

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	50	31.6	31.6	31.6
	Female	108	68.4	68.4	100.0
	Total	158	100.0	100.0	

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20-29	65	41.1	41.1	41.1
	30-39	52	32.9	32.9	74.1
	40-49	30	19.0	19.0	93.0
	50 and above	11	7.0	7.0	100.0
	Total	158	100.0	100.0	

Ethnicity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Malay	52	32.9	32.9	32.9
	Chinese	61	38.6	38.6	71.5
	Bumiputera Sarawak	44	27.8	27.8	99.4
	Others	1	.6	.6	100.0
	Total	158	100.0	100.0	

Highest Education Level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SPM	17	10.8	10.8	10.8
	STPM	9	5.7	5.7	16.5
	Diploma	38	24.1	24.1	40.5
	Bachelor	81	51.3	51.3	91.8
	Master	11	7.0	7.0	98.7
	Others	2	1.3	1.3	100.0
	Total	158	100.0	100.0	

I am able to set my own working hours

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	10	6.3	6.3	6.3
	Disagree	25	15.8	15.8	22.2
	Neutral	32	20.3	20.3	42.4
	Agree	63	39.9	39.9	82.3
	Strongly agree	28	17.7	17.7	100.0
	Total	158	100.0	100.0	

I am able to determine where I work

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	15	9.5	9.5	9.5
	Disagree	29	18.4	18.4	27.8
	Neutral	30	19.0	19.0	46.8
	Agree	60	38.0	38.0	84.8
	Strongly agree	24	15.2	15.2	100.0
	Total	158	100.0	100.0	

I am able to determine the way I work

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	7	4.4	4.4	4.4
	Disagree	2	1.3	1.3	5.7
	Neutral	47	29.7	29.7	35.4
	Agree	85	53.8	53.8	89.2
	Strongly agree	17	10.8	10.8	100.0
	Total	158	100.0	100.0	

I can access all necessary information on my computer, smartphone, and/or tablet

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	.6	.6	.6
	Disagree	8	5.1	5.1	5.7
	Neutral	16	10.1	10.1	15.8
	Agree	91	57.6	57.6	73.4
	Strongly agree	42	26.6	26.6	100.0
	Total	158	100.0	100.0	

I am able to reach colleagues within the team quickly

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	.6	.6	.6
	Disagree	2	1.3	1.3	1.9
	Neutral	34	21.5	21.5	23.4
	Agree	84	53.2	53.2	76.6
	Strongly agree	37	23.4	23.4	100.0
	Total	158	100.0	100.0	

I am able to reach managers quickly

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	1.3	1.3	1.3
	Disagree	6	3.8	3.8	5.1
	Neutral	45	28.5	28.5	33.5
	Agree	81	51.3	51.3	84.8
	Strongly agree	24	15.2	15.2	100.0
	Total	158	100.0	100.0	

I am able to reach colleagues outside the team quickly

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	.6	.6	.6
	Disagree	9	5.7	5.7	6.3
	Neutral	49	31.0	31.0	37.3
	Agree	74	46.8	46.8	84.2
	Strongly agree	25	15.8	15.8	100.0
	Total	158	100.0	100.0	

I have the ability to adapt my working scheme to my phase of life and ambitions

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	1.3	1.3	1.3
	Disagree	7	4.4	4.4	5.7
	Neutral	45	28.5	28.5	34.2
	Agree	83	52.5	52.5	86.7
	Strongly agree	21	13.3	13.3	100.0
	Total	158	100.0	100.0	

My work building/office is arranged so that colleagues are easily accessible

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	4	2.5	2.5	2.5
	Neutral	33	20.9	20.9	23.4
	Agree	94	59.5	59.5	82.9
	Strongly agree	27	17.1	17.1	100.0
	Total	158	100.0	100.0	

My work office/building is arranged so that managers are easily accessible

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	.6	.6	.6
	Disagree	3	1.9	1.9	2.5
	Neutral	34	21.5	21.5	24.1
	Agree	93	58.9	58.9	82.9
	Strongly agree	27	17.1	17.1	100.0
	Total	158	100.0	100.0	

