

CHAPTER 2

Literature Review

This chapter describes the literature review and conceptual framework of the study. For the purpose of the study, the literature review covered the following topics:

1. Work engagement
 - 1.1 Definitions of work engagement
 - 1.2 Concepts and theories related to work engagement
 - 1.3 Demographic factors related to work engagement
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 - 1.5 Studies related to work engagement
2. Proactive work behavior
 - 2.1 Definitions of proactive work behavior
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 - 2.3 Demographic factors related to proactive work behavior
 - 2.4 Measurements of proactive work behavior
 - 2.5 Studies related to proactive work behavior
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4. Situation related to work engagement and proactive work behavior among head nurses in university affiliated hospitals, Yunnan province, the People's Republic of China

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Work Engagement

Definitions of Work Engagement

The definitions of work engagement and related terms are reviewed and presented as follows:

The definition related to work engagement was introduced by Kahn (1990) who studied personal engagement at work and defined personal engagement as harnessing of organizational member's selves to their work roles. In engagement, people employ and express themselves physically, cognitively, and emotionally during role performances. In 1997, Maslach and Leiter (as cited in Schaufeli et al., 2002) used the term of "engagement in work" and defined engagement as energy, involvement, and professional efficacy. It is considered to be the polar opposite of burnout.

The definition of work engagement was defined by Schaufeli et al. (2002) as a positive, fulfilling, and work-related state of mind. It is a persistent and pervasive affective-cognitive state rather than a momentary and specific state that is not focused on particular object, event, individual, or behavior. Work engagement is characterized by vigor, dedication and absorption. Subsequently, Vinje and Mittelmark (2008) used the term of "job engagement" and defined it as searching for, experiencing, and holding on meaningful work that enables one to live one's values. They proposed three factors of job engagement, namely, calling, zest for work, and vitality.

Reviewing the definitions of work engagement found that terms used interchangeably to present work engagement included personal engagement (Kahn, 1990), engagement in work (Maslach & Leiter, 1997), work engagement (Schaufeli et al., 2002), and job engagement (Vinje & Mittelmark, 2008). These definitions change their focuses from efforts of the person to organizational goals (Kahn, 1990) to the polar opposite of burnout (Maslach & Leiter, 1997), and then experience of person who engaged in work (Schaufeli et al., 2002; Vinje & Mittelmark, 2008). The definition of work engagement which was clearly defined by Schaufeli et al. (2002) as a positive, fulfilling, and work-related state of mind and characterized by vigor, dedication and absorption was used in this study.

Concepts and Theories Related to Work Engagement

The concept of work engagement emerges from new “positive psychology” that focuses on human strengths, rather than limitations (Luthans, Avolio, Avey, & Norman, 2007). Initially, Kahn’s personal engagement (1990) focused on delineating the psychological conditions in which people personally engage and disengage at work. In engagement, people employ and express themselves physically, cognitively, and emotionally during role performance. Consequently, in 1997, Maslach and Leiter (as cited in Schaufeli et al., 2002) assumed that “engagement” as the direct opposite of burnout which included exhaustion, cynicism, and inefficacy. Work engagement was characterized by energy, involvement and efficacy. Maslach and Leiter (1997) specified that engaged employees have a sense of energetic and effective connection with their work activities, and consider themselves to be able to deal completely with the demands of their jobs. Through reviewing related literature, the concepts and theories related to work engagement are presented as follows:

The concept of work engagement by Schaufeli et al. (2002). The concept of work engagement was developed by Schaufeli et al. (2002) based on theoretical analysis of engagement which identified two significant dimensions related to work well being, namely, activation and identification. Activation ranges from exhaustion to vigor and identification ranges from cynicism to dedication. Engagement involved vigor and dedication. Moreover, absorption was one characteristic of work engagement because of its relevant aspect of engagement getting from interviews (Schaufeli et al., 2001 as cited in Schaufeli et al., 2002). In this concept, work engagement was defined as a positive, fulfilling and work-related state of mind. It is a more persistent and pervasive affective-cognitive state that is not focused on any particular object, event, individual, or behavior. Work engagement is characterized by vigor, dedication and absorption.

Vigor refers to employee with high levels of energy and mental resilience while working, the willingness to invest effort in one’s work, and persistence even in face of difficulties; dedication refers to employee strongly involving in one's work and experiencing a sense of significance, enthusiasm, inspiration, pride and challenge; absorption refers to employee fully concentrating and happily engrossing in one’s work.

Whereby time passes quickly, individual has difficulties with detaching oneself from work.

The concept of work engagement by Schaufeli et al. (2002) was used to develop Work Engagement Scale (Schaufeli et al., 2002; Schaufeli & Bakker, 2003).

The concept of job engagement by Vinje and Mittelmark (2008). The concept of job engagement was developed by Vinje and Mittelmark (2008) based on the research which found that job burnout and engagement may have independent variables, and job engagement may depend on the sense of person to fulfill their work. Job engagement was developed to illustrate community nurses' experience in engaging their work and was defined as employee rest heavily searching for, experiencing, and holding on meaningful work that enable individual to live one's values. It included three factors, namely, calling, zest for work and vitality. Calling refers to the feelings of having a mission or purpose, including commitment and healthy absorption in one's vocation, and having the feelings of being in the right place and in the right position. Zest for work refers to the feelings of vocation-related joy, happiness, enthusiasm, and dedication. Vitality refers to the feelings of vigor, strong life energy, and the willingness to exert oneself.

