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Refinement of job crafting scale: Motivation, work engagement and job performance among Thai healthcare professionalsPichaya Rochanadumrongkul^{1,*} and Prapimpa Jarunratanakul¹¹Faculty of Psychology, Chulalongkorn University, Bangkok, Thailand

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Abstract

Job crafting is the method whereby employees to reframe their jobs including physically (changing the form of the task), socially (changing interactions with colleagues), and cognitively (changing ways of perceiving the job). The purpose of this study was to develop and validate job crafting measures related to the level of motivation, work engagement and job performance in Thai healthcare professionals using structured interviews and structured equation model (SEM). A qualitative method using the interview (n=20) was employed to extract employees' experiences of crafting their job and explore additional dimensions of job crafting. The results of the interview revealed an additional dimension of job crafting, namely "humor" for the Thai Job Crafting Behavior scale (JCB) (physical crafting, relational crafting, cognitive crafting and humor). In the quantitative method, the content validity and construct validity; Exploratory Factor Analysis and Confirmatory Factor Analysis (EFA and CFA) were used to meet the validation of the additional dimension in the Thai JCB measurement model. Thai JCB was also given empirical support through concurrent and convergent validation. Moreover, the results of the Thai JCB structural model and related variables (i.e., motivation, work engagement, and job performance) fit well with the observed data in the expected direction. The findings can be beneficial to organizations by providing an understanding of job crafting behavior among Thai healthcare professionals, which can consequently lead to increased work motivation, work engagement, and job performance. The implications and recommendations of Thai JCB are discussed.

Keywords: Job crafting, Motivation, Work engagement, Job performance

1. Introduction

Hospital is a complex institution that requires highly effective healthcare professionals in order to deliver high-quality services and cost-effective care to patients. These healthcare professionals, however, apparently undergo from physical loads or psychological overload with high pressure - the increasing complexity of patients' treatments. Additionally, due to the current COVID-19 pandemic situation, healthcare professionals have been exposed to the dramatically altered work structures and work methods. Those professionals who provided treatments for patients also encountered difficulties in their work operating process in this situation. This might lead them to be less motivated, engaged and have poor performance in their work [1].

As mentioned above, challenging professionals in healthcare contexts might deal with how to enhance the levels of employee motivation, engagement and job performance in the organization. There were strong empirical evidences which proposed many strategic interventions, such as incentives, technological, services for professionals or some commitments, for enhancing levels of motivation and work engagement in the context of healthcare industry [2,3].

Previous research has found that job crafting interventions have a substantial and beneficial effect on employee motivation and work engagement, which can help individuals perform job more effectively. Job crafting is the method of reframing and recognition to their jobs based on job characteristics, physically (changing the form of the task), socially (changing interactions among work colleagues), and cognitively (changing ways of perceiving the job), resulting in higher in or even extra-role performance [4-6]. However,

research on the impacts of job crafting and its related work outcomes has been scarce in Thai health care contexts. Also, previous studies on job crafting have been mostly conducted in Western settings [7]. It has been uncovered how pervasive the job crafting practice might be in Eastern cultures (Thai) of the healthcare context. In this light, the objectives in current study were to develop and to validate of job crafting measure for the Thai healthcare professionals.

2. Materials and methods

2.1 Job crafting conceptualization

Job crafting is characterized as an ongoing process in which employees make physical and cognitive or relational boundaries adjustments to change their jobs on their own (bottom – up process). Job crafting concept in the current study adopted and integrated from existing job crafting behaviors model proposed by [8,9] into 3 broad forms namely physical, relational, and cognitive crafting. Start with, physical crafting defined as when workers change the number, scope, or type of tasks boundaries. Relational crafting defined as the process of altering the job's relational boundaries. Building or reframing relationships can develop the meaningful at work [5,10]. Lastly, cognitive crafting defined as changing the ways of employees perceive the tasks (such as when employees start thinking of a boring, they will reframe their thought). It can be explained that the task itself does not change, but workers who engage in cognitive crafting can reframe how they think about their work [8].

2.2 Job crafting and psychological processes

According to Job Characteristics Theory, job with more task variety and need more abilities would increase the meaningfulness at work. Employees will find the meaningful at work when they are making significant contributions to the organization or other people. Job crafting can be explained through the Job Characteristics Theory. If employees feel like they are doing important work, they will change the boundaries to accomplish their work. For these notions, Job characteristic are also associated with physical crafting (change the boundaries) and cognitive crafting (find the meaningful at work).