At my work, I feel bursting with energy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	4	2.5	2.5	2.5
	Disagree	18	11.4	11.4	13.9
	Neutral	81	51.3	51.3	65.2
	Agree	47	29.7	29.7	94.9
	Strongly agree	8	5.1	5.1	100.0
	Total	158	100.0	100.0	

At my job, I feel strong and vigorous

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	.6	.6	.6
	Disagree	8	5.1	5.1	5.7
	Neutral	82	51.9	51.9	57.6
	Agree	58	36.7	36.7	94.3
	Strongly agree	9	5.7	5.7	100.0
	Total	158	100.0	100.0	

I am enthusiastic about my job

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	4	2.5	2.5	2.5
	Disagree	5	3.2	3.2	5.7
	Neutral	63	39.9	39.9	45.6
	Agree	74	46.8	46.8	92.4
	Strongly agree	12	7.6	7.6	100.0
	Total	158	100.0	100.0	

My job inspires me

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	.6	.6	.6
	Disagree	9	5.7	5.7	6.3
	Neutral	58	36.7	36.7	43.0
	Agree	75	47.5	47.5	90.5
	Strongly agree	15	9.5	9.5	100.0
	Total	158	100.0	100.0	

When I get up in the morning, I feel like going to work

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	3	1.9	1.9	1.9
	Disagree	17	10.8	10.8	12.7
	Neutral	78	49.4	49.4	62.0
	Agree	48	30.4	30.4	92.4
	Strongly agree	12	7.6	7.6	100.0
	Total	158	100.0	100.0	

I feel happy when I am working intensely

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	3	1.9	1.9	1.9
	Disagree	14	8.9	8.9	10.8
	Neutral	69	43.7	43.7	54.4
	Agree	63	39.9	39.9	94.3
	Strongly agree	9	5.7	5.7	100.0
	Total	158	100.0	100.0	

I am proud of the work that I do

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	.6	.6	.6
	Disagree	2	1.3	1.3	1.9
	Neutral	36	22.8	22.8	24.7
	Agree	91	57.6	57.6	82.3
	Strongly agree	28	17.7	17.7	100.0
	Total	158	100.0	100.0	

I am immersed in my work

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	.6	.6	.6
	Disagree	8	5.1	5.1	5.7
	Neutral	65	41.1	41.1	46.8
	Agree	71	44.9	44.9	91.8
	Strongly agree	13	8.2	8.2	100.0
	Total	158	100.0	100.0	

I get carried away when I am working

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	3	1.9	1.9	1.9
	Disagree	15	9.5	9.5	11.4
	Neutral	68	43.0	43.0	54.4
	Agree	59	37.3	37.3	91.8
	Strongly agree	13	8.2	8.2	100.0
	Total	158	100.0	100.0	

I have been a powerful force for constructive change in my workplace

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	4	2.5	2.5	2.5
	Disagree	10	6.3	6.3	8.9
	Neutral	75	47.5	47.5	56.3
	Agree	61	38.6	38.6	94.9
	Strongly agree	8	5.1	5.1	100.0
	Total	158	100.0	100.0	

No matter what the odds, if I believe in something I will make it happen

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	1.3	1.3	1.3
	Disagree	4	2.5	2.5	3.8
	Neutral	48	30.4	30.4	34.2
	Agree	88	55.7	55.7	89.9
	Strongly agree	16	10.1	10.1	100.0
	Total	158	100.0	100.0	

I love being a champion for my ideas, even against others? opposition

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	4	2.5	2.5	2.5
	Disagree	25	15.8	15.8	18.4
	Neutral	75	47.5	47.5	65.8
	Agree	48	30.4	30.4	96.2
	Strongly agree	6	3.8	3.8	100.0
	Total	158	100.0	100.0	

I excel at identifying opportunities at work

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	.6	.6	.6
	Disagree	6	3.8	3.8	4.4
	Neutral	70	44.3	44.3	48.7
	Agree	72	45.6	45.6	94.3
	Strongly agree	9	5.7	5.7	100.0
	Total	158	100.0	100.0	

I am always looking for better ways to do things

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	30	19.0	19.0	19.0
	Agree	104	65.8	65.8	84.8
	Strongly agree	24	15.2	15.2	100.0
	Total	158	100.0	100.0	