Reviewing the concepts of work engagement found that work engagement was considered as experiencing in the extent to which individual engaged in working (Schaufeli et al., 2002; Vinje & Mittelmark, 2008). These concepts of work engagement have distinct attributes. The concept of work engagement by Schaufeli et al. (2002) focused on the individual's perception the level of energy and mental resilience through expressing vigor, dedication, and absorption. The concept of job engagement by Vinje and Mittelmark (2008) focused on the feelings of employee to the meaningful work in three factors of calling, zest for work and vitality. The dimensions of vigor and vitality commonly agreed on their meaning as high levels of energy and identification with work. However, the three sub-dimensions of vigor, absorption and dedication of work engagement have been commonly used as attributes in work engagement research. Therefore, the concept of work engagement by Schaufeli et al. (2002) was selected as a conceptual model to measure head nurses' work engagement in this study.

Demographic Factors Related to Work Engagement

Reviewing literature, some studies have proven that various demographic factors were related to work engagement as follows:

Age. Warshawsky et al. (2012) found among 323 nurse managers in North Carolina that age was significant associated with work engagement ($p=0.01$). Mahboubi et al. (2015) found among 387 personnel in Iran that there are significant relationship between work engagement and the participants' age ($p=0.01$).

Gender. Women engaged in work less than man as Mauno et al. (2007) found among 409 health care persons in Finland that gender was negative related to absorption ($r=-0.13$, $p<0.01$) and vigor ($r=-0.11$, $p<0.05$).

Education. Mauno, Kinnunen, and Ruokolainen (2007) found among 409 health care persons in Finland that education was positive related to absorption ($r=0.19$, $p<0.001$) and dedication ($r=0.20$, $p<0.001$).

Children at home. Mauno et al. (2007) found among 409 health care persons in Finland that children at home as an antecedence was positive related to vigor ($\beta=0.10$, $p<0.01$) and dedication ($\beta=0.15$, $p<0.01$).

Work experience. Mahboubi et al. (2015) found among 387 personnel in Iran that there are significant relationship between work engagement and work experience ($p=0.04$).

In conclusion, reviewing literature found that age, gender, education, children at home, work experience were related to work engagement.

Measurements of Work Engagement

The work engagement scale developed by Schaufeli et al. (2002). Schaufeli et al. (2002) developed the work engagement scale based on the concept of work engagement, which was used to measure three characteristics of work engagement including vigor, dedication and absorption. The scale were scored on a seven points from 0 (never) to 6 (always) and included 17 items: vigor (6 items), dedication (5 items), and

absorption (6 items). The construct validity was tested by using structural equation modeling (SEM) and the results were 0.05 for the root mean square error of approximation (RMSEA), 0.90 for the comparative fit index (CFI), 0.87 for normed fit index (NFI), and 0.88 of non-normed fit index (NNFI). The results of RMSEA and CFI met the criteria of 0.08 or low and 0.90 or above. The results of NFI and NNFI were approaching to the criteria of 0.90 or above. The Cronbach's alpha coefficient of the internal consistency was 0.79, 0.89 and 0.72 for vigor, dedication and absorption, respectively, and for total scale was 0.70 among employees. Higher score on every sub-dimension indicated higher engagement.

In 2003, Schaufeli and Bakker tested the 17-item Utrecht work engagement scale (UWES-17) among 9,679 respondents in different occupational groups. The construct validity was tested by using structural equation modeling (SEM) and the results were 0.10 for the root mean square error of approximation (RMSEA), 0.91 for the comparative fit index (CFI), 0.90 for normed fit index (NFI), and 0.89 of non-normed fit index (NNFI). The results of CFI and NFI met the criteria of 0.90 or above. The results of RMSEA and NNFI were approaching to the criteria of 0.08 or low and 0.90 or above. The Cronbach's alpha coefficient of internal consistency was 0.83, 0.92, and 0.82 for vigor, dedication and absorption, respectively, and for the total scale was 0.93. Schaufeli and Bakker (2003) developed many versions of instrument such as Swedish, Finnish, English, and German version as well as Chinese version.

Moreover, Schaufeli and Bakker categorized the level of work engagement into five levels as follows:

Category	Very low	Low	Average	High	Very high
Overall	≤ 1.93	1.94-3.06	3.07-4.66	4.67-5.53	≥ 5.54
Vigor	≤ 2.17	2.18-3.20	3.21-4.80	4.81-5.60	≥ 5.61
Dedication	≤ 1.60	1.61-3.00	3.01-4.90	4.91-5.79	≥ 5.80
Absorption	≤ 1.60	1.61-2.75	2.76-4.40	4.41-5.35	≥ 5.36

The 15-item Utrecht work engagement scale (UWES-15) developed by Schaufeli and Bakker (2003). Schaufeli and Bakker (2003) developed 15-item Utrecht work engagement scale based on 17-item Utrecht work engagement scale (UWES-17) by Schaufeli and Bakker (2003) which was deleted two items because of weak psychometric analyses. The 15 items scale was vigor (5 items), dedication (5 items), and absorption (5 items). The construct validity was tested by using structural equation modeling (SEM) and the results were 0.10 for the root mean square error of approximation (RMSEA), 0.92 for the comparative fit index (CFI), 0.92 for normed fit index (NFI), and 0.90 of non-normed fit index (NNFI). The result of RMSEA was approaching the criteria of 0.08 or low. The results of CFI, NFI, and NNFI met the criteria of 0.90 or above. And the Cronbach's alpha coefficient of the internal consistency was 0.86, 0.92, and 0.82 for vigor, dedication and absorption, respectively, for the total scale was 0.92. Higher score on every sub-dimension indicated higher engagement.

