

**MODERATING EFFECTS OF PERCEIVED SUPPORTS FOR CREATIVITY ON
THE RELATIONSHIP BETWEEN INDIVIDUAL FACTORS AND CREATIVITY
AMONG MALAYSIAN RESEARCH OFFICERS**

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UNIVERSITI TEKNOLOGI MALAYSIA

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THE RELATIONSHIP BETWEEN INDIVIDUAL FACTORS AND CREATIVITY
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Dedicated to:

Katimin Keeman and Siti Arpah Palil

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ABSTRACT

The subject of employee creativity has been widely discussed in the field of human resource development. A variety of factors that promote creativity among employees have been presented. This study addresses the issue of the development of employee creativity with special attention to creative works among research officers in Malaysia. A creativity model of employee characteristics was tested. This model encompassing the individual factors (openness to experience, creative self-efficacy, intrinsic motivation and positive affect), dimensions of creativity (fluency, flexibility, originality and elaboration) and perceived supports for creativity. A survey was conducted on 400 research officers working at one of Malaysia's largest public research institute, with a return of 286 responses. A check on missing data, outliers and normality analysis was performed. Hierarchical regression analysis confirmed that only a few of the hypotheses developed earlier were supported. Only three out of 16 direct effects of individual factors on creativity were found significant i.e., openness on fluency, openness on elaboration and creative self-efficacy on originality. Moreover, only three out of 48 moderating effects of perceived supports for creativity were found significant i.e., the moderating effects of organisational support in a relationship between creative self-efficacy and fluency, the moderating effects of organisational support in a relationship between intrinsic motivation and fluency and the moderating effects of supervisor support in a relationship between intrinsic motivation and fluency. This suggests that there are several factors based on the Malaysian culture that influence the results which are different from the expected results from the literature. It is also suggested that several parts of this research are to be improved such as the use of structural equation modelling and the use of a better creativity instrument. In conclusion, it is confirmed that in the Malaysian context, level of creativity is high among research officers, however only certain individual factors found to influence creativity. Meanwhile only some moderating effects are found to intensify the relationship between individual factors and creativity.

ABSTRAK

Subjek kreativiti pekerja telah dibincangkan secara meluas dalam bidang pembangunan sumber manusia. Pelbagai faktor yang menggalakkan kreativiti dalam kalangan pekerja telah dibentangkan. Kajian ini menyetengahkan isu pembangunan kreativiti pekerja dengan perhatian khusus kepada kerja-kerja kreatif di kalangan pegawai penyelidik di Malaysia. Sebuah model kreativiti ciri-ciri pekerja telah diuji. Model ini merangkumi faktor-faktor individu (keterbukaan kepada pengalaman, keyakinan diri dalam berkreatif, motivasi intrinsik dan pemberi kesan positif), dimensi-dimensi kreativiti (kelancaran, kelenturan, keaslian dan penghuraian) berserta tanggapan sokongan untuk kreativiti. Kaji selidik telah dilakukan ke atas 400 orang pegawai penyelidik di salah sebuah institut penyelidikan awam yang terbesar di Malaysia, dengan 286 soal selidik dikembalikan. Pemeriksaan ke atas data yang hilang, data terpencil dan analisis taburan normal turut dijalankan. Analisis regresi berhierarki mengesahkan hanya beberapa hipotesis awal yang dibangunkan disokong. Hanya tiga daripada 16 kesan langsung faktor individu terhadap kreativiti didapati signifikan iaitu keterbukaan terhadap kelancaran, keterbukaan terhadap penghuraian dan keyakinan diri dalam berkreatif terhadap keaslian. Selain itu, hanya tiga daripada 48 kesan-kesan moderator tanggapan sokongan untuk kreativiti didapati signifikan iaitu kesan moderator sokongan organisasi dalam hubungan antara keyakinan diri dalam berkreatif dengan kelancaran, kesan moderator sokongan organisasi dalam hubungan antara motivasi intrinsik dengan kelancaran dan kesan moderator sokongan penyelia dalam hubungan antara motivasi intrinsik dengan kelancaran. Dapatan ini menunjukkan bahawa terdapat beberapa faktor berdasarkan budaya Malaysia yang mempengaruhi keputusan yang menyebabkannya berbeza berbanding keputusan yang diharapkan daripada literatur. Dicadangkan agar beberapa perkara daripada kajian ini perlu diperbaiki seperti penggunaan pemodelan persamaan struktur dan penggunaan instrumen kreativiti yang lebih baik. Kesimpulannya, disahkan bahawa dalam konteks Malaysia, tahap kreativiti adalah tinggi di kalangan pegawai penyelidik, tetapi hanya faktor tertentu individu didapati mempengaruhi kreativiti. Sementara itu, hanya beberapa kesan moderator didapati meningkatkan hubungan antara faktor-faktor individu dengan kreativiti.

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LIST OF ABBREVIATIONS

R&D	-	Research and development
STI	-	Science, technology, and innovation
DPM	-	Deputy prime minister
NEO-FFI	-	Neuroticism Extraversion Openness Five-Factor Inventory
NEO-PI-R	-	Revised Neuroticism Extraversion Openness Personality Inventory
PANAS	-	Positive and Negative Affect Schedule
I-PANAS-SF	-	International Positive and Negative Affect Schedule-Short Form
POS	-	Perceived organisational support
CTC	-	Componential Theory of Creativity
FFM	-	Five-Factor Model
CIA	-	Creative individual action
SVC	-	Systems View of Creativity
CPS	-	Creative Personality Scale
TTCT	-	Torrance Test of Creative Thinking
SPSS	-	Statistical Package for Social Science
EFA	-	Exploratory factor analysis
ICC	-	Innovative and Creative Circle
SEM	-	Structural equation modelling

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CHAPTER ONE

INTRODUCTION

1.1 Chapter Overview

It was being understood generally that creativity and innovation are critical to the growth and performance of organisations – business, government, and non-profit organisations (Mumford, Hester, & Robledo, 2012). Continual innovations and resourcefulness have become necessary for the growth of many modern economies (Craft, 2003) and modern innovators (e.g., Jobs, Gates, Zuckerberg) to develop and produce renowned inventions and revolutionary ideas that have literally changed the way people live. Because of the importance of creativity to the modern organisations, psychologists have long sought and debated to understand what drives creativity among people who are working in the organisations. This research focuses on the effect of individual factors on creativity with the moderating effects of perceived supports for creativity among research officers. Chapter one of this report presents a precise introduction of the research before it goes further. It is divided into seven sections which will elaborate the background of the research, the problem statement of the research, the research questions, the research objectives, the hypotheses, the significances of the research, the scope and limitations of the research, and last but not least, definition of the terms used in the research.

1.2 Background of the Research

Every organisation wants their people to continually innovate, operate from the bigger picture, spot new opportunities, confident relationship builders, and enable their people to adapt to new realities (Woodman, Sawyer, & Griffin, 1993). As has been mentioned by Craft (2003), continual innovations and resourcefulness have become necessary for the growth of many modern economies. It is due to the fact that in this modern environment, organisations are facing upward changes in social and economic, as well as increased competition to move in a fast pace in order to remain competitive (Mathisen & Einarsen, 2004). The quest for employee creativity and increased organisational innovation has gradually been more recognised as a key factor to long-term organisational survival and success especially in products, services, systems, and work processes (Ekvall, 1999; Mathisen & Einarsen, 2004). Therefore, organisations need to continuously develop and exercise their people to perform and innovate. To perform and innovate, they must come up with ideas, and the flowing of ideas is part of creativity. Creativity is essential for innovation (Gilson, 2008) and necessary for organisational development and advancement (George & Zhou, 2002). Creativity also functioned as the source of strength in performance (Amabile, 1996), and gives competitive advantages (Zhou, 1998). Therefore, it is a major requirement for most of the organisations to promote creativity among employees from time to time in order to perform and innovate.