A critical psychological state is experiencing responsibility of the work or autonomy at work. Employees' autonomy refers to how much flexibility they have to accomplish their tasks. The Job Characteristics Theory states that employees with more autonomy will have a stronger sense of responsibility for their job. Physical crafting is related to autonomy at work. As, employees with physical crafting have to reframe their tasks on their own, that reflect to the degree of how more autonomy they have to control over their particular tasks.

Another critical psychological state is knowledge of the actual results or outcomes of the work. The effects or outcomes of employees' work will assist them in tracking or monitoring their job's effectiveness. Feedback from job can help employees evaluate their job performance better. For those employees who receive negative feedback, this might give them the opportunity to make improvements and engagement to their works. Teams' feedback from the job is positively associated with relational crafting of job crafting [9].

The core Job characteristics can be measured as a motivation for a job. This allows organizations to assess the extent which of Job characteristics has the potential to influence employees' attitudes and behaviors. Therefore, organizations can focus on the job crafting as same as the five core characteristics, in order to promote employees' motivation, engagement and job performance.

2.3 Motivation

The relationship between job crafting and motivation can be explained with the self-determination theory (SDT). According to SDT, lack of motivation (amotivation), extrinsic motivation (i.e., external reward - money, trophies, or supporting resources), and intrinsic motivation are the forms of motivation [11]. Intrinsic motivation defined as people who have innate tendencies toward personal growth, as well as innate psychological requirements to perform an activity with satisfaction, enjoyment, and fulfillment by their autonomy and competence [11]. For these notions, job crafting's behavior tended to relate with intrinsic motivation.

For physical crafting, if employees can challenge the competency by changing the boundaries of the task, they might fulfill the needs for autonomy and competence. Employee with high work autonomy will be motivated to do the tasks [12].

For relational crafting, employee changed their experiences with others at work in ways to promote their relationships. High-quality of interpersonal interactions is related to increase level of motivation because it allows employees to have supportive and meaningful experiences with their coworkers.

For cognitive crafting, employees focused on changing how they think about their roles that can lead to increases in meaningfulness at work. The potential of cognitive crafting is supported by the positive mindsets

without altering the details of the job. With this type of crafting, employees will be more motivated to do their jobs.

2.4 Work engagement

Work engagement is a concept that provides workers with positive energy they can contribute to their jobs, which is characterized by vigor, dedication, and absorption. Vigor can be described as for having a lot of energy and mental toughness for work. Dedication is for an active participation in and contribution to one's work. Absorption can be as to concentration or cognition in work [13]. Thus, with the physical participation, cognitive knowledge, and emotional relations, employee were encouraged to engage in their work [14].

For those who involve with physical crafting, they use their skills and abilities while retaining autonomy prior and consequently leading to work engagement [15].

The longitudinal studies indicated that engaging in relational crafting result in improvements in well-being and work engagement. Higher levels of social support, autonomy, and performance feedback could effect in higher levels of work engagement [16].

When employees engage in cognitive crafting, they change the perception of their tasks to be more optimistic way. This enables to develop better senses of meaningfulness at work to enhance work engagement [17].

2.5 Motivation, work engagement and performance

Kahn (1990) first addressed employees' motivation and engagement was related to their job performance. As mentioned above, Job crafting related with psychological process as Job characteristic model theory and SDT. Job crafting can let the employees feel more in possession of their motivation, work engagement that relate to job performance as a consequence [18,19].

In addressing, job crafting could be used in healthcare sector. Because of the sophistication of their routine work, there was a lot of job pressure that impacted health care professionals less motivation and engaged in their works. The job crafting scale were developed and validated in this study in terms of healthcare contextual features. The current study was conducted in 2 parts.

Part 1) Qualitative method: A semi-structured interview approach was employed for exploration the job crafting behaviors that were derived from western contexts and exploration of additional dimensions to the developed model (whether there would be additional dimensions that might be overlooked or specific job crafting behaviors that related to cultural contexts of Thai healthcare).

After obtaining the interview results, item generation for any additional constructs and content validity for Thai Job Crafting Behavior scale (JCB) were conducted.