Schaufeli and Bakker (2003) categorized the level of work engagement into five levels as follows:

Category	Very low	Low	Average	High	Very high
Overall	≤ 1.93	1.94-3.06	3.07-4.66	4.67-5.53	≥ 5.54
Vigor	≤ 2.00	2.01-3.20	3.21-4.80	4.81-5.65	≥ 5.66
Dedication	≤ 1.60	1.61-3.00	3.01-4.90	4.91-5.79	≥ 5.80
Absorption	≤ 1.60	1.61-2.75	2.76-4.40	4.41-5.40	≥ 5.41

The 9-item Utrecht work engagement scale (UWES-9) developed by Schaufeli and Bakker (2003). Schaufeli and Bakker (2003) developed 9-item Utrecht Work Engagement Scale (UWES-9) based on 17-item Utrecht work engagement scale (UWES-17) by Schaufeli & Bakker (2003) which was deleted 8 items because of items deviation from normality as far as their skewness and kurtosis. The scale consists of 9 items and 3 items for each sub-dimension. An item was scored on 7 points from 0 (never) to 6 (always). The construct validity was tested by using structural equation modeling (SEM) and the results were 0.10 for the root mean square error of approximation (RMSEA), 0.96 for the comparative fit index (CFI), 0.96 for normed fit index (NFI), and 0.94 of non-normed fit index (NNFI). The result of RMSEA was approaching to the criteria of 0.08

or low. The results of CFI, NFI, and NNFI met the criteria of 0.90 or above. The Cronbach's alpha coefficient of the internal consistency was 0.84 for vigor, 0.89 for dedication, 0.79 for absorption, and 0.93 for the total scale. Higher score on every sub-dimension indicated higher engagement.

Schaufeli and Bakker (2003) categorized the level of work engagement into five levels as follows:

Category	Very low	Low	Average	High	Very high
Overall	≤ 1.77	1.78-2.88	2.89-4.66	4.67-5.50	≥ 5.51
Vigor	≤ 2.00	2.01-3.25	3.26-4.80	4.81-5.65	≥ 5.66
Dedication	≤ 1.33	1.34-2.90	2.91-4.70	4.71-5.69	≥ 5.70
Absorption	≤ 1.17	1.18-2.33	2.34-4.20	4.21-5.33	≥ 5.34

In 2006, Schaufeli, Bakker and Salanova tested the 9-item Utrecht work engagement scale (UWES-9) in 10 countries. The construct validity was tested by using structural equation modeling (SEM) and the results were 0.03 for the root mean square error of approximation (RMSEA), 0.96 for the comparative fit index (CFI), 0.95 for normed fit index (NFI), and 0.93 of non-normed fit index (NNFI). The result of RMSEA met the criteria of 0.08 or low, and the results of CFI, NFI, and NNFI met the criteria of 0.90 or above. The Cronbach's alpha coefficient of internal consistency of the scale ranged from 0.68 to 0.88 for vigor, from 0.75 to 0.90 for dedication, and from 0.66 to 0.86 for absorption.

The Chinese version Utrecht work engagement scale (UWES-15) developed by Zhang and Gan (2005). Zhang and Gan (2005) back-translated 17-item Utrecht work engagement scale (UWES-17) (Schaufeli et al., 2002) into Chinese version which was deleted two weak items for weak psychometric analysis in China. The scale included 15 items: vigor (6 items), dedication (4 items), and absorption (5 items) and was scored on a 7 points from 0 (never) to 6 (always). The construct validity was tested by using structural equation modeling (SEM) and the results were 0.05 for the root mean square error of approximation (RMSEA), 0.97 for the comparative fit index (CFI), and 0.93 for normed fit index (NFI). The result of RMSEA met the criteria of 0.08 or low, and the results of CFI, NFI, met the criteria of 0.90 or above. The Cronbach's alpha coefficient

of the internal consistency was 0.767, 0.735, 0.753 and 0.90 for vigor, dedication, absorption, and total scale, respectively. Higher scores indicate higher levels of engagement.

Reviewing the measurements of work engagement, all instruments can be used to measure work engagement directly and had good validity and reliability. However, the Utrecht work engagement scale (Schaufeli & Bakker, 2003) was widely used and categorized into five levels. Moreover, this study was conducted in the People's Republic of China. Thus, the 17-item Chinese version Utrecht work engagement Scale (Schaufeli & Bakker, 2003) which was translated into Chinese by original author was used in this study.

Studies Related to Work Engagement

There are some studies related to work engagement which have been conducted to explore the level of work engagement. These studies are presented as follows:

Bamford et al. (2013) examined work engagement among 280 registered nurses working in acute care hospitals, Ontario by using 9-item Utrecht work engagement scale (Schaufeli & Bakker, 2003). The results showed that work engagement was at a moderate level for both overall score ($\bar{X}=4.01$, $SD=0.97$) and sub-dimensions of vigor ($\bar{X}=3.65$, $SD=1.17$), dedication ($\bar{X}=4.46$, $SD=1.02$) and absorption ($\bar{X}=3.94$, $SD=1.09$).

Gabr and El-Shaer (2013) examined work engagement among 179 head nurses in Mansoura by using 17-item Utrecht work engagement scale (Schaufeli & Bakker, 2003). The results showed that work engagement was at a moderate level for both overall score ($\bar{X}=64.94$, $SD=9.06$) and sub-dimensions of vigor ($\bar{X}=23.38$, $SD=3.34$), dedication ($\bar{X}=19.86$, $SD=3.48$) and absorption ($\bar{X}=21.70$, $SD=3.70$).

Veitamana (2014) examined work engagement among 298 nurses working in the three divisional hospitals of the Republic of the Fiji Islands by using the 17-item Utrecht work engagement scale (Schaufeli et al., 2002). The results showed that work engagement was at a moderate level for both overall score ($\bar{X}=4.51$, $SD=0.92$) and sub-dimensions of vigor ($\bar{X}=4.39$, $SD=0.92$), dedication ($\bar{X}=4.72$, $SD=1.07$) and absorption ($\bar{X}=4.40$, $SD=1.06$).

In the People's Republic of China, there are some studies related to work engagement which are presented as follows:

Feng et al. (2012) examined work engagement among 425 registered nurses from two university hospitals in Yunnan province by using 17-item Utrecht work engagement scale (Schaufeli et al., 2002). The results showed that work engagement was at a moderate level for both overall score ($\bar{X}=3.64$, $SD=1.07$), and sub-dimensions of vigor ($\bar{X}=3.80$, $SD=1.13$), dedication ($\bar{X}=3.76$, $SD=1.31$) and absorption ($\bar{X}=3.67$, $SD=1.03$).

Meng (2012) examined work engagement among 281 nurses in emergency department of tertiary A general hospital in Sichuan, by using 17-item Utrecht work engagement scale (Schaufeli et al., 2002). The results showed that work engagement was at a moderate level for both overall score ($\bar{X}=68.48$, $SD=23.09$), and sub-dimensions of vigor ($\bar{X}=24.22$, $SD=8.82$), dedication ($\bar{X}=18.68$, $SD=8.31$) and absorption ($\bar{X}=25.56$, $SD=9.02$).

Yan (2013) examined work engagement among 501 nurses from tertiary hospitals by using 17-item Utrecht work engagement scale (Schaufeli et al., 2002). The results showed that work engagement was at a slightly high level ($\bar{X}=82.79$, $SD=16.49$).

Zang, Han, and Li (2014) examined work engagement among 136 community nurses in Shenyang by using 17-item Utrecht work engagement scale (Schaufeli & Bakker, 2003). The results showed that work engagement was at a moderate level for both overall score ($\bar{X}=4.27$, $SD=0.71$), and sub-dimensions of vigor ($\bar{X}=4.19$, $SD=0.75$), dedication ($\bar{X}=4.28$, $SD=0.94$) and absorption ($\bar{X}=4.36$, $SD=0.82$).

Wang and Liu (2015) examined work engagement among 300 clinical nurses from two tertiary A hospitals, Tianjin by using the Chinese version 17-item Utrecht work engagement scale (Zhang & Gan, 2005). The results showed that work engagement was at a moderate level for both overall score ($\bar{X}=4.20$, $SD=1.19$), and sub-dimensions of vigor ($\bar{X}=4.16$, $SD=1.18$), dedication ($\bar{X}=4.31$, $SD=1.27$) and absorption ($\bar{X}=4.31$, $SD=1.27$).

Xiao, Zhang, Xiong, and Zeng (2015) examined work engagement among 255 nurses in tertiary hospitals, Hubei by using 15-item Utrecht work engagement scale

(Zhang & Gan, 2005). The result showed that work engagement was at moderate level for both overall score ($\bar{X}=51.54$, $SD=17.09$), and sub-dimensions of vigor ($\bar{X}=18.03$, $SD=7.82$), dedication ($\bar{X}=16.35$, $SD=6.30$) and absorption ($\bar{X}=17.16$, $SD=9.02$).

Reviewing studies related to work engagement found that some studies were conducted among nurses, community nurses and head nurses in different countries including the People's Republic of China. 17-item Utrecht work engagement scale (Schaufeli & Bakker, 2003) was widely used to measure work engagement by scholars. Most of these studies found that work engagement was at a moderate level. Only one study was conducted among head nurses.

Proactive Work Behavior

Definitions of Proactive Work Behavior

The definitions of proactive work behavior are reviewed and presented as follows:

The term “proactive work behavior” was developed based on proactive behavior. Initially, Bateman and Crant (1993) defined proactive behavior as difference among people in the extent to which they take actions to influence their environments. Proactive people can initiate and maintain actions to directly alter the surrounding environment.

In 2010, Parker and Collins classified proactive behavior into three types of proactive work behavior, proactive strategic behavior and proactive person-environment fit behavior where proactive work behavior was defined as self-initiated and anticipatory action to improve internal organization by transforming and optimizing the him/herself situation or environment (Parker & Collins, 2010), and many researchers used this definition in their researches (Ren, Ma, Xie, & Wang, 2016; Sanghon, 2016; Warshawsky et al., 2012).

Reviewing the definitions of proactive work behavior found that it was originated from proactive behavior (Bateman & Crant, 1993). The definition of proactive work behavior by Parker and Collins (2010) that focused on changing internal organizational at individual level was used in this study.

Concepts and Theories Related to Proactive Work Behavior

The concept of proactive behavior at work and proactive work behavior are reviewed and presented as follows:

The model of proactive behavior at work by Parker et al. (2006). The model of proactive behavior at work was developed by Parker et al. (2006) based on the concept of personal initiative (Frese & Fay, 2001) which presented that proactive behavior will be influenced by the context. The model of proactive behavior at work included two sub-dimensions: proactive idea implementation and proactive problem solving. Proactive idea implementation refers to taking charge of an idea for improving the workplace, either by voicing the idea to others or by self-implementing the idea. Proactive problem solving refers to self-starting and future-oriented responses that aim to prevent reoccurrence of any problem or solve it in an unusual and nonstandard way.

The concept of proactive behavior by Parker and Collins (2010). The concept of proactive behavior was developed by Parker and Collins (2010) based on literature review (Crant, 2000; Frese & Fay, 2001; Griffin, Neal, & Parker, 2007) which included three higher order categories, namely, proactive work behavior, proactive strategic behavior and proactive person-environment fit behavior. Proactive strategic behavior refers to taking actions to help the organization fit into its surrounding environment. Proactive person-environment fit behavior refers to taking actions to improve self to better fit within an organization. Proactive work behavior refers to taking self-initiated and anticipatory actions to improve the internal organization by transforming and optimizing him/herself situation or environment. It includes four sub-dimensions, namely, problem prevention, individual innovation, voice and taking charge. Problem prevention refers to the action of making efforts to explore the essence of problems and optimize procedures to prevent future reoccurrence of problem. Individual innovation refers to the action of individual being aware of new and emerging opportunities, generating new ideas and seeking to those ideas into force. Voice refers to the action of employee expressing constructive challenges to improve the standard procedures of their work surrounding. Taking charge refers to the action of individual attempting to improve the approach work which was conducted such as work structures, practices and procedures and so on.

The concept of proactive behaviors by Kanten (2014). The concept of proactive behaviors was developed by Kanten (2014) based on the model of pro-organizational, pro-social, and pro-self foci of proactive behavior at work (Belschak & Hartog, 2010). Once, prominent conceptualizations of proactive behavior mostly focused on pro-organizational behavior. However, proactive behavior may focus on enhancing personal career goals, the organization's goals or goals related to co-workers. So Kanten (2014) developed the concept of proactive behavior which included three distinct categories, namely, organizational oriented proactive behaviors, co-workers oriented proactive behaviors and individual proactive behaviors. Organizational oriented proactive behaviors refer to anticipatory activities to affect or change their work environments. Co-workers oriented proactive behaviors refer to a discretionary behaviors and an extra-role behavior which focused on colleagues. Individual proactive behaviors refer to an employee's personal objectives and career goals. Employees who exhibit these behaviors primarily think about their future and their interest. These behaviors were characterized by career management, socialization behavior, networking behavior, innovative behavior and seeking feedback.

Reviewing the concepts related to proactive work behavior found that these concepts have distinct attributes. For example, the model of proactive behavior at work by Parker et al. (2006) focused on implementing ideas and solving problems. The concept of proactive behaviors by Kanten (2014) focused on personal objectives and career goals. The concept of proactive work behavior by Parker and Collins (2010) focused on improving internal organizational by preventing problem, individual innovation, voice and taking charge. In this study, the population was head nurses who worked in university affiliated hospitals. The concept of proactive work behavior by Parker and Collins (2010) is line with the target populations' role, situation and purpose of this study. So it was selected as concept for head nurses' proactive work behavior.

Demographic Factors Related to Proactive Work Behavior

Findings of existing studies indicate that demographic factors were related to proactive work behavior as follows:

Age. Warshawsky et al. (2012) found among nurse managers in North Carolina that age was positive related to proactive work behavior ($r=0.17$, $P<0.05$). However, Sonnentag and Spychala (2012) found among 140 employees in Germany that age was negative related to proactive work behavior, namely, personal initiative ($r=-0.21$, $p<0.05$) and taking charge ($r=-0.20$, $p>0.05$).

Gender. Female supervisors display more proactive work behavior than male supervisors as Ouyang, Lam and Wang (2015) found among 350 supervisors-subordinates dyads in New York that supervisor's gender was positive related to taking charge ($r=0.22$, $p<0.01$).

Nurse manager experience. Warshawsky et al. (2012) found among nurse managers in North Carolina that nurse manager experience was positive related to proactive work behavior ($r=0.20$, $p<0.01$).

Unit tenure. Farrell (2012) found among 260 staff nurses and 38 nurse managers in independent owned hospitals, Ireland that tenure was positive related to proactive work behavior ($r=0.21$, $p<0.01$). Warshawsky et al. (2012) found among nurse managers in North Carolina that unit tenure was positive related to proactive work behavior ($r=0.12$, $p<0.05$). Also, Lam, Spreitzer, and Fritz (2014) found among 400 employees in USA that familiarity with work was positive related to proactive work behavior ($r=0.30$, $p<0.01$).

Education. Ouyang et al. (2015) found among 350 supervisors-subordinates dyads in New York that supervisor's education was positive related to problem prevention ($r=0.14$, $p<0.01$) and voice ($r=0.15$, $p<0.01$).

In conclusion, reviewing literature found that age, gender, experience, education and unit tenure were related to proactive work behavior.

Measurements of Proactive Work Behavior

The three higher order categories of proactive behavior scale by Parker and Collins (2010). The three higher order categories of proactive behavior scale were developed by Parker and Collins (2010) including proactive work behavior, proactive strategic behavior, and proactive environmental organization fit behavior. The scale contained 34 items: proactive work behaviors (13-item), proactive strategic behaviors (9-item), and proactive environmental organization fit behaviors (12-item). It was scored on 5 points from 1 (very infrequently) to 5 (very frequently).

The construct validity was tested by using structural equation modeling (SEM) and the results were 0.05 for RMSEA satisfying with the criteria of 0.08 or low, 0.96 for NNFI, 0.96 for CFI, and 0.96 for IFI satisfying with the criteria of 0.90 or above. The results of a confirmatory factor analysis (CFA) indicated all factor loadings for this model were statistically significant and greater than 0.4. The resulting of an exploratory factor analysis indicated that three categories solution accounted for 58% of the explained variance. The first category was defined by proactive work behavior scale. The factor loading of taking charge was 0.91, of problem prevention was 0.63, of individual innovation was 0.51 and of voice was 0.78. The second category was defined by proactive strategic behavior scale. The factor loadings of strategic scanning was 0.60, of issue selling willingness was 0.49 and of issue selling was 0.47. The third category was defined by person-environment fit behaviors scale. The factor loadings of feedback inquiry was 0.78, of feedback monitoring was 0.61, of job change negotiation was 0.47 and of career initiative was 0.45. The three higher order categories can be used separately or as higher order composites because of no cross-loadings of any two categories was more than 0.40. The Cronbach's alpha coefficient of proactive work behavior was 0.90. The high mean score means high level of proactive behavior.

The proactive behaviors scale by Kanten (2014). The proactive behaviors scale was modified by Kanten (2014) based on the concept of proactive behavior by Kanten (2014) which included three distinct categories, namely, organizational oriented proactive behaviors, co-workers oriented proactive behaviors and individual proactive behaviors. The scale contained 26 items and scores on 5 points from 1 (strongly disagree) to 5 (strongly disagree). The construct validity was tested by using structural equation

modeling (SEM) and the results were 0.97 for CFI, 0.94 for NFI, and 0.96 for NNFI satisfying with the criteria of 0.90 or above, 0.06 for RMSEA satisfying with the criteria of 0.08 or low. Factor loadings of the item ranged from 0.50 to 0.79. The Cronbach's alpha coefficient of the scale was 0.90. The high means score means the high level of proactive behaviors.

Through reviewing the measurements of proactive work behavior which can be used to assess proactive work behavior in lots of fields with good reliability and validity. The three higher order categories scale was modified by Parker and Collins (2010) from three categories, namely, proactive work behaviors, proactive strategic behaviors and proactive environmental organization fit behaviors which can be used separately or as higher order composites. The proactive work behavior scale (Parker & Collins, 2010) was used in this study.

Studies Related to Proactive Work Behavior

From literature review, many studies have been conducted to explore the level of proactive work behavior. These studies are presented as follows:

Warshawsky et al. (2012) examined proactive work behavior among 290 nurse managers in North Carolina by using the proactive work behavior scale (Parker & Collins, 2010) which contained 13-item and four sub-dimensions, namely, problem prevention, individual innovation, voice and taking charge. The results showed that proactive work behavior was at a slightly high level ($\bar{X}=4.10$, $SD= 0.48$).

Reynolds (2014) examined proactive work behavior among 123 nurses in Saint Louis by using proactive work behavior scale (Parker & Collins, 2010) which contained 13 items and four sub-dimensions, namely, problem prevention, individual innovation, voice and taking charge. The result showed that proactive work behavior was at a moderate level ($\bar{X}=2.62$, $SD=1.79$).

Sanghon (2016) found that 63% of nurses among 384 nurses in Thailand scored a moderate level of proactive work behavior by using the proactive work behavior scale (Parker & Collins, 2010) which contained 13-item and four sub-dimensions, namely, problem prevention, individual innovation, voice and taking charge.

In China, Zhu (2013) examined proactive behavior among 250 employees working in enterprises in Shanghai, Nanjing by using proactive behaviors scale (Parker & Collins, 2010) which contained three higher categories, namely, proactive work behavior, proactive personal-environment fit behavior, proactive strategic behavior. The results showed that proactive behaviors were at a moderate level, namely, proactive work behavior ($\bar{X}=3.48$, $SD=0.85$), proactive personal-environment fit behavior ($\bar{X}=3.79$, $SD=0.88$) and proactive strategic behavior ($\bar{X}=3.12$, $SD=0.75$).

Reviewing studies related to proactive work behavior found that studies were conducted among nurses, nurse managers and employees in different countries including the People's Republic of China. Most results of studies related to proactive work behavior were a moderate level. Only one study was conducted in China, and no any study has been found that was conducted among head nurses.

The Relationship Between Work Engagement and Proactive Work Behavior

Engaged employees are more likely to display proactive work behavior less than disengaged employees. Because when individuals with high level of work engagement are not only prone to show more vigor, dedication and absorption (Schaufeli et al., 2002) and take the initiative to work, as well as manifest good attitudes of the work (Zhang, 2014), but also usually willing to drive their energy into work and positively complete the job (Kim et al., 2009). So that work engagement can be considered as engine to promote proactive behavior at work (Salanova & Schaufeli, 2008). In other words, individuals experience a heightened sense of energy towards and identification with their work tasks, they are more likely to take a more proactive work behavior (Farrell, 2012).

There are a few of studies which showed the relationship between work engagement and proactive work behavior in nursing profession. Warshawsky et al. (2012) found among nurse managers in North Carolina that work engagement was associated with proactive work behavior ($r=0.43$, $p<0.001$). In this study, work engagement was measured by 9-item Utrecht work engagement scale (Schaufeli et al., 2006). Proactive work behavior was measured by proactive work behavior scale (Park & Collins, 2010). At the same time, Farrell (2012) found among 260 staff nurses in Ireland that work engagement was associated with individual proactive work behavior ($r=0.12$, $p<0.05$). In

this study, work engagement was measured by 9-item Utrecht work engagement scale (Schaufeli, Bakker, & Salanova, 2006). Proactive work behavior was measured by proactivity scale (Griffin et al., 2007).

As above reviewing literature, significantly positive relationship between work engagement and proactive work behavior has been identified in nursing profession. The correlation results were from low to moderate level. No any study has been found that confirmed the relationship between work engagement and proactive work behavior among head nurses in the People's Republic of China.

Situation Related to Work Engagement and Proactive Work Behavior Among Head Nurses in University Affiliated Hospitals, Yunnan Province, the People's Republic of China

The People's Republic of China, a developing country with a population of 1.374 billion and a land area of 9.6 million square kilometers, locates in Eastern Asia. Chinese government indicated that basic medical and health services service for all urban and rural residents, make everyone access to basic medical and health services up to 2020 and improve the level of people's health (Ministry of Health of China, 2012). In the People's Republic of China, the university affiliated hospitals are public hospitals which are attached to universities. They provide high level specialized medical treatment and health services for several areas residents and carry out research tasks and high degree education. In Yunnan province, there are 7 university affiliated hospitals which provide three-level general medical services (Chinese Hospital Association, 2011; Health and Family Planning Commission, 2016), one is in Dali, five ones are in Kunming and the remaining one is in Yuxi. There are 484 head nurses and 9,945 beds in 7 university affiliated hospitals, Yunnan province (Ministry of Health of China, 2016).

It is well known that head nurses are important persons who contribute to achieve the nursing management objectives' and hospital's goals made by hospital managers such as the zero bedsore, One hundred percent of first-aid kit intact rate, and one hundred percent of instrument disinfection and isolation (Chinese Hospital Association, 2011). Head nurses always act as mediators between executives and staff nurses, physicians and staff nurses, and staff nurses and patients. Head nurses are obliged to efficiently use all

kinds of resources provided by hospitals such as funds, environment, and equipment to motivate and train staff nurses to make more efforts in their daily work, and improve quality of nursing care (Wang & Liu, 2015). In addition, head nurses are in duty bound to manage jobs such as developing nursing plan, managing unit environment, instrument and drugs, organizing ward nursing rounds and consultation (Medical Education Network, 2015). Head nurses are responsible for actively developing new technology and business in the ward, participating in and guiding the rescue of critically ill patients, the patients' nursing care of undergoing complex surgery and complex technical operations (Hua et al., 2014), ensuring patients' safety and satisfaction, increasing financial performance (Chase, 2010), soliciting opinions from staff nurses (Hua et al., 2014), and improving nursing procedures (Huang & Feng, 2016). Moreover, head nurses hold accountable for the subordinate professional development and quality of care in their departments. Head nurses are also expected to provide studying and continuing education opportunities for staff nurses, proactively identify and prevent problem in unit operations before patients are adversely affected, and endlessly improve patients' satisfaction (Chinese Hospital Association, 2011). Therefore, the nature of their work requires head nurses to implement proactive work behavior by voicing, innovating, allocating resource, taking charge, solving and preventing problem that contributes to quality of nursing care.

To be appointed as a head nurse, hospital managers not only focus on the experiences of nurses, but also focus on the competency of improving work approaches and innovation. At the same time, the nurses who are adept at innovation or have been innovative at work will be preferred to be head nurses. Head nurses are autonomy in their work, get more opportunities for developing themselves, and have post allowance (University Affiliated Hospitals, 2015). Therefore, proactive work behavior is important and full of challenge for nurses and head nurses in the People's Republic of China. However, little is known about proactive work behavior of head nurses in university affiliated hospitals in the People's Republic of China.

The university affiliated hospital's overall nursing management objectives are to endlessly improve quality of care (Chinese Hospital Association, 2011) by taking a series of actions such as implementing holistic nursing, sterilizing, drug administrating, enhancing primary care, ensuring patient safety, writing nursing report, supplying

comfortable medical environment, making clear guideline of admission and discharge, and improving patient satisfaction (Yu, 2011). In addition, Ministry of Health of China (2010) pulsed “High Quality Nursing Service Demonstration Project” that aimed to reform clinical nursing pattern, enhance clinical nursing service, and improve nursing management in national health system. The reforming of service pattern required more for nurses’ positivity by insisting philosophy of patient-centered, positively exploring and innovation, supplying more quality and efficient nursing service and achieving new breakthroughs in nursing care (Ma, 2011). Moreover, Chinese Hospital Association (2011) launched the nursing core system which contained 12 provisions and was the primary system to ensure the quality and safety of nursing care. In 2016, Chinese Hospital Association added 4 provisions and highlighted the importance of rescue, quality of care management, patient health education, patient’s safety management, nurse-patient communication, and nursing deficit report, discussion, analysis and management (Chinese Hospital Association, 2016). Furthermore, in the People’s Republic of China, many severe incident occurred in hospitals such as hospital acquired infection (HAI) (Zhang, 2012), pressure ulcers (Tao et al., 2014), medical errors (Zhang, 2012), adverse drug events (ADEs) and excess length of stay (Cui et al., 2013; Hu et al., 2009). These factors force head nurses to display proactive work behavior to meet the needs of nursing services and management as well as solve and prevent problem to ensure the quality of care and the safety of patient.

Also, proactive work behavior would be a huge challenge in the People’s Republic of China. In order to meet the challenge, head nurses are obliged to take some countermeasures such as innovation and exploration, because innovative behaviors are important for improving quality of nursing care and achieving the hospital goals as Liu and Li (2015) presented that innovative behaviors of nurses as engine directly influenced the level of nursing care and Ma (2011) reported that, under the new situation and new challenges, perfect management and technological innovation can achieve the goals of realizing sustainable and quickly development of the hospitals. At the same time, Hospital Management Research Institute of Ministry of Health (2013) specified that head nurses should have the consciousness of management, technical and service innovation. These factors encourage head nurses to be aware of new emerged opportunities and generate ideas to improve services. Additionally, many hospitals tried to promote innovation such

as the Second People's Hospital of Changzhou City (2017) carefully planned the first nursing innovation competition; Taiwan Chang Gung Memorial Hospital carried out innovation policy in the people-oriented principle (Zhu, 2012), and some hospitals actively carried out and supported management of new technologies and new projects in which head nurses can actively participated innovation of techniques and products by applying projects (Zhou & Liu, 2006). These hospitals supported and encouraged head nurses to do more actions for innovation. However, Bao et al. (2013) found among nurses in Shanghai that innovative behavior was at a moderate level ($\bar{X}=25.91$, $SD=6.59$). Taking charge is also important for nurses in doing nursing care or making decision on their jobs. However, Zhang (2016) found that only 6.65% of nurses involved in grading nursing care for patients whereas 70.08 % of physicians involved in grading nursing decision which is the levels of nursing made according to patients' conditions and is a part of nursing practice that represents taking charge of nurses at work.

It is considered that the elderly population proportion will increase from 10% in 2000 to 40% in 2050 (Bureau of Statistic of China, 2016). The proportion of children who were under 15 years old had been up to 17% in 2015 (World Population Network, 2015). At the end of 2015, the ratio of nurse and population was 1:1000 in the People's Republic of China which was far less than 5:1000 in most countries such as USA and Australia in the world. The People's Republic of China especially Yunnan province is contending with a very serious nurse shortage comparing to other countries (Chinese News Network, 2016). Both more requirements for nursing care and serious nurse shortage result in serious high workload in health care professions. In addition, nurses are in duty bound to promote and recover patients' physical and mental health by taking a series of complex and heavy tasks such as completing the nursing process, collaborating with physicians and multidisciplinary team members, educating patients and family knowledge of health and disease, providing physical and psychological support to patients and families, and supervising team members (Medical Education Network, 2015; Su, Zhou, & Li, 2017). These crushing workloads may deplete head nurses' most energy, so it is too hard for head nurses who with high level of energy, mental resilience and strongly engage in their work.

In the meantime, on 1st January of 2016, the People's Republic of China fully opened two-child policy (National Health and Family Planning Commission, 2015). Many childbearing-age head nurses are actively preparing for pregnancy. The action is supported by family especially patients. Additionally, married head nurses are more likely to take care of their babies and their family members than engage in work. Moreover, in the recent ten years, the medical environment has been deteriorating in the People's Republic of China. According to an incomplete statistics, medical violence resulted in nearly 40 health care providers' death from June of 2001 to October of 2016. From January of 2015 to May of 2016, 60 injury medical incidents occurred in the People's Republic of China, and more than 50% of them occurred in the tertiary A general hospitals. Among health care providers, nurses are most likely to be attacked (Qiao, 2016). This decentralization of energy and support, disharmonious working environment may be obstacles of work engagement of head nurses.

In conclusion, since the requirements of society, government, executive, patients are more and more for the nursing care. Meanwhile, some factors hinder the development of nursing, some systems and factors stimulated the development of nursing. Also, head nurses are confronting to great challenges in university affiliated hospitals, Yunnan province, the People's Republic of China. Therefore, it is significant to conduct this study to explore the levels of work engagement, proactive work behavior and its relationship among head nurses in university affiliated hospitals, Yunnan Province, the People's Republic of China.

Conceptual Framework

The conceptual framework of this study was based on concepts of work engagement and proactive work behavior. Work engagement is defined as positive, fulfilling and work-related state of mind. It is a more persistent and pervasive affective-cognitive and characterized by vigor, dedication, and absorption (Schaufeli et al., 2002). The concept of proactive work behavior refers to self-initiated and anticipatory actions with the purpose of transforming and optimizing the situation of oneself or environment to improve internal organization. It includes four sub-dimensions, namely, problem prevention, individual innovation, voice and taking charge (Parker & Collins, 2010). Individuals with high level of work engagement reflect the willingness to take the

initiative to work and increase the likelihood of displaying proactive behavior at work. The relationship between work engagement and proactive work behavior among head nurses in university affiliated hospitals, Yunnan province, the People's Republic of China was tested in this study.



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