If I believe in an idea, no obstacle will prevent me from making it happen

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	11	7.0	7.0	7.0
	Neutral	63	39.9	39.9	46.8
	Agree	74	46.8	46.8	93.7
	Strongly agree	10	6.3	6.3	100.0
	Total	158	100.0	100.0	

I can spot a good opportunity long before others can

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	5	3.2	3.2	3.2
	Neutral	92	58.2	58.2	61.4
	Agree	53	33.5	33.5	94.9
	Strongly agree	8	5.1	5.1	100.0
	Total	158	100.0	100.0	

I try to develop my capabilities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	1.3	1.3	1.3
	Neutral	36	22.8	22.8	24.1
	Agree	102	64.6	64.6	88.6
	Strongly agree	18	11.4	11.4	100.0
	Total	158	100.0	100.0	

I try to develop myself professionally

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	.6	.6	.6
	Neutral	30	19.0	19.0	19.6
	Agree	95	60.1	60.1	79.7
	Strongly agree	32	20.3	20.3	100.0
	Total	158	100.0	100.0	

I try to learn new things at work

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	22	13.9	13.9	13.9
	Agree	89	56.3	56.3	70.3
	Strongly agree	47	29.7	29.7	100.0
	Total	158	100.0	100.0	

I make sure that my work is mentally less intense

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	9	5.7	5.7	5.7
	Neutral	43	27.2	27.2	32.9
	Agree	83	52.5	52.5	85.4
	Strongly agree	23	14.6	14.6	100.0
	Total	158	100.0	100.0	

I try to ensure that my work is emotionally less intense

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	9	5.7	5.7	5.7
	Neutral	45	28.5	28.5	34.2
	Agree	82	51.9	51.9	86.1
	Strongly agree	22	13.9	13.9	100.0
	Total	158	100.0	100.0	

I manage my work so that I try to minimize contact with people whose problems affect me emotionally

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	.6	.6	.6
	Disagree	6	3.8	3.8	4.4
	Neutral	54	34.2	34.2	38.6
	Agree	75	47.5	47.5	86.1
	Strongly agree	22	13.9	13.9	100.0
	Total	158	100.0	100.0	

I ask my supervisor to coach me

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	.6	.6	.6
	Disagree	8	5.1	5.1	5.7
	Neutral	54	34.2	34.2	39.9
	Agree	67	42.4	42.4	82.3
	Strongly agree	28	17.7	17.7	100.0
	Total	158	100.0	100.0	

I ask whether my supervisor is satisfied with my work

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	.6	.6	.6
	Disagree	12	7.6	7.6	8.2
	Neutral	53	33.5	33.5	41.8
	Agree	72	45.6	45.6	87.3
	Strongly agree	20	12.7	12.7	100.0
	Total	158	100.0	100.0	

I look to my supervisor for inspiration

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	12	7.6	7.6	7.6
	Neutral	53	33.5	33.5	41.1
	Agree	63	39.9	39.9	81.0
	Strongly agree	30	19.0	19.0	100.0
	Total	158	100.0	100.0	

When an interesting project comes along, I offer myself proactively as project co-worker

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	1.3	1.3	1.3
	Disagree	12	7.6	7.6	8.9
	Neutral	64	40.5	40.5	49.4
	Agree	66	41.8	41.8	91.1
	Strongly agree	14	8.9	8.9	100.0
	Total	158	100.0	100.0	

If there are new developments, I am one of the first to learn about them and try them out

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	.6	.6	.6
	Disagree	6	3.8	3.8	4.4
	Neutral	71	44.9	44.9	49.4
	Agree	65	41.1	41.1	90.5
	Strongly agree	15	9.5	9.5	100.0
	Total	158	100.0	100.0	

When there is not much to do at work, I see it as a chance to start new projects

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	1.3	1.3	1.3
	Disagree	9	5.7	5.7	7.0
	Neutral	67	42.4	42.4	49.4
	Agree	70	44.3	44.3	93.7
	Strongly agree	10	6.3	6.3	100.0
	Total	158	100.0	100.0	

Run MATRIX procedure:

***** PROCESS Procedure for SPSS Version 4.2 *****

Written by Andrew F. Hayes, Ph.D. www.afhayes.com

Documentation available in Hayes (2022). www.guilford.com/p/hayes3

**

Model : 4

Y : WE

X : NWOW

M1 : PP

M2 : JC

Sample

Size: 158

OUTCOME VARIABLE:

PP

Model Summary

R	R-sq	MSE	F	df1	df2	p
.6206	.3851	.1600	97.7131	1.0000	156.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	1.5481	.2024	7.6502	.0000	1.1484	1.9478
NWOW	.5275	.0534	9.8850	.0000	.4221	.6329

OUTCOME VARIABLE:

JC

Model Summary

R	R-sq	MSE	F	df1	df2	p
.6185	.3826	.1501	96.6587	1.0000	156.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	1.8289	.1960	9.3332	.0000	1.4419	2.2160
NWOW	.5080	.0517	9.8315	.0000	.4060	.6101

OUTCOME VARIABLE:
WE

Model Summary

R	R-sq	MSE	F	df1	df2	p
.7767	.6032	.1226	78.0392	3.0000	154.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	.0416	.2278	.1828	.8552	-.4084	.4917
NWOW	.1753	.0637	2.7528	.0066	.0495	.3011
PP	.3730	.0786	4.7477	.0000	.2178	.5282
JC	.3939	.0811	4.8549	.0000	.2336	.5542

***** DIRECT AND INDIRECT EFFECTS OF X ON Y*****

Direct effect of X on Y

Effect	se	t	p	LLCI	ULCI
.1753	.0637	2.7528	.0066	.0495	.3011

Indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
TOTAL	.3969	.0708	.2644	.5450
PP	.1968	.0552	.0939	.3078
JC	.2001	.0578	.0955	.3236

***** ANALYSIS NOTES AND ERRORS*****

Level of confidence for all confidence intervals in output:
95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
5000

----- END MATRIX -----

Appendix C: Letter for Data Collection

Fakulti Sains Kognitif dan Pembangunan Manusia
Faculty of Cognitive Sciences and Human Development



UNIMAS/NC-16.03/13-01 Jld.2 (06)

22 November 2023

HASB CONSULTANT (SARAWAK) SDN BHD
No.246, Lot 2680, 1st
Floor Twin Tower
Centre
2 ½ Mile, Rock Road
93200 Kuching
Sarawak

Permohonan Kebenaran Untuk Menjalankan Kajian dan Pengumpulan Data Berkaitan Penyelidikan Ilmiah Bagi Pelajar Siswazah UNIMAS

Dengan hormatnya perkara di atas adalah dirujuk.

Adalah dimaklumkan bahawa pelajar yang tersebut di bawah merupakan pelajar Sarjana Sains, Fakulti Sains Kognitif dan Pembangunan Manusia di Universiti Malaysia Sarawak yang perlu menjalankan penyelidikan sebagai syarat untuk bergraduat. Pihak Fakulti dengan ini ingin memohon kebenaran pihak Tuan/Puan untuk membenarkan pelajar menjalankan kajian dan soal selidik di organisasi Tuan/Puan.

Maklumat lanjut pelajar dan tajuk kajian adalah seperti berikut

- Nama Pelajar : Cheryl Dhewina Wong
No. Pelajar : 20020374
No. Telefon : 0168203690 / cherylw289@gmail.com
Tajuk Kajian : *New Ways of Working (NWOW) and Work Engagement:
The Mediating Roles of Proactive Personality and Job Crafting*
Nama Penyelia : Dr. Victoria Jonathan
No HP/Emel : 011 31999880 / jvictoria@unimas.my

Besarlah harapan kami kiranya pihak Tuan/Puan dapat memberikan kerjasama kepada pelajar ini untuk membolehkan pelajar mendapat maklumat yang diperlukan. Pihak Fakulti menjamin bahawa segala maklumat yang diperoleh hanya digunakan untuk tujuan akademik semata-mata dan dijamin akan kerahsiaannya.

Di atas kerjasama yang diberikan, kami dahului dengan ucapan ribuan terima kasih. Sekian.

Yang benar,


Prof Madya Dr Zaiton Hassan
Penyelaras Program Siswazah
Fakulti Sains Kognitif dan Pembangunan Manusia
Universiti Malaysia Sarawak
Emel: hzaiton@unimas.my