Part 2) Quantitative method: Regarding for the scale validation, the newly developed of Thai JCB was validated using construct, concurrent and convergent validity. Moreover, the structural model of job crafting, motivation, work engagement, and job performance was also examined. The following process of the study, hypotheses and research model (as illustrated in Figure 1 and 2) were proposed as follows:

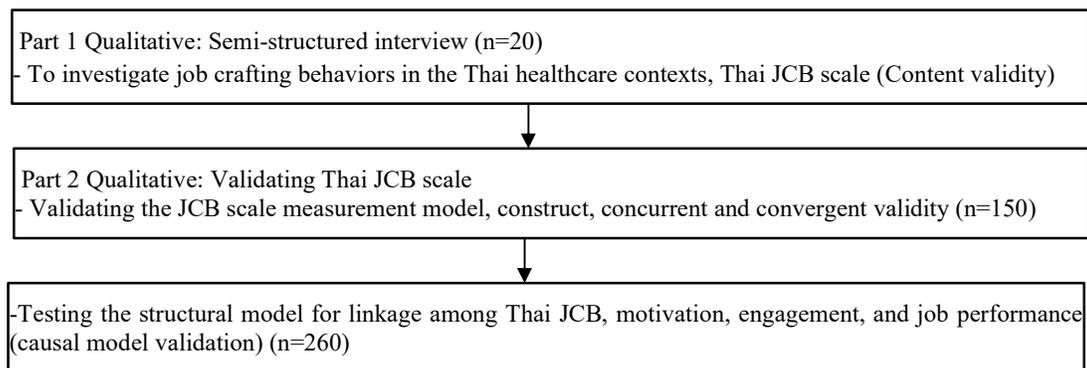


Figure 1 The process of the study.

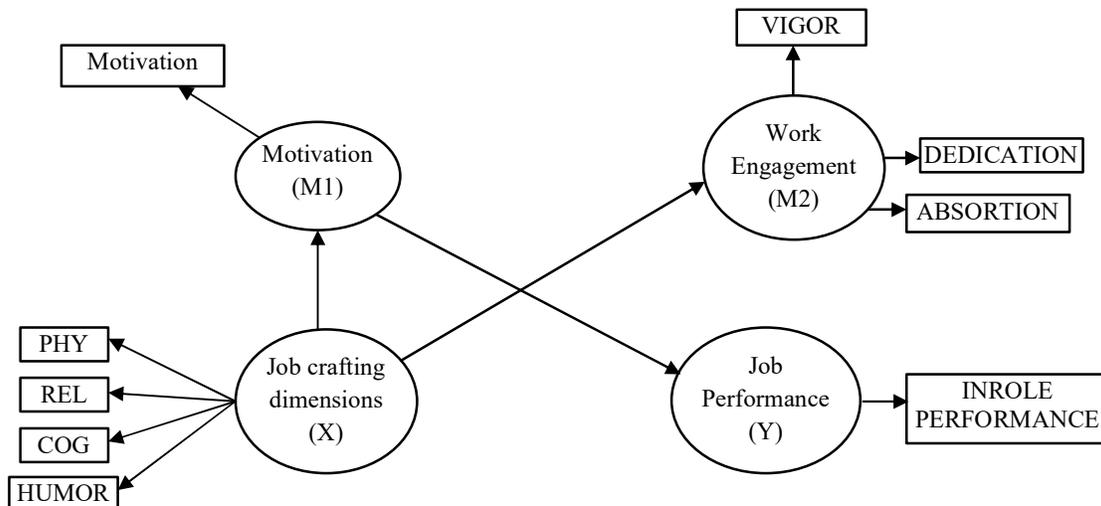


Figure 2 Research model of Thai JCB to work related outcomes.

Hypotheses were proposed as,

Hypothesis 1 Job crafting (physical, relational, and cognitive crafting and humor) will positively predict motivation.

Hypothesis 2 Job crafting will positively predict levels of work engagement.

Hypothesis 3 Job crafting will positively predict levels of job performance.

Hypothesis 4 Motivation will mediate the relationship between job crafting and job performance.

Hypothesis 5 Work engagement will mediate the relationship between job crafting and job performance.

2.6 Part 1 the semi-structured interview to investigate job crafting behaviors in the Thai healthcare contexts

A semi-structured interview approach was conducted for exploration of the job crafting behaviors and exploration of additional dimensions to the developed model in Public hospital.

2.6.1 Method

Following ethical approval, the purposive sampling technique was used to identify the hospitals and study participants. The researcher, as the interviewer, asked for permission to collect the data, and explained the purposes of the study. The interviewer approached each participant individually with their voluntary participation, and explained the study's objectives and participation procedure at a single point of time in the meeting.

The inclusion criteria was the healthcare professionals including doctors, dentists, nurses, and pharmacists, or some allied health professions (e.g., physical therapists) who have been working for 6 months prior to the study period, and holding full-time employment position. Participants held the administrative or supportive staff workers positions were excluded.

2.6.2 Instrument (semi structure interview)

The guideline instrument was validated and derived based on the existing job crafting studies from [8,9]. The open-ended questions were designed to gather information about participants. The demographic profiles include, job position, working tenures also job details and work experiences (e.g., their job working hours). For the interview session for investigating the job crafting construct, they were asked about their job crafting behaviors relating to each one or two questions for each dimension of job crafting (e.g., questions regarding one dimension of job crafting: relational crafting – the words such as “Have you actively changed the ways you interact with others at work?”).

2.6.3 Data analysis (semi structure interview)

The content analysis of the transcribed interview was undertaken. Each participant answered the same questions. The open-ended responses were recorded. The example of behaviors' responses record in each dimension was as being assigned to manage tasks at work, or as cooperating with colleagues, proactive, and negotiated at work. The quotations were included in the text to exemplify typical responses.

After generating items for each job crafting dimension obtained from the interview, the content validity using two expert panels was conducted to verify the content of each job crafting dimension. The results of subject matter experts/SMEs with CVI that more than 0.80 were accurated [20].

2.6.4 Result (semi structure interview)

The study included 20 participants (14 females), whose ages ranged from 32 to 50 years. Most of participants were nurses (40%), follow by doctors (25%), pharmacist (20%), and others professionals (20%). Additionally, the tenure of employees was ranged from 3-12 years.

The core factors of job crafting behavior were extracted from participant's responses. The responses from all participants revealed three dimensional factors of job crafting including physical crafting, relational crafting, and cognitive crafting, which were consistent with the existing concept of job crafting. Some participants reported that they used humor to craft their job. This led to additional factor which was found from Thai health care professionals.

Physical crafting is the first aspect core factor from the interview. Physical crafting entails any actions taken by employees to change or modify the task boundaries [9]. To extract responses from the interview, it entailed focused codes such as adding more tasks, emphasizing tasks by allocating time, energy or attention, and redesigning tasks. The relevant examples of statements by participants were,

“(I change the treatment plan. For instance, the treatment in the wintertime, when there are more patients, differs from that in the summertime.)”

“(I seek new techniques from medical device companies or from my senior colleagues' experiences so that I acquire new knowledge to be adapted for my job.)”

Relational crafting is the second aspect, It is about changing the relational boundaries of the job or crafting the interpersonal relationships experienced when performing the job [5,10]. To extract responses from the interview, it entailed focused codes such as developing relationships, reframing relationships, and adjusting relationships. The relevant examples of statements by participants were,

“(We work as a team. If we are close, it is easier to work together. The longer we stay at our job, the better we know each other and understand our working styles.)”

“(After a period of time on the job, knowing colleagues from other sectors helps me with the intersectional coordination.)”

Cognitive crafting is the third aspect; it is involve changing the ways employees perceive their tasks and the perception within their work sphere. To extract responses from the interview, it entailed focused codes such as encouraging workers to positively reframe their thoughts about their jobs [8]. The relevant examples of statements by participants were,

“(I feel delighted. Sometimes, patients come back for surgical follow-ups or for expressing gratitude. As a healthcare professional, I am glad to have served them)”

“(I learn that the meaning of my job is to treat my patients in order to help them to improve their quality of life.)”

The new added factor 'humor' was indicated. Humor at work can create a positive emotion of manage the task and lighten relationship between employees. The relevant examples of statements by participants were,

“(Sometimes, when there are many patients, stress is inevitable. Creating an atmosphere interspersed with cracking jokes makes me work better.)”

“(Having an exchange of humorous stories with friendly officials from other divisions helps my job go more smoothly.)”

“(When I am under too much stress, I give myself a break by thinking about past funny stories. It makes me feel relaxed before getting back to work.)”

After the interview session, the newly developed of the job crafting, “Thai JCB” was developed. The result revealed as the same construct of existing job crafting literature with added dimension of 'humor'. Thus, the 13 items of the Thai JCB in this study were generated. There were from 9 items of Niessen's job crafting scale and 4 items added of humor dimension. In order to generate items, three experts examine the scales as relevance to operational definition of the study and rate the score with Content Validity Index (CVI). The result was acceptable at 0.80.

2.7 Part 2 Validating Thai JCB scale and testing the structural model for the linkage among Thai JCB scale, motivation, engagement, and job performance

Firstly, Thai JCB scale was assessed beyond the construct validity; Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (EFA and CFA). Secondly, the concurrent validity was also conducted to assess that the Thai JCB was related to the existing job crafting scales. Thirdly with the convergent validity, the Thai JCB was assessed with the related scales (self-efficacy and proactive personality scale) for the correlation measurement. Together with the structural model of job crafting, motivation, work engagement, and job performance was also examined.

2.7.1 Method

The purposive sampling technique was adopted for the hospital. The participants were recruited from the invitation letter and questionnaire via an online link (QR code or URL website) on the hospital website. 150 participants were calculated by the item ratio ranged from 5: 1 [21] for Validating Thