International Journal of Psychosocial Rehabilitation, Vol. 24, Issue 04, 2020
ISSN: 1475-7192

Predicting Proactive Safety Behaviour of the young Malaysian workers: An ethno-methodological analysis

Rusyda, H.M[1], Daniella, M.M[2], Mohd Azul Mohamad Salleh[3], Noremy, M.A[4], Manap, J.H[5], Asmuni Abd Ghani[6], Nur Saadah, M.A[7*]

ABSTRACT--*The safety behavior literature makes a distinction between compliance and proactive safety behavior (PSB), with the latter seen as being increasingly important for achieving safety outcomes in contemporary work environments. However, a review of the literature on proactive safety behavior reveals some significant gaps in our current understanding of the concept. From a theoretical perspective, there is a disconnect between how proactive behavior has been conceptualized in the recent mainstream literature on proactivity and the extant literature on proactive safety behavior. Specifically, recent theoretical developments relating to the nature, causes, and consequences of proactive behavior have not yet been incorporated into theorizing concerning proactive safety behavior. From a methodological perspective, operationalizations of proactive safety behavior have all made use of the measure of safety citizenship, and role behavior developed to measure. The measure which assesses extra role safety citizenship behavior does not appear to map well onto current definitions of what it means to be proactive in organizational settings.*

Furthermore, limited studies carried out to date have examined individual or organizational outcomes of proactive safety behavior, instead choosing to examine proactive safety behavioras an outcome in its own right. In this paper, we outline a new conceptual framework, which describes proactive safety behavior as a form of goal-directed self-regulatory behavior, fuelled by aspects of individual ability, motivational and opportunity. Interviews with 33 young Malaysian workers were analyzed using Leximancer to explore whether or not the theoretical framework was useful in this context. The findings were consistent with the original framework. However, analyses using Leximancer also suggested some modifications to the original framework. It helped us to gain a deeper understanding of self-regulated proactive safety behavior.

[1]*Centre for Research in Psychology and Human Well-Being, Faculty of Social Sciences and Humanities, Universiti Kebangsaan Malaysia, 43600, Bangi, Selangor, MALAYSIA*
[2]*Centre for Research in Psychology and Human Well-Being, Faculty of Social Sciences and Humanities, Universiti Kebangsaan Malaysia, 43600, Bangi, Selangor, MALAYSIA*
[3]*Center for Research in Media and Communication, Faculty of Social Sciences and Humanities, Universiti Kebangsaan Malaysia, 43600, Bangi, Selangor, MALAYSIA*
[4]*Centre for Research in Psychology and Human Well-Being, Faculty of Social Sciences and Humanities, Universiti Kebangsaan Malaysia, 43600, Bangi, Selangor, MALAYSIA*
[5]*Centre for Research in Psychology and Human Well-Being, Faculty of Social Sciences and Humanities, Universiti Kebangsaan Malaysia, 43600, Bangi, Selangor, MALAYSIA*
[6]*Centre for Research in Psychology and Human Well-Being, Faculty of Social Sciences and Humanities, Universiti Kebangsaan Malaysia, 43600, Bangi, Selangor, MALAYSIA*
[7]*Centre for Research in Psychology and Human Well-Being, Faculty of Social Sciences and Humanities, Universiti Kebangsaan Malaysia, 43600, Bangi, Selangor, MALAYSIA, E-mail: n_saadah@ukm.edu.my*

DOI: 10.37200/IJPR/V24I4/PR201558
Received: 22 Sep 2019 | Revised: 13 Oct 2019 | Accepted: 15 Jan 2020

Keywords: *Proactive safety behaviour, proactive behaviour, AMO framework, young workers, safety behaviour*

I INTRODUCTION

The size of the global workforce is increasing rapidly, and 80 percent of the global workforce now resides in developing countries(ILO, 2014). The majority of these workers are young people under the age of 28, and about 90 percent of these young workers residing in developing countries in Asia(Dorman, 2012). With per annum estimates of worldwide workplace accidents reaching over 264 million with over 350,000 fatalities(DOSH, 2011), there is a growing concern over the safety and health of young workers. It has been reported that about 62.5 million young workers are engaged in hazardous work, compared with 51 million in 2004(Tucker & Folkard, 2012) Studies have shown that young workers are more likely to experience work-related accidents than older workers (ILO, 2018).

Several reasons for the apparent increased accident risk for younger workers have been suggested, including a propensity for risk-taking by younger workers(Hassan & Mokhtar, 2018; Tucker & Turner, 2013), levels of physical and psychological maturity(Xiang, Bi, Pisaniello, Hansen, & Sullivan, 2014)and also the work environment within which many of these workers operate(Kasim, Che Hassan, Hamid, Emami, & Danaee, 2018). In this paper, we explore the potential role played by proactive safety behavior in improving safety outcomes for younger workers.

Few studies have so far explored the role of proactivity in a safety context, and none has examined how self-regulated proactivity is applied in proactive safety behavior that may be adapted to improve safety outcomes for younger workers. Our study seeks to make the following contributions to the literature. First, we will analyze the current practice of proactive safety behavior among the younger workers regarding ability, motivation, and opportunity that might assist in the self-regulated proactive safety behavior. Second, we will study the current practices of the proactive safety behavior of the younger workers while at work.

1.1 Proactive behavior at work

Proactive behavior in work organizations has been defined as self-initiated behavior that aims to change themselves and the environment for a better future (Mark A Griffin, Neal, Parker, Griffin, & Parker, 2007). The antecedents of proactive behaviour have been widely researched, focusing on variables such as motivation(Bryan, Jr, Marler, & Hester, 2012; S. K. Parker & Collins, 2010) personality(Major, Turner, & Fletcher, 2006), work design(Zhang & Parker, 2018), career development career(Seibert, Kraimer, & Crant, 2001)cognitive resources

Ethic statement

Human subjects:Human Research Ethics Approval –The University of Western AustraliaRef: RA/4/1/7473

DOI: 10.37200/IJPR/V24I4/PR201558
Received: 22 Sep 2019 | Revised: 13 Oct 2019 | Accepted: 15 Jan 2020

(Zhang & Parker, 2018) and a range of managerial and organisational factors (Kovjanic, Schuh, Jonas, Quaquebeke, & Dick, 2012). Studies have concluded that proactive employees are dynamic agents who identify and seize opportunities that bring about change in their environments by either improving their current situations or creating new ones; they are also known as self-starters(Bindl, Parker, Totterdell, & Hagger-johnson, 2012)and future-orientedpeople(Haynie, Shepherd, & McMullen, 2009). Proactive employees are innovative(Bibi, Zafar, & Kausar, 2018)and actively look for opportunities to improve things(Schwartz, 2000).

Some studies look into the potential negative outcomes of proactive behavior. For example, proactivebehavior may lead to high-level work stress, role overload and work-family conflict(Bakker & Schaufeli, 2008). In some cases, being proactive is likely to deplete resources such as time and energy (Hutchins, Penney, & Sublett, 2018)especially in organizations that are not capable of providing sufficient support toward proactive behavior.

An important mechanism that fueled proactive behavioris the self-regulatory perspective. Self-regulatory is defined as a process that enables an individual to guide his/her goal-directed activities over time and across changing circumstances(Bailis & Chipperfield, 2012). A person is considered as proactive is he/she has a predetermined goal that assists them(Higgins & Spiegel, 2004). In proactivity, goal regulatory is compartmentalized to envisioning (imagine the future), planning (preparing to change), enacting (demonstrate proactive behavior) and reflecting (analyzing the result) along with the human affective aspect has an impact towards proactivity(Strauss, Griffin, & Parker, 2012).

1.2 Proactive safety behavior

Proactive safety behavior is gradually emerging as a new area of research. Proactive safety behavior refers to employees being proactive in taking responsibility for improving safety outcomes for themselves and others. This is to be distinguished from the traditional view of employee safety behavior, which is seen as compliance with safety routines. The notion that employees should act proactively, rather than being compelled or directed to act, in pursuit of safety goals is an appealing one. To date, however, there are only seven published articles and one unpublished Ph.D. thesis that have focused explicitly on proactive safety behavior in organizations. These are now reviewed.

Fugas and colleagues(Fugas, Meliá, & Silva, 2011; Fugas, Silva, & Meliá, 2012, 2013; Fugas & Silva, 2014) examined proactive safety behavior through the lens of the Theory of Planned Behaviour(Fugas et al., 2013). Fugas, Meliá & Silva (2011) explored the normative antecedents of proactive safety behavior. Injunctive and descriptive safety norms deriving from supervisors and co-workers were identified as potential social influences on proactive safety behavior. Descriptive norms refer to perceptions of how supervisors and co-workers participate in and comply with safety practices, while injunctive norms denote the perceived approval of proactive and compliance safety practices.

This review of the scant literature on proactive safety behavior highlights some important deficiencies in our current understanding of the concept. From a theoretical perspective, there appears to be a disjuncture between how proactive behavior and its antecedents and consequences have been conceptualized in the mainstream literature on

DOI: 10.37200/IJPR/V24I4/PR201558
Received: 22 Sep 2019 | Revised: 13 Oct 2019 | Accepted: 15 Jan 2020

proactivity and in the literature on proactive safety behavior. For example, there have been some significant new theoretical developments relating to the nature and consequences of proactive behavior(Parker, Bindl, & Strauss, 2010; Strauss & Parker, 2014), and these have not yet been incorporated into the literature on proactive safety behavior. From a methodological perspective, recent operationalizations of proactive safety behaviorhave all made use of the measure of safety citizenship role definition and behavior developed by Hoffman & Morgeson (2004). This measure, which assesses extra role safety citizenship behavior, does not appear to map well onto current definitions of what it means to be proactive in organizational settings. For example, the current research onpraoctive safety behavior continues to use the measurement of Safety Citizenship Role Definiton and Behavior(Hoffman, Blair, Meriac, & Woehr, 2007).

Finally, while existing research has identified organizational safety climate and social norms as influences on proactive safety behavior,research has yet to focus on either the role of managerial practices or individual differences (e.g., personality) as they may influence proactive safety behavior. Although there are studies that scrutinizing proactive safety behavior by looking at the role of motivational mechanism, however, the measurement remains to be revolving around safety citizenship role definition and behavior(Curcuruto & Griffin, 2016). Studies have shown that motivational mechanism is the strongest predictor to proactive safety behavior(Curcuruto, Parker, & Griffin, 2019), consistent with the traditional safety behavior model by Griffin & Neal, (2000). However, studies on the relationship between organizational factors and proactive safety behavior are unknown.Thus, little is known concerning how proactive safety behavior can be enhanced and managed within organizational settings(Arifin, Abudin, & Razman, 2019). For these reasons, there is a need to reconceptualize proactive safety behavior, taking into account recent theoretical frameworks that have developed regarding proactivity in organizational settings.

1.3 Ability, motivation and opportunity and proactive safety behavior

As we have mentioned earlier, this paper aims to distinguish between the conventional research on proactive safety behavior based on TPB (Fugas et al., 2011; 2012; 2013; 2014) and safety citizenship and role behavior developed by Hofmann, Morgeson & Gerras (2003). The conceptual framework of our paper is guided by a synthesis of several existing conceptual models: the Ability, Motivation, and Opportunity (AMO) model of human resources management (HRM)(Bailey et al., 2014)and Strauss & Parker (2014)'s self-regulated proactivity model. The framework (see Figure 1) identifies three proximal antecedents of individual proactive safety behavior: Proactive Ability, Proactive Motivation and Proactive Opportunity.

Proactive ability encompasses elements of an employee's knowledge, skills, and abilities that enable that person to engage with safety in a proactive manner. These abilities are potentially identified through the recruitment and selection process, for example through psychometric testing, or are modifiable through training and development activities. For this research, we defined proactive ability as being determined by both made (e.g., experiences and skills) and born (e.g., knowledge and personalities).

DOI: 10.37200/IJPR/V24I4/PR201558
Received: 22 Sep 2019 | Revised: 13 Oct 2019 | Accepted: 15 Jan 2020

Proactive motivation is a concept derived from Strauss & Parker (2014)'s model of effective and sustained proactivity in organizations, which integrates recent perspectives on proactive motivational states (Parker et al., 2010) with Self-Determination Theory (SDT; (Deci & Ryan, 2002). Following Parker et al. (2010), proactive motivation is seen to involve three different groups of proximal motivational states; 'reason to,' 'can do' and 'energized to' engage in proactive safety behavior. From a process perspective, proactive motivation is also associated with the autonomous and controlled motivation of safety. The autonomous motivation for safety is internalized while controlled motivation is related to external factors. Controlled motivation is less likely to be linked to enduring interests and values and thus tends to be abandoned when obstacles are encountered (Strauss & Parker, 2014). For example, a junior employee might enthusiastically engage in proactive safety behavior due to their sense of safety awareness. Senior employees, on the other hand, may engage in proactive safety behaviorto gain respect. Comparing autonomous and controlled motivation, it may be argued that autonomous motivation is likely to be a stronger influence on proactive safety behavior than controlled motivation (Strauss & Parker, 2014).

Proactive opportunity describes the opportunity employees have to engage in proactive safety behavior. For instance, employees vary regarding the amount of work autonomy they are afforded. Work autonomy reflects the extent to which employees have the power to organize their job activities for themselves(Runhaar, Konermann, & Sanders, 2013), freedom concerning work goals, the opportunity to shape task elements, and control over which tasks are executed(Enders, de Boer, & Weyer, 2012). It refers to the extent to which employees can determine the pace, sequence, and methods to accomplish tasks (Volmer, Spurk, & Niessen, 2012). Higher autonomy will likely motivate employees' involvement in proactive goal striving, as they recognize the importance of bringing about meaningful changes to the work environment(Bindl & Parker, 2010). In this framework, with autonomy, the employeesare given the necessary degree of freedom to engage in proactive safety behavior. However, in a higher degree of organizational constraints, work autonomy would be reduced, and the likelihood of proactive safety behavior also reduced, even if proactive ability and proactive motivation were to be high.

DOI: 10.37200/IJPR/V24I4/PR201558
Received: 22 Sep 2019 | Revised: 13 Oct 2019 | Accepted: 15 Jan 2020

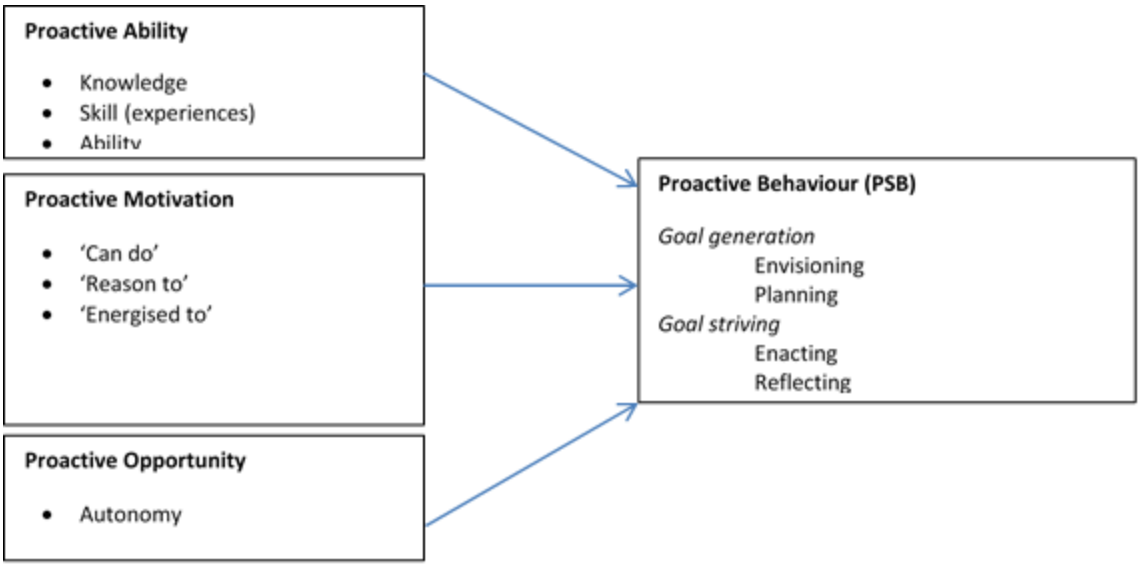

Figure 1: A self-regulatory framework of proactive safety behavior

II METHOD

The total employed population of Malaysia in 2010 is 11.4 million compared to 8.1 million in 2000(Malaysia, 2017). The proportion of the working-age population (15-64 years) increased to 67.3 percent in 2010 from 62.8 percent in 2000 (Rogério dos Santos Alves; Alex Soares de Souza, 2014). The workforce is a combination of both aging and young workforce; however, itis predominantly occupied by a young workforce aged between 15-44 years and considered as the most productive workforce(Rusli, 2014). However, compared with older workers, younger workers are more likely to be employed as outdoor workers, in manual labor and in high-risk jobs that expose them to increased physical and psychosocial hazards(Loh, Idris, Dollard, & Isahak, 2018). There is no satisfactory data regarding the incidence of workplace accidents by age in Malaysia, but the number of recipients of Permanent Disablement Benefit (PBD) and Temporary Disablement Benefit (TDB) is primarily dominated by the young workers aged between 15-40 years old (SOCSO, 2017). This information is capable of reflecting the number of accidents experienced by young Malaysian workers. Several studies regarding workplace accidents among young workers have indicated that workplace accidents involving youth workers are higher than for adult workers(Salminen, 2004). The utmost factor in this scenario is related to the characteristics of young workers themselves(McCall, Horwitz, & Carr, 2007). Subsequently,workplace accidents have initiated serious public health concerns(Miller, Handelman, & Lewis, 2007). In sum, like many other developing countries, Malaysia is experiencing a rising number of occupational risks and accidents especially involving young workers(SOCSO, 2017). Without any preventive measures, this has significant economic and social consequences for the Malaysian economy and young workers' livelihood.

DOI: 10.37200/IJPR/V24I4/PR201558
Received: 22 Sep 2019 | Revised: 13 Oct 2019 | Accepted: 15 Jan 2020

2.2 Procedures

The sample consisted of 33 Malaysian workers aged between 21-28 years old with an average working experience of 2.84 years and representing a range of different industries. Interviews were conductedthroughoutthree months,and all the questions were based on the earlier outlined framework. This semi-structured interview adopted the Critical Incident Technique (CIT) by Flanagan (1954), well-suited to observe daily human activities. Original questions of the semi-structured interviews were brief with approximately seven questions. The recorded interviews were bilingual, transcribed and then translated back into the English language by two translators. The inter-reliability agreement was at IRR=0.75 by two independent raters.

2.3 Analyses

We used Leximancer for data analysis. Leximancer is a text analysis tool that can be used to analyze the content of collections of textual documents, to display the extracted information visually, and provides means of quantifying and displaying the conceptual structure of the text(Krishen, Orie Berezan, & Raab, 2019). Leximancer generates its codes and relationships based on the input text (Angus, Rintel, & Wiles, 2013). The algorithm is self-generated and then being used to analyze the meaning within passages of text by extracting the main concepts and ideas. The Leximancer is robust due to is its ability to visually representing the connectedness of concepts as compared to Nvivo. Previously, Leximancer has been used in data analysis of workplace safety research and human resources management research(Biesenthal & Wilden, 2014). First, we performed a minor data cleaning by merging similar concepts and eliminating unnecessary function words (e.g., for example, umm, ahh). After that, we generated the data, and the map is reclustered approximately ten times. Map reclustering is a necessary step in doing Leximancerand and should be done iteratively to gain the best fitted research findings themes. Consequently, it will determine the model consistency.

III RESULTS

There are eight main themes and their connectivity rate derived from Leximancer output; Proactive safety behaviour (100%), proactive opportunity (93%), proactive motivation (60%), proactive ability (43%), mental stress (27%), fire drill (18%) and physical injuries (11%). The connectivity rate percentages from Leximancer calculated the connection of concepts within the themes and reflected its importance(Chiu & Tseng, 2018). The most important theme with the highest percentage is proactive safety behavior, in red. The hot colors (red, orange, yellow) denote the most important thing, and cool colours (blue, green, purple) denote the least important themes(Sotiriadou, Brouwers, & Le, 2014). Also, the more the concepts placed within a theme, the richer the meaning the theme expresses(Tseng, Wu, Morrison, Zhang, & Chen, 2015). An initial interpretation of Fig 2 might

DOI: 10.37200/IJPR/V24I4/PR201558
Received: 22 Sep 2019 | Revised: 13 Oct 2019 | Accepted: 15 Jan 2020

suggest that it reflects the entire component (e.g., proactive safety behavior, proactive ability, proactive motivation, and proactive opportunity) in Figure 1 with some additional themes that are not extracted through content analysis. The additional themes are fire drill and working experiences. ‘Co-workers’ and ‘insurance’ are also two emerging concepts that are identified through Leximancer.

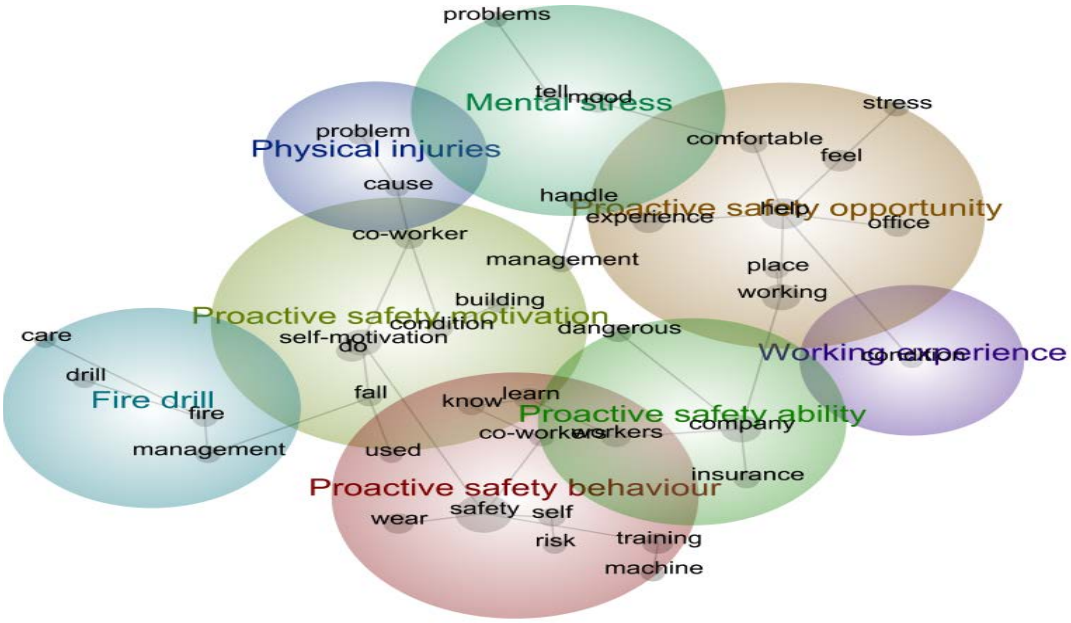

Figure 2: Self-regulated Proactive Safety Behaviour Framework Map

*Proactive safety ability=proactive ability, proactive Safety Motivation=Proactive motivation, proactive safety opportunity=proactive opportunity

Proactive safetybehavioris connected to other themes through the ‘safety’ concept. There is a direct connection between proactive safety behavior to proactive motivation and proactive ability

Nonetheless, the proactive opportunity is connected to proactive safety behavior through proactive ability, which brings some changes to the original framework. This will be discussed later. ‘Wear,’ ‘used’ and ‘self’ are related to the use of Personal Protective Equipment (PPE). It can be extracted from the data which thoroughly indicated that the understanding of proactive safety behavioramong the employees was due the agreement of using PPE and extra PPE voluntarily, without being asked to by the management (e.g.,*Safety helmet and safety boots are very important. We need that to carry heavy items. This industry (entertainment industry) required us to handle heavy loads and objects from the higher ground. High possibility for the objects to fall. So we need to make extra initiatives [R16]*. According to this respondent, his employer did not provide PPE.Therefore, he bought a pair of safety boots. The majority of the informants are reported not to receive formal safety training during their

DOI: 10.37200/IJPR/V24I4/PR201558
Received: 22 Sep 2019 | Revised: 13 Oct 2019 | Accepted: 15 Jan 2020

employment. To gain safety information, the young workers were relying on other avenues such as the internet or observation: *Not really. Not* from *safety training. We learned while we are doing our jobs. And sometimes from the internet [R15]*.

The importance and relevance of proactive motivation are supported by our research findings and consequently supporting our research framework. The informants possessed autonomous motivation while engaging in proactive safety behavior. One of the main reasons for proactive safety behavior was due to preventing physical injuries. The findings reported a relationship between 'safety preservation to self-preservation' and job sustainability*: I did that for safety reasons. We love ourselves. We don't want anything bad to happen. If anything happens... I don't think we are covered by insurance..... Also, to avoid injuries... So we want to prevent injury or illness. Therefore, we took some preventive measures — [R14*]. R14 works as a contractor; hence, most of his working hours were spent outdoor. His job required him to work under high temperatures and the hot sun. To protect himself from excessive direct heat, he purchased a farmer's hat, which he considered as one of his PPE. On another note, an informant (R21) has indicated that the management has failed to demonstrate initiatives in providing a safe workplace.

Consequently, this then became the main reason for her proactive motivation towards PSB. R21, a law enforcer, mentioned a potential physical attack from the public. She persuaded the management to provide a parking space closer to the office, especially for female employees. Her request was rejected,and the management advised her to take extra good care of herself only. Therefore, for safety reasons, she frequently asked favors from a policeman, who also her friend for her safety reason*: I will ask for a policeman to escort myself to my car. Actually, the policeman is my friend. I asked for his favor. I only asked for his favor if I received any threat.....other than that....none...[R21]*.

As being discussed earlier, we found out that proactive safety behavioris connected to proactive opportunity through proactive ability. Based on the data, we could line up a few reasons. The informants perceived proactive ability as important to proactive opportunity and also to proactive safety behavior. Proactive ability possesses a dual-role; as a source of knowledge to understand and engage in proactive safety behavior and also as a foundation of 'power' or autonomy in proactive opportunity. Respondent 33 (R33) talked about the importance of knowledge from safety training programs. Proactive ability served as an antecedent of knowledge for proactive safety behavior and also as a mechanism to gain job control. The young workers used safety knowledge to prevent to prepare the young employee to anticipate potential risks;*A safety accreditation from Construction Industry* Development *Board (Malaysia) (CIDB) is the most important thing (to my job). Because I can get the green card right? So those who needs/wants to go to the construction site, they need to have it (Green Card).* The Green Card is a registration card issued by CIDB which is compulsory for all personnel who are involved in site construction activity, detailing the personnel's job and degree of expertise. It showed an individual's capability in safety, fit-to-work and added value recognition for career development and future job opportunities.

Working experience is related to proactive opportunity through empowerment. Respondent 28 (R28), who has three years of working experience, went to see and talked to her manager about avoiding future work hazards by

DOI: 10.37200/IJPR/V24I4/PR201558
Received: 22 Sep 2019 | Revised: 13 Oct 2019 | Accepted: 15 Jan 2020

upgrading the machines; *I talked to my boss about the machines. Since an accident happened (a screw is uprooted from the machine and blew up) I do not want the same thing to happen in the future.* Another example can be identified from R6 responses. With five years of working experience, she demanded the school to repair the roof which was not in an acceptable condition to prevent accidents*: I knew that the school would get a certain allocation for refurbishment. But each time when I asked them to repair the roof, they told me there is no allocation. But I knew they used the allocation to support another aspect such as the school activities.* R32 mentioned job satisfaction and working comfortably in a safe working environment. He said; *I feel stress whenever I have to* work *under a hazardous working condition. No mood to work.....But when I managed to make some changes.....like to make something and make the office a better place to work at.....I feel happy. Less stress....not moody.* His response indicated that autonomy and low organizational constraints had empowered him to make changes and to reduce work stress. In the 'mental stress' theme, there were responses regarding stress coping mechanisms. R21 and R27 explained the importance of having access to a counseling service at work. The need to talk to people outside of the working system is necessary to overcome stress; *It is important.....when* we *get depressed, we must know how to let it out. We need to have somebody to listen to our problems.* The relationship between mental stress and physical injury can be identified through the response from R1, a retail supervisor; *All unloading jobs need to be done the night before. We will never let them do to unload in the morning before the operation. If they are tired.....they can't focus. When they can't focus.....they might get hurt especially to those working in the fresh department (seafood and poultry department).* The employees working in the fresh department often dealt with sharp machinery and utensils when handling cutting and processing services.

Fire safety appeared to be an additional theme in this research for one specific reason; the employees understood that fire safety is safety training. They are well-equipped with knowledge on fire safety, for example, fire extinguisher, fire safety procedure, the importance of fire marshal and annual fire drill: *We have a fire extinguisher. If there's fire, the most important thing is how to alert other people [R4].* 'Co-workers' also appeared in proactive safety behavior and proactive motivation theme. In proactive safety behavior, the 'co-workers' concept is identified through responses from R4: *My friend told me about safety....my friend Dr. Nazmi....he is an incident officer.* According to R4, his co-worker often communicated with him about the current organizational safety condition. Respondent 33 (R33) mentioned his perception of his co-worker's perilous acts. The co-worker refused to wear PPE as per instructed by the management. However, his awareness and self-motivational aspect motivated him to follow the instruction and not imitating such behaviour: *Oh, yes, there is. There are people (co-workers). It is like this; they refused to wear PPE. They have been informed (to wear), but they refused to. Really...that is their problem.* In proactive ability,some of the informants have mentioned the word 'insurance.'The majority of the informants understood that having personal insurance is a form of proactive safety behavior*: I think we need to have personal insurance.....just in case [R10].*

DOI: 10.37200/IJPR/V24I4/PR201558
Received: 22 Sep 2019 | Revised: 13 Oct 2019 | Accepted: 15 Jan 2020

IV DISCUSSION

The findings from the Leximancer have provided an insightful discovery. Through the original framework, we argued that proactive safety behavior is an outcome of proactive ability, proactive motivation, andproactive opportunity. However, Leximancer has proven otherwise. Our new framework proposed proactive safety behavior as a continuous process (as depicted in Figure 3) rather than a direct cause-effect relationship of the original framework. The framework acknowledged the importance of proactive ability and also the autonomous motivation of proactive motivation as described in the original framework. Also, the data indicated that young workers gain autonomy to initiate changes in the workplace by engaging themselves with proactive safety behavior. The young workers also believed that proactive safety behavior is the source of power or autonomy and not as an outcome, as in the original framework. When the informants realized they had contributedchanges in the workplace positively, they will be more energized to continue using their proactive ability towards safety sustainability.

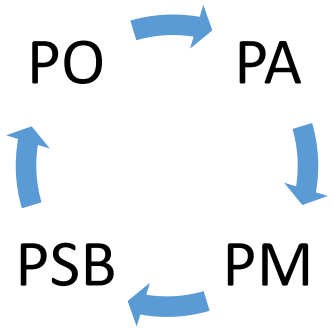

Figure 3: A new theoretical framework of PSB: A process

Developing and sustaining a safe working environment is an uphill task. It requires a coordinated effort from the employers and employees. However, in cases where the employers failed to initiate and enforce workplace safety, employees often take charge of their safety(Arifin, Ismali, Muhammad, & Juhari, 2019). Occasionally, employers who failed to provide a safe working environment are struggling with financial stability. Small and medium-sized industries often neglected the importance of safety primarily due to the limited tangible resources to provide a safe working environment system in the workplace. Most small-medium sized industries have short-term business planning, often relying on government funds to operate. The allocation is limited; the purpose of supportingthe business operation. The Malaysian Government is concernedabout this situation;therefore, it introduced a safety training scheme under the Human Resources Development Fund (HRDF). Despite this initiative, the number of workplace accidents keeps rising. Therefore, to overcome this problem, a self-regulated approach to safety is required.

The self-regulated approach is highly autonomous, often prompted in an environment where safety culture is not emphasized. It is always sustainable and differs from controlled motivation.A self-regulated employee knows what, when and how to behave especially for safety. They will deploy, use and benefit their proactive ability voluntarily without asking for people's acknowledgment and appreciation. The main reason for self-regulated proactive safety

DOI: 10.37200/IJPR/V24I4/PR201558
Received: 22 Sep 2019 | Revised: 13 Oct 2019 | Accepted: 15 Jan 2020

behavior is due to self-preservation. Self–preservation is about agility, superiority and competency to succeed(Nur Saadah & Rusyda, 2016). Although the need for self-preservation will sometimes override other considerations such as a hazardous environment,the finding of this research reveals otherwise. The younger workers have shown that they have engaged by taking charge of their safety. They have demonstrated a certain level of safety concern and awareness that motivated them to engage in self-regulated proactive safety behavior. Thisis driven by the desire to fulfilling basic physiological needs and safety needs to avoid future negative effects. Job security is an outcome of self-preservation and the utmost important aspect for younger workers. Those with the ability (resources), resilience (health) and power will secure a job. The rising unemployment rate and fewer job openings(Artz & Kaya, 2014) have forced younger workers to occupy self-regulated proactive safety behavior. This case took place in companies with low organizational safety climate. Nevertheless, employees who are self-preserved always feel and act individually (individualistic) which may influence *esprit de corp* of the organization(Ibnu & Ahmad, 2017).

In conclusion, Malaysian younger workers are fuelled with the proactive ability that motivates them to practice proactive safety behavior. Although previous research may have proven that education level reflects a better safety behavior(Callari, Bieder, & Kirwan, 2019), our research may have provided a slightly different approach. Younger workers are equipped with proactive ability despite their education level. In some cases, younger workers with lower education levels (e.g., school leavers) may have established better knowledge of proactive ability as compared to those with tertiary education. Thisis stimulated by life experiences, observation, and safety knowledge from other informal sources such as the Internet and television(Mohamad Salleh & Mohd Ilham, 2017; Weiler, 2005). The younger workers are intrinsically motivated to engage in proactive safety behavior, mostly due to the needs of self-sustainability for self and family well-being. While in the original framework, we argued that proactive safety behavior is an outcome of the combination of proactive ability, proactive motivation, and proactive opportunity, the findings have proven that proactive opportunity is an outcome of proactive ability, proactive motivation, and proactive safety behavior. The younger workers perceived autonomy and empowerment as an achievement every time they engaged in proactive safety behavior. Though, there are a few circumstances that may raise a concern with regards to the safety of younger workers. First, the employers' manipulation, if self-regulated proactive safety behavior is fully integrated at the workplace. Even though self-regulated proactive safety behavioris highly recommended in the organizations, it may encourage employers to neglect the importance of workplace safety. The employers may see this as an opportunity to detach themselves from responsibilities in providing a safe working environment. Second, in some cases, the younger workers are negotiating 'submission to God' as his/her proactive safety behavior quite frequently that the young workers resorted to prayers to protect them from accidents and injuries.

Leximancer explains a visual interpretation of how the concepts are interacting with each other. As a result, the data is more organized and accessible, making it easier to create and develop meaningful findings according to our preference. With Leximancer, data analysis is quick and reliable in gaining objective and neutral findings. Its ability

DOI: 10.37200/IJPR/V24I4/PR201558
Received: 22 Sep 2019 | Revised: 13 Oct 2019 | Accepted: 15 Jan 2020

to analyze a large amount of data makes it more desirable. However, Leximancer is much appropriate for grounded theory research as the emerging themes will help in theory development.

V Limitations and implications for theory and practice

This is an ethno methodological study, and the findings are not to be generalized to the population. However, the informants are selected based on the inclusion criteria, and it covered most of the working industries in Malaysia. Therefore, the findings can be used to understand the current self-regulated proactive safety behavioramong Malaysian younger workers. This research is conducted inductively; therefore, the findings are not to prove/support any theories. The findings of this research will be used to strengthen the framework of this research. The findings will be used as baseline information and data for the next studies.

REFERENCES

1. Angus, D., Rintel, S., & Wiles, J. (2013). Making sense of big text: A visual-first approach for analysing text data using Leximancer and Discursis. *International Journal of Social Research Methodology*, *16*(3), 261–267.
2. Arifin, K., Abudin, R., & Razman, M. R. (2019). Penilaian iklim keselamatan persekitaran kerja terhadap komuniti kakitangan kerajaan di Putrajaya (Work environment safety climate evaluation of government staff community at Putrajaya). *Geografia-Malaysian Journal of Society and Space*, *15*(4).
3. Arifin, K., Ismali, Z. S., Muhammad, M., & Juhari, M. L. (2019). Analisis Keberkesanan Komunikasi dalam Meningkatkan Keselamatan dan Kesihatan Pekerjaan di Universiti Penyelidikan di Malaysia (Communication Effectiveness Analysis in Enhancing Safety and Health at Research Universities (RU's) in Malaysia). *Akademika*, *89*(3).
4. Artz, B., & Kaya, I. (2014). Job insecurity and job satisfaction in the United States: the case of public sector union workers. *Industrial Relations Journal*, *45*(2), 103–120.
5. Bailey, T., Berg, P., Kalleberg, A. L., Harrell-cook, R. G., Appelbaum, E., & Cornell, N. Y. (2014). *Manufacturing Advantage : Why High-Performance Work Systems Pay off by Eileen Manufacturing Advantage : Why High- Performance Work Systems Pay Off , by*. *26*(3), 459–462.
6. Bailis, D. S., & Chipperfield, J. G. (2012). Hope and Optimism. In *Encyclopedia of Human Behavior: Second Edition* (2nd ed.). https://doi.org/10.1016/B978-0-12-375000-6.00193-2
7. Bakker, A. B., & Schaufeli, W. B. (2008). Positive organizational behavior: Engaged employees in flourishing organizations. *Journal of Organizational Behavior*, *29*, 147–154. https://doi.org/10.1002/job.515

DOI: 10.37200/IJPR/V24I4/PR201558
Received: 22 Sep 2019 | Revised: 13 Oct 2019 | Accepted: 15 Jan 2020

8. Bibi, M., Zafar, N., & Kausar, R. (2018). Perceived Authentic Leadership Practices, Organizational Climate and Team Innovativeness in Employees of Multinational Companies. *FWU Journal of Social Sciences*, *12*(2), 123.
9. Biesenthal, C., & Wilden, R. (2014). Multi-level project governance: Trends and opportunities. *International Journal of Project Management*, *32*(8), 1291–1308.
10. Bindl, U. K., & Parker, S. K. (2010). Proactive work behavior: Forward-thinking and change-oriented action in organizations. *APA Handbook of Industrial and Organizational Psychology*, *2*(2010), 567–598. https://doi.org/10.1037/12170-019
11. Bindl, U. K., Parker, S. K., Totterdell, P., & Hagger-johnson, G. (2012). *Fuel of the Self-Starter : How Mood Relates to Proactive Goal Regulation*. *97*(1), 134–150. https://doi.org/10.1037/a0024368
12. Bryan, J., Jr, F., Marler, L. E., & Hester, K. I. M. (2012). *Bridge building within the province of proactivity*. *1070*(January), 1053–1070. https://doi.org/10.1002/job
13. Callari, T. C., Bieder, C., & Kirwan, B. (2019). What is it like for a middle manager to take safety into account? Practices and challenges. *Safety Science*, *113*, 19–29. https://doi.org/10.1016/j.ssci.2018.10.025
14. Chiu, W., & Tseng, W. (2018). What is in a concept? Mapping the history of sport management research in Taiwan and Korea using Leximancer text mining analysis Tourist experience View project Analysis of sport management research in What is in a concept? Mapping the history of sport ma. *Physical Education Journal*. https://doi.org/10.3966/102472972018035101001
15. Curcuruto, M., & Griffin, M. A. (2016). Safety proactivity in the workplace: The initiative to improve individual, team, and organizational safety. *Proactivity at Work: Making Things Happen in Organizations*, (December), 105–137. https://doi.org/10.4324/9781315797113
16. Curcuruto, M., Parker, S. K., & Griffin, M. A. (2019). Proactivity towards workplace safety improvement: an investigation of its motivational drivers and organizational outcomes. *European Journal of Work and Organizational Psychology*, *28*(2), 221–238. https://doi.org/10.1080/1359432X.2019.1572115
17. Deci, E. L., & Ryan, R. M. (2002). Overview of self determination theory: An organismic dialectical perspective. *Handbook of Self-Determination Research*, 3–31. https://doi.org/10.1016/B978-0-08-097086-8.26036-4
18. Manasa Veena Valupadasu, Uday Venkat Mateti. "Advanced Malarial Vaccines: A Promising Approach in the Treatment of Malaria." Systematic Reviews in Pharmacy 3.1 (2012), 31-36. Print. doi:10.4103/0975-8453.107136
19. Dorman, M. P. (2012). *Estimating the economic costs of occupational injuries and illnesses in developing countries: Essential information for decision-makers*. Retrieved from https://www.ilo.org/safework/info/publications/WCMS_207690/lang--en/index.htm
20. DOSH. (2011). Guidelines on Occupational Safety and Health Mangement System. *Malaysia Ministry of Human Resources*, 1–69.

DOI: 10.37200/IJPR/V24I4/PR201558
Received: 22 Sep 2019 | Revised: 13 Oct 2019 | Accepted: 15 Jan 2020

21. Enders, J., de Boer, H., & Weyer, E. (2012). Regulatory autonomy and performance: the reform of higher education re-visited. *Higher Education*, *65*(1), 5–23. https://doi.org/10.1007/s10734-012-9578-4
22. Flanagan, J. C. (1954). The critical incident technique. *Psychological Bulletin*, *51*(4), 327.
    Fugas, C. S., Meliá, J. L., & Silva, S. a. (2011). The "is" and the "ought": How do perceived social norms influence safety behaviors at work? *Journal of Occupational Health Psychology*, *16*(1), 67–79. https://doi.org/10.1037/a0021731
23. Fugas, C. S., & Silva, S. A. (2014). *Patterns of proactive safety behaviors in the transportation sector*. 429–434.
24. Fugas, C. S., Silva, S. a, & Meliá, J. L. (2012). Another look at safety climate and safety behavior: deepening the cognitive and social mediator mechanisms. *Accident; Analysis and Prevention*, *45*, 468–477. https://doi.org/10.1016/j.aap.2011.08.013
25. Fugas, C. S., Silva, S. a, & Meliá, J. L. (2013). Profiling safety behaviors: exploration of the sociocognitive variables that best discriminate between different behavioral patterns. *Risk Analysis : An Official Publication of the Society for Risk Analysis*, *33*(5), 838–850. https://doi.org/10.1111/j.1539-6924.2012.01913.x
26. Griffin, M. A., & Neal, A. (2000). Perceptions of safety at work: a framework for linking safety climate to safety performance, knowledge, and motivation. *Journal of Occupational Health Psychology*, *5*(3), 347–358. https://doi.org/10.1037/1076-8998.5.3.347
27. Griffin, Mark A, Neal, A., Parker, S. K., Griffin, M. A., & Parker, S. K. (2007). *A NEW MODEL OF WORK ROLE PERFORMANCE : POSITIVE BEHAVIOR IN UNCERTAIN AND INTERDEPENDENT CONTEXTS The University of Queensland*. *50*(2), 327–347.
28. Hassan, N., & Mokhtar, D. (2018). Buli dalam kalangan Pelatih di Pusat Pemulihan Juvana. *Jurnal Psikologi Malaysia*, *32*(3), 146–164.
29. Haynie, J. M., Shepherd, D. A., & McMullen, J. S. (2009). An opportunity for me? the role of resources in opportunity evaluation decisions. *Journal of Management Studies*, *46*(3), 337–361. https://doi.org/10.1111/j.1467-6486.2009.00824.x
30. Higgins, E. T., & Spiegel, S. (2004). Promotion and prevention strategies for self-regulation: A motivated cognition perspective. *Handbook of Self-Regulation: Research, Theory, and Applications.*, pp. 171–187. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=2004-00163-008&loginpage=Login.asp&site=ehost-live&scope=site
31. Hoffman, B. J., Blair, C. a, Meriac, J. P., & Woehr, D. J. (2007). Expanding the criterion domain? A quantitative review of the OCB literature. *The Journal of Applied Psychology*, *92*(2), 555–566. https://doi.org/10.1037/0021-9010.92.2.555
32. Hoffman, D., & Morgeson, F. (2004). The role of leadership in safety. In J. Barling & M. Frone (Eds.), *The*

psychology of workplace safety. https://doi.org/10.1037/10662-000

33. Hutchins, H. M., Penney, L. M., & Sublett, L. W. (2018). What imposters risk at work: Exploring imposter phenomenon, stress coping, and job outcomes. *Human Resource Development Quarterly*, *29*(1), 31–48. https://doi.org/10.1002/hrdq.21304
34. Ibnu, I. N. B., & Ahmad, A. L. (2017). Cultural adaptation of Malay participants in youth exchange program in the ship for southeast ASEAN and Japanese youth program (SSEAYP) in Malaysia. *Jurnal Komunikasi: Malaysian Journal of Communication*, *33*(1), 475–486. https://doi.org/10.17576/JKMJC-2017-3301-31
35. ILO. (2014). *World of Work 2014: Developing with jobs*. Retrieved from https://www.ilo.org/global/research/global-reports/world-of-work/2014/WCMS_243961/lang--en/index.htm
36. ILO. (2018). *Improving the Safety and Health of Young Workers*. Retrieved from https://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---safework/documents/publication/wcms_625223.pdf
37. Kasim, H., Che Hassan, C. R., Hamid, M. D., Emami, S. D., & Danaee, M. (2018). Determination of factors affecting safety practices in Malaysian radiation facilities. *Safety Science*, *104*(April 2017), 70–80. https://doi.org/10.1016/j.ssci.2017.12.031
38. Kovjanic, S., Schuh, S. C., Jonas, K., Quaquebeke, N. V. A. N., & Dick, R. V. A. N. (2012). *How do transformational leaders foster positive employee outcomes ? A self-determination-based analysis of employees ' needs as mediating links †*. *1052*(November 2011), 1031–1052. https://doi.org/10.1002/job
39. Krishen, A. S., Orie Berezan, |, & Raab, C. (2019). *Feelings and functionality in social networking communities: A regulatory focus perspective*. https://doi.org/10.1002/mar.21204
40. Loh, M. Y., Idris, M. A., Dollard, M. F., & Isahak, M. (2018). Psychosocial safety climate as a moderator of the moderators: Contextualizing JDR models and emotional demands effects. *Journal of Occupational and Organizational Psychology*, *91*(3), 620–644. https://doi.org/10.1111/joop.12211
41. Major, D. a, Turner, J. E., & Fletcher, T. D. (2006). Linking proactive personality and the Big Five to motivation to learn and development activity. *The Journal of Applied Psychology*, *91*(4), 927–935. https://doi.org/10.1037/0021-9010.91.4.927
42. Malaysia, D. of S. (2017). *Department of Statistics Malaysia Labour Force Survey Report , Malaysia , 2016*. (April). Retrieved from www.dosm.gov.my.
43. McCall, B. P., Horwitz, I. B., & Carr, B. S. (2007). Adolescent Occupational Injuries and Workplace Risks: An Analysis of Oregon Workers' Compensation Data 1990–1997. *Journal of Adolescent Health*, *41*(3), 248–255.https://doi.org/http://dx.doi.org/10.1016/j.jadohealth.2007.02.004
44. Miller, M. E., Handelman, E., & Lewis, C. (2007). *Young Workers*.

DOI: 10.37200/IJPR/V24I4/PR201558
Received: 22 Sep 2019 | Revised: 13 Oct 2019 | Accepted: 15 Jan 2020

45. Mohamad Salleh, M. A., & Mohd Ilham, N. M. (2017). Pengalaman dan Kesedaran Pengguna Dewasa Terhadap Isu Pengawasan di Media Sosial (The Experience and Awareness of Adult Users of Surveillance Issue in Social Media). *Jurnal Komunikasi, Malaysian Journal of Communication*, *33*(1), 502–512. https://doi.org/10.17576/jkmjc-2017-3301-33
46. Manoj Kumar Sarangi, Sasmita Padhi (2016) Solid Lipid Nanoparticles–A Review. Journal of Critical Reviews, 3 (3), 5-12.
47. Nur Saadah, M. ., & Rusyda, H. . (2016). Informal Caregiving: Empowering Social Support Programs by Employers. *Akademika*, *86*(01), 3–9. https://doi.org/10.17576/akad-2016-8601-01
48. Parker, S., Bindl, U., & Strauss, K. (2010). Making Things Happen: A Model of Proactive Motivation. *Journal of Management*, *36*(4), 827–856. https://doi.org/10.1177/0149206310363732
49. Parker, S. K., & Collins, C. G. (2010). Multiple Proactive Behaviors. *Journal of Management*, *36*(633). https://doi.org/10.1177/0149206308321554
50. Rogério dos Santos Alves; Alex Soares de Souza, E. A. (2014). Law of Malaysia Act 514 Occupational Safety and Health Act 1994. *Igarss 2014*, (1), 1–5. https://doi.org/10.1007/s13398-014-0173-7.2
51. Runhaar, P., Konermann, J., & Sanders, K. (2013). Teachers' organizational citizenship behaviour: Considering the roles of their work engagement, autonomy and leader-member exchange. *Teaching and Teacher Education*, *30*(1), 99–108. https://doi.org/10.1016/j.tate.2012.10.008
52. Rusli, N. (2014). Rising Trend of Work-related Commuting Accidents , Deaths , Injuries. *Industrial Health*, *52*, 275–277.
53. Salminen, S. (2004). Have young workers more injuries than older ones? An international literature review. *Journal of Safety Research*, *35*(5), 513–521. https://doi.org/10.1016/j.jsr.2004.08.005
54. Schwartz, B. (2000). Self-determination: The tyranny of freedom. *American Psychologist*, *55*(1), 79–88. https://doi.org/10.1037//0003-066X.55.1.79
55. Seibert, S. E., Kraimer, M. L., & Crant, J. M. (2001). What do proactive people do? A longitudinal model linking proactive personality and career success. *Personnel Psychology*, *54*(Mc 243), 845–874. https://doi.org/10.1111/j.1744-6570.2001.tb00234.x
56. SOCSO. (2017). Pertubuhan keselamatan sosial. In *Anual report 2016*. Retrieved from https://www.perkeso.gov.my/images/laporan_tahunan/LaporanTahunan2016.pdf
57. Sotiriadou, P., Brouwers, J., & Le, T.-A. (2014). Choosing a qualitative data analysis tool: A comparison of NVivo and Leximancer. *Annals of Leisure Research*, *17*(2), 218–234.
58. Strauss, K., Griffin, M. A., & Parker, S. K. (2012). *Future Work Selves : How Salient Hoped-For Identities Motivate Proactive Career Behaviors*. *97*(3), 580–598. https://doi.org/10.1037/a0026423
59. Strauss, K., & Parker, S. K. (2014). Effective and Sustained Proactivity in the Workplace: A Self-Determination Theory Perspective. *The Oxford Handbook of Work Engagement, Motivation, and Self-*

DOI: 10.37200/IJPR/V24I4/PR201558
Received: 22 Sep 2019 | Revised: 13 Oct 2019 | Accepted: 15 Jan 2020

Determination Theory, 50.

60. Tseng, C., Wu, B., Morrison, A. M., Zhang, J., & Chen, Y. (2015). Travel blogs on China as a destination image formation agent: A qualitative analysis using Leximancer. *Tourism Management*, *46*, 347–358.
61. Tucker, P., & Folkard, S. (2012). *Working Time, Health and Safety: a Research Synthesis Paper*. Retrieved from http://www.ilo.org/wcmsp5/groups/public/@ed_protect/@protrav/@travail/documents/publication/wcms_181673.pdf
62. Tucker, S., & Turner, N. (2013). Waiting for safety: responses by young Canadian workers to unsafe work. *Journal of Safety Research*, *45*, 103–110. https://doi.org/10.1016/j.jsr.2013.01.006
63. Volmer, J., Spurk, D., & Niessen, C. (2012). Leader-member exchange (LMX), job autonomy, and creative work involvement. *Leadership Quarterly*, *23*(3), 456–465. https://doi.org/10.1016/j.leaqua.2011.10.005
64. Weiler, A. (2005). Information-seeking behavior in Generation Y students: Motivation, critical thinking, and learning theory. *Journal of Academic Librarianship*, *31*(1), 46–53. https://doi.org/10.1016/j.acalib.2004.09.009
65. Xiang, J., Bi, P., Pisaniello, D., Hansen, A., & Sullivan, T. (2014). Association between high temperature and work-related injuries in Adelaide, South Australia, 2001-2010. *Occupational and Environmental Medicine*, *71*(4), 246–252. https://doi.org/10.1136/oemed-2013-101584
66. Silambarasan, K., Kumar, P., Raghavendran, S.Healthcare applications in IoT and cloud using CS & ABC optimization techniques(2018) International Journal of Pharmaceutical Research, 10 (1), pp. 17-20. https://www.scopus.com/inward/record.uri?eid=2s2.085064176791&partnerID=40&md5=8205074ed543c3afc96b95787a0897cf
67. Zhang, F., & Parker, S. K. (2018). Reorienting job crafting research: A hierarchical structure of job crafting concepts and integrative review. *Journal of Organizational Behavior*, (September), 1–21. https://doi.org/10.1002/job.2332
68. Elijah, Aiden, (2018). Co-Clustering based Cross-Domain Text Classification Algorithm with Semantic ANALYSIS for Wikipedia.Journal of Computational Information Systems,14(3), 44 - 49.
69. Asim, M., Gopalia, R.,& Swar, S.(2014). Comparison of Methods for Solving Travelling Salesmen Problem.International Journal of Advances in Engineering and Emerging Technology,5(2), 80-87.
70. Georgiev, D.Mind efforts, Quantum Zeno Effect and environmental decoherence (2012) NeuroQuantology, 10 (3), pp. 374-388.
71. Krippner, S., Richards, R., Abraham, F.D.Creativity and chaos in waking and dreaming states(2012) NeuroQuantology, 10 (2), pp. 164-176.

DOI: 10.37200/IJPR/V24I4/PR201558
Received: 22 Sep 2019 | Revised: 13 Oct 2019 | Accepted: 15 Jan 2020