The subject of employee creativity has been widely discussed in the field of human resource development, with scholars such as Amabile (e.g., 1988, 2013) arguing and presenting the variety of factors that promote creativity among employees. Research suggests that one of the major factors influencing employees' creativity is the employees' individual factors. Some of the individual factors that have significant relation with creativity and received so much attentions by researchers including openness to experience (Furnham & Bachtiar, 2008; Furnham, Batey, Anand, & Manfield, 2008; Furnham & Chamorro-Premuzic, 2004), creative self-efficacy (e.g., Ghafoor, Qureshi,

Azeemi, & Hijazi, 2011; Gong, Huang, & Farh, 2009; Tierney & Farmer, 2002), positive affect (e.g., Amabile, Barsade, Mueller, & Staw, 2005; Baron, 2008; George & Zhou, 2002; Isen, 2000), and intrinsic motivation (e.g., Amabile, 1985; Amabile, Hill, Hennessey, & Tighe, 1994; Dewett, 2007; Elsbach & Hargadon, 2006; Grant & Berry, 2011; Perry-Smith, 2006; Shalley & Perry-Smith, 2001; Shalley, Zhou, & Oldham, 2004).

It is also proposed by the researches that creative behaviour of employees is possible to occur when they observe a creativity supported working atmosphere (DiLiello, Houghton, & Dawley, 2011; Hunter, Bedell, & Mumford, 2007; Woodman et al., 1993). Literally, there is significant relation between perceived organisational support and creativity (Amabile, 1988; Shalley, 1995; Woodman et al., 1993; Zhou & George, 2001). For instance, Zhou and George (2001) found that when perceived organisational support for creativity was high, and when continuance commitment was high, employees with high job dissatisfaction exhibited the highest creativity. Perceived support for creativity also has been classified as a specific type of perceived organisational support by a number of theorists (e.g., Zhou & George, 2001). Perceived support for creativity is facilitated when specific circumstances that encouraging creative behaviours are available in the workplace (Amabile, 1996; Oldham & Cummings, 1996; Shalley, 1995; Woodman et al., 1993). These circumstances emerge to function at three main organisational levels, which are the work-group level, the supervisory level, and the organisational level (Amabile, Conti, Coon, Lazenby, & Herron, 1996).

Defining the dimensions or the key abilities of creativity is also very crucial in strengthening the outcome of the research. It is to provide a more in-depth explanation on which aspect of creativity can be conveyed. Goff and Torrance (2002) measured four norm-referenced abilities of creativity in their Abbreviated Torrance Test for Adults: (1) fluency, ability to produce numerous ideas relating to the activity; (2) flexibility, ability to interpret similar stimulus in different ways; (3) originality, ability to produce ideas which are not generally produced; and (4) elaboration, ability to embellish ideas relating

to the activity. These four abilities have been initiated by Guilford (1956) when he first introduced the dimensions of divergent thinking. Torrance (1966) also applied these abilities in his Torrance Test of Creative Thinking. Again, in this new era of competitive business environments, creativity of an employee is not merely being perceived on the level of creativity itself. It should be described through some traits possess by individual in order to portray the actual potential of creative practices that he or she has. For instance, the creativity of an idea generation can be measured on how rare or original the idea is. If the idea never comes across all this while, then it should be considered as a creative idea.

This study addresses the issue of the development of employee creativity with special attention to the Malaysian workforce that engage with creative works such as research officers. Public Services Commission of Malaysia (2012) described research officers working in public research institutes as those who can:

1. Conduct research and development (R&D) activities in certain fields
2. Conduct fundamental and applied researches
3. Provide expert consultations
4. Spread the information regarding related technologies in the country
5. Conduct researches on quality control
6. Conduct research and transfer of science and technology as well as the development and training courses for domestic consumers

Most of the time research officers engage in activities to acquire knowledge, study things, perform researches, and then works with samples and instruments using scientific methods. Their work is relatively investigative, methodical, and requires specialised education, with most research officers working in laboratory doing experiments, operating equipment, and possessing very high skills. Research officers also require professional skills and knowledge, as well as formal education of certain fields. The expertise of research officers in carrying out researches is very important in order to find new

discoveries. Therefore, it is very important to pay attention to their individual factors that influenced their creativity so that in the near future, it can be continually supervised and trained. Tailored to Malaysian context as well, this research is supplying more information on why creativity is important for nation building. It is according to Deputy Prime Minister's prompt on a formulation and implementation of an enhanced Science, Technology, and Innovation (STI) policy and science act as one of the nation current development agenda. According to DPM, STI has long been placed at the centre of the country's development agenda. Many programmes and activities to popularise and enculturate science and innovation in the society at large have been carried out. The decade starting from 2010 to 2020 has been regarded as a decade of innovation for Malaysia. This will help to ignite and inspire people from all walks of life to embrace STI in making Malaysia a creative and innovative nation (Yunus, 2012).

The purpose of the current research is to examine the relation between individual factors and creativity with the moderating effects of perceived support for creativity among Malaysian research officers. More specifically, the research investigated which individual factor has the strongest effect on which dimensions of creativity and which level of support has better encouragement. The present study makes an important involvement to the creativity literature by studying the combination of several individual factors that has been proved to have significant outcomes in previous researches by examining which of the factors has the strongest effect on creativity, especially in the Malaysian context. The set of individual factors are also expected to affect each of the dimensions of creativity with the supports from three different levels (i.e. organisational, supervisor, and work-group). For instance, a research officer with openness characteristic may be particularly effective at recognising problems or at combining new information, which may enable them to elaborate more on a creative idea with the encouragement from the supervisor. Eventually, this could ultimately lead towards a formulation of a systematic tailored programme that enhances innovation and performance among Malaysian research officers to come out with high impact researches and innovations.

1.3 Problem Statement of the Research

The research of creativity is very fascinating, especially when it describes how a person is different from others. As in organisation, creativity could be the benchmark of each of the employee to perform at their best by presenting variety of ideas. In order for employees to perform at their best, they must perform creatively by suggesting novel and useful products, ideas, or procedures that provide the organisation with important raw material for subsequent development and possible implementation (Amabile, 1988; Staw, 1990; Woodman et al., 1993). Unfortunately, it is still unclear which among four factors within the individual employee proposed (i.e. openness to experience, creative self-efficacy, positive affect, and intrinsic motivation) may trigger their creativity. Consequently, this resulted to insufficient ways in deciding exactly how the employee are considered to be creative. In fact, from the progressive readings of the literature, it has been found that all the individual factors proposed were never been mutually studied before (e.g., Furnham & Bachtiar, 2008; Grant & Berry, 2011; Tierney & Farmer, 2002). To shed light onto this matter, this study was designed to pool these four types of individual factors and observe their effects on creativity.

Creativity is a very broad concept. In order to have a more in-depth understanding about creativity, it should be studied and operationalised dimensionally. However, majority of the researches that have been conducted over the years found only studied employee creativity in general, not dimensional (e.g., Furnham et al., 2008; Gong et al., 2009; Grant & Berry, 2011; Zhou & George, 2003). By not study dimensional creativity, employees' creative potential will not be discovered and further cannot be trained. This study is intended to investigate the dimensional creativity in order to find the actual potential, ability, or which criteria of creativity that one possess that makes he or she a creative person. This will ultimately provide substantial insight into the creativity of employee by providing strength outcomes as well as a more in-depth explanation.

Furthermore, Amabile's (2013; Amabile & Mueller, 2008) Componential Theory of Creativity posits that there are three key components of creativity: domain-relevant skills, creativity-relevant processes, and task motivation. According to Amabile, the first component, domain-relevant skills, refers to factual knowledge and expertise in a given domain. The second component, creativity-relevant processes, refers to cognitive and personality processes favourable to novel thinking, and the third component, task motivation is particularly into the intrinsic motivation to get involved in the unfavoured activities, pleasure, or an individual challenges (Amabile, 2013). The component outside the individual is the surrounding environment, which is the social environment (Amabile, 2013). According to this theory, a convergence of all components is required for creativity; creativity should be highest when an intrinsically motivated person with high domain expertise and high skill in creative thinking works in an environment high in supports for creativity (Amabile, 2013). Her theory has guided a large amount of research in recent years. However, this theory and the subsequent research have mostly come from America and other Western cultures. It is important to examine whether this theory is adequate and appropriate for understanding these phenomena in different cultures. The current research is aimed at examining whether Amabile's theory can be generalised to Malaysia, a country that is collectivistic with a very high power distance, and whether employees in Malaysia possess the similar individual factors of creativity with their Western counterparts.

There is also a need to present a third variable for this research in order to strengthen and narrowing the gap of the proposed framework. Perceived support for creativity possibly is the most suitable moderator that can be added to the framework as has been recommended by other researchers (e.g., DiLiello et al., 2011). If an individual perceives a work environment that restricts or does not encourage creative expression, a gap may develop between the individual's potential for creative behaviours and the actual amount of creativity displayed by the individual (DiLiello et al., 2011). Within present challenging business environments, this gap between individual factors and creativity may correspond to the important available resources in organisation that might be crucial in

support of maintaining organisational efficiency. Among the major element in support of reducing this creativity gap in various organisations is by developing and sustaining the organisational climate where employees perceive strong support for creativity.

In order to build a conceptual model that suits the context of the research, it is important for researcher to find empirical evidence regarding employee creativity especially in the Malaysian context. It is found from the literature that there are countless theoretical and empirical evidences that study creativity among employees including research officers, R&D personnel, and scientists especially in the Western culture. However there is still little evidence found in the Malaysian context on the research of employee creativity especially one that addresses and investigates the individual factors of creativity among research officers (Ng, Singh, & Jayasingam, 2012). That is why it is very important to study the factors that promote creativity among Malaysian research officers so that the outcome could be compared with the general findings from the literature. Therefore, this study is proposed to solely address the creativity of research officers working in Malaysia. This proposed study will also underpin to the literature as well as reducing the gap by providing essential information regarding employee creativity among Malaysian research officers.

Researchers in the field of organisational creativity often addressed engineers, scientists, research personnel, managers, and designers as part of the context of their research (Kim, Hon, & Lee, 2010; Zhou & George, 2003). It is due to the fact that these kinds of jobs are requiring high level of creativity to be carried out. For instance, a curious scientist will drives questions and then develop a new research, and with that research ideas are born to ignite scientist's creativity to create or invent something new. Rowe (2004) in his Creative Potential Profile also proved that a creative scientist is curious and innovative. Therefore, this research is employing scientists and research officers in the public research institutes in Malaysia as the sample of the research. It is because the public research institutes in Malaysia do lots of research and development especially in finding

new substances to invent new products, testing new products. Malaysia too is a country that rich with its natural sources. Therefore scientists play an important role to do research when there is new finding and to fully utilise the local resources. Furthermore, the fact that this kind of research never been carried out in Malaysia, it will provide useful information as well as fill up the creativity research gap in Malaysia.

1.4 Research Questions

This research is expected to solve several questions outlined as below:

1. What is the level of creativity among Malaysian research officers?
2. What is the effect of individual factors on creativity among Malaysian research officers?
3. How does perceived support for creativity moderate the relationship of individual factors and creativity among Malaysian research officers?

1.5 Research Objectives

The main aim of this research is to identify the effects of four individual factors (i.e., openness to experience, creative self-efficacy, positive affect, and intrinsic motivation) on creativity. Additionally, this research is also investigating the moderating effects of perceived support for creativity in the relationship between individual factors and creativity among Malaysian research officers.

Seven objectives have been outlined as below:

1. To examine the relationship between openness to experience and creativity.
2. To examine the relationship between creative self-efficacy and creativity.
3. To examine the relationship between intrinsic motivation and creativity.
4. To examine the relationship between positive affect and creativity.
5. To investigate the moderating factors of perceived organisational support in the relationship between individual factors and creativity.
6. To investigate the moderating factors of supervisor support in the relationship between individual factors and creativity.
7. To investigate the moderating factors of work-group support for creativity in the relationship between individual factors and creativity.

1.6 Hypotheses

This research has seven main hypotheses outlined as below:

- H1: Employees' openness to experience is positively associated with creativity.
- H2: Employees' creative self-efficacy is positively associated with creativity.
- H3: Employees' intrinsic motivation is positively associated with creativity.
- H4: Employees' positive affect is positively associated with creativity.
- H5: Organisational support moderates the positive relationship between individual factors and employee creativity.
- H6: Supervisor support moderates the positive relationship between individual factors and employee creativity.
- H7: Work-group support moderates the positive relationship between individual factors and employee creativity.

1.7 Significance of the Research

This research stands to make a number of potential contributions. The first contribution of this research is the development of a more precise understanding of the factors of creativity. This study adds to the existing literature by exploring the individual factors of creativity in order to find the strongest factor of creativity. The study also designed to find the most incentive support among three levels of perceived supports for creativity presented.

Second, this research tested comprehensively formulated conceptual framework with samples of scientists and research personnel. It is shown from the model (Figure 3) that all the individual factors (i.e., openness to experience, creative self-efficacy, positive affect, and intrinsic motivation) are affecting scientists' creativity with the moderating effects of perceived supports for creativity.

Third, this research also underpins the methodology of the previous researches with a more comprehensive procedure. For instance, previous researches were mainly investigated the single predictor of creativity in a research, whereby this study added other several predictors to formulate a firm combination of the individual factors of creativity.

Moreover, this research tested the instruments in a new context, which is in Malaysian context. In the future, data collected from the current research may be used to facilitate the development of psychometric properties of the instrument from Malaysian context. It is due to the fact that much of the instruments were not widely used in Malaysia, or the usage was not being documented. Therefore this research contributes to the documentation of the instruments that fit to be used in the Malaysian contexts.

In addition, this research also combined several theories and models to attain comprehensive findings to provide specific justifications aligned with the issues presented with an in-depth investigation and measurement. Therefore the gaps that existed from previous researches such as the assumptions that never being measured (e.g., the relationship between curiosity and creativity, and the relationship between mindfulness and creativity) were then measured in this study.

Furthermore, this research also will provide organisations with the information on the importance of employees' creativity. Organisations also will be able to develop a specific training program to enhance employees' creativity.

1.8 Scope and Limitations of the Research

This study focused on how employee creativity was affected by the employees' individual factors with their perception of supports for creativity as a moderator. The Abedi Creativity Test (Auzmendi, Villa, & Abedi, 1996) was utilised to explore the concept of creativity. The creativity evaluation was given only from the perspectives of those who are working at the selected one of the largest public research institutes in Malaysia, in the grade classification of Q41 and above. The sampling of the participants is based on convenience sampling where questionnaires are distributed in any manner that is convenient (Neuman, 2011), and takes participants that are readily available (Leedy & Ormrod, 2010). It should be noted that the generalisability or the external validity of the data may be applicable in other places with a culture in collectivist nature such as Malaysia's, despite the fact that the study was carried out in Malaysia. Extraneous factors that may have affected employees' creativity will not be measured including the extrinsic motivators such as rewards, family-related factors (i.e. supports), the levels of experience

held by research officers, and the conditions under which the test are given (Amabile, 2013). It is due the fact that they cannot be controlled and were not manipulated in the current study's condition. Extraneous factors also may damage the study's validity, making it impossible to know whether the effects were caused by the extraneous factors.

1.9 Conceptual and Operational Definition of Terms

This section elaborates both conceptual and operational definition of all terms used in this study.

1.9.1 Independent variables

There are four independent variables used in this study which has been mentioned early as the four individual factors i.e., openness to experience, creative self-efficacy, positive affect, and intrinsic motivation.

1.9.1.1 Openness to experience

According to the Five Factor Model, openness to experience refers to the tendency of an individual to be open to a diversity of new ideas, values, and experiences (Costa & McCrae, 1992). This personality trait refers to the people that are cultured, curious,

imaginative, broad-minded, and artistically sensitive (Costa & McCrae, 1992). Its evaluation as well, permits a difference between people who value the virtues of trying new things, to seize new ideas and who enjoy them, and people who prefer familiar, routine, and traditional experiences (McCrae & Costa, 1997). People that are high in openness to experience is related to wider diversity of experiences, while “closed” people report less hobbies and a constricted behavioural repertoire (Little, Leccl, & Watkinson, 1992). Open people are characterised by a need to expand and examine experience (Costa & McCrae, 1992; McCrae & Costa, 1991), as well as to hunt for opportunity for personal growth and development (Schmutte & Ryff, 1997).

The operationalisation for openness to experience was measured using the openness to experience subtest adapted from NEO Five-Factor Inventory (NEO-FFI) developed by Costa and McCrae (1992). NEO-FFI is the shortened version of the renowned Revised NEO Personality Inventory (NEO-PI-R) which was also developed by Costa and McCrae (1992). The openness domain of NEO-PI-R has facet scales for openness to fantasy, aesthetics, feelings, actions, ideas, and values (Costa & McCrae, 1992). According to NEO-PI-R, highly open people are thus seen as imaginative, sensitive to art and beauty, emotionally differentiated, behaviourally flexible, intellectually curious, and liberal in values (Costa & McCrae, 1992). However the shortened version does not cover off the facets but still provides a quick, reliable, and accurate measure of the domain. The subtest consists of 12 items and rated on a 5-point scale ranging from ‘disagree’ to ‘agree’.

1.9.1.2 Creative self-efficacy

Creative self-efficacy can be simply defined as one’s subjective belief or assurance towards his/her personal aptitude to be creative (Tierney & Farmer, 2002). Tierney and Farmer (2002) also elaborate that particular application of Bandura’s conceptualisation of

self-efficacy as targeted perceived capacity; creative self-efficacy is defined as the confidence one has the capability to produce creative outcomes. Individuals with high creative self-efficacy can assemble the motivation, cognitive resources, and courses of action needed to meet situational demands. They spend more time on creative cognitive processes in problem recognition as well as the generation of ideas or solutions, and they make greater efforts to seek sponsorship for ideas and produce prototypes. Therefore, they can perform specific tasks successfully and achieve organizational innovation goals in the face of obstacles (M. Baer, Oldham, Jacobsohn, & Hollingshead, 2008; Gong et al., 2009; Phelan & Young, 2003; Tierney & Farmer, 2002). The engagement of oneself in creative behaviour most likely to occur if people perceive themselves both as having the potential to be creative; and the ability to use this potential. This is vital in distinguishing the potential to be creative (as described by creative self-efficacy) and the real creativity (e.g., Ford, 1996; Tierney & Farmer, 2002).

In the context of the current research, creative self-efficacy was operationalised using the questionnaire developed by Tierney and Farmer themselves. It is a four-item scale of creative self-efficacy. Instructions of this instrument require the respondents to rate the extent to which they agree with the statements pictured about them using a five-point scale ranging from 'strongly disagree' to 'strongly agree'. The advantage of this scale is that the efficacy construct is specific to work creativity by integrating research findings on self-efficacy and creativity (Tierney & Farmer, 2002).

1.9.1.3 Intrinsic motivation

Intrinsic motivation is conceptually defined as the doing of an activity for its inherent satisfactions rather than for some separable consequence (Ryan & Deci, 2000). According to Ryan and Deci, when intrinsically motivated, a person is moved to act for the fun or challenge entailed rather than because of external prods, pressures, or rewards.

This study will attempt to operationally define intrinsic motivation using the 15-item intrinsic motivation scale of the Work Preference Inventory developed by Amabile and her colleagues (1994). The instrument aimed to capture the major elements of intrinsic motivation which are self-determination, competence, task involvement, curiosity, enjoyment, and interest (Amabile et al., 1994).

1.9.1.4 Positive affect

Positive affect can be defined as an individual's propensity to be happy and energised, and who experience positive moods, (e.g., happiness or energetic), over a mixed bag of circumstances (Barsade & Gibson, 2007). According to Barsade and Gibson, high level of positive affect signifies the degree to which someone feels excited and energised, while low level of positive affect signifies the degree to which someone feels misery, lethargy, or fatigue.

Operationalisation for positive affect can be measured by questionnaire. In the context of Malaysian employee, positive affect was measured using the 5-item positive affect subscale of the International Positive and Negative Affect Schedule (PANAS) Short Form (I-PANAS-SF) developed by Thompson (2007).

1.9.2 Dependent variable

The dependent variable proposed for this study is creativity.

1.9.2.1 Creativity

Creativity may be simply defined as the production of novel and useful ideas in any domain (Amabile, 1996). Many researchers (e.g., Feist, 1998; Ochse, 1990; Plucker, Beghetto, & Dow, 2004; Simonton, 1999; Sternberg & Lubart, 1999) have agreed to the “new and useful” definition of creativity which was popularised by Mumford (2003). Mumford proposes that a creative outcome is something that is considered to be novel or original, and useful or adaptive. An alternate range of understanding has included the 4Ps’ concept of creativity as has been introduced by Rhodes (1987) which may refer to: (1) a person (or persons), who produces, (2) the cognitive processes involved in the ideas generation; (3) the press or environmental influences; and finally (4) the product as the outcome of the creative activity. On the other hand, it is crucial to think about how the term creativity has come to be understood and defined operationally.

In this study, creativity is proposed to be operationally defined by four of its dimensions, which are fluency, flexibility, originality, and elaboration. Fluency refers to the production of a great number of ideas or alternate solutions to a problem. Fluency implies understanding, not just remembering information that is learned. Flexibility refers to the production of ideas that show a variety of possibilities or realms of thought. It involves the ability to see things from different points of view, to use many different approaches or strategies. Originality involves the production of ideas that are unique or unusual. It involves synthesis or putting information about a topic back together in a new way. Elaboration is the process of enhancing ideas by providing more detail. Additional detail and clarity improves interest and understanding of the topic (Torrance, 1979).

1.9.3 Moderator variable

The moderator variable proposed for this study is the perceived support for creativity.

1.9.3.1 Perceived support for creativity

Perceived support for creativity is defined as “the extent to which an employee perceives that the organisation encourages, respects, rewards, and recognises employees who exhibit creativity” (Zhou & George, 2001, p. 686). It is may be advance conceptualised the term of perceived support for creativity from an organisational culture that cultivates creativity by recognising and rewarding creative works, which creative ideas are fairly and constructively judged, with a flow of new ideas that are actively generated by specific mechanisms, and with vision alignment of organisation’s goals (Amabile, Burnside, & Gyskiewicz, 1999).

Operationalisation of perceived support for creativity is the three major organisational level of support proposed by Amabile and her colleagues (1996), namely organisational level, supervisory level, and work-group level. Organisational level support is the stimulants to creativity in the workplace environment including autonomy, adequate resources, methods for sharing new ideas, suitable compensation, positive response, good project management, recognition that work failures can offer important information, as well as the organisational culture of collaboration (Amabile, 1988; Shalley, Gilson, & Blum, 2000; Tushman & O'Reilly, 2013; Zhou, 1998).

Supervisory level of support is whereas something that is more inclined to happen when a supervisor or manager serves as a good exemplar, encourages the objective-setting procedure, values subordinate's commitments, and has trust in the work group (Amabile et al., 1999). Supportive supervisors also have a tendency to be defensive of their teams, to be passionate, to be excellent communicators, and capable to set a clear command without being bossy (Amabile, 1996). Supervisor's capability to deliver objective clarity and to encourage open communications and trust between employees as well has been related to perceptions of supervisor support (Amabile et al., 1996; Shalley et al., 2000; Tierney & Farmer, 2002).

Group members with backgrounds' diversity, who are interested in new ideas, constructively challenge each other, trust and help each other, successfully communicate and provide feedback, effectively deal with conflict, and share a commitment to their work are among the perceptions of work-group support for creativity (Amabile et al., 1999; Amabile et al., 1996; Taggar, 2002; Tushman & O'Reilly, 2013). When group members appreciate and value each other (Tushman & O'Reilly, 2013), and when they overtly recognise the ideas of their associates, which has a tendency to stretch information sources and energise original thinking (Taggar, 2002; Tushman & O'Reilly, 2013) are also the emergent signs of perceived work-group support.

All three levels of support were measured by questionnaire which three subscales are representing each level of support adapted from KEYS: Assessing the Climate for Creativity that was developed by Amabile and her colleagues (1999). Each of the three level of perceived support for creativity is measured with six items which respondent is asked to rate their perception towards their current workplace, supervisor, and colleagues in a five-point response scale ranging from 'strongly disagree' to 'strongly agree'.

1.10 Chapter Summary

The first chapter of this thesis has provided an insight elaboration on the foreword of the study that has been carried out. Basically this study focused on the individual factors of creativity with the moderating effects of perceived supports for creativity among Malaysian research officers. Seven sections were presented accordingly, including the background of the research, the problem statement of the research, the research objectives, the research questions, the significances of the research, the scope and limitations of the research, and last but not least, definition of the terms used in the research. Chapter two of this thesis fills in the literature review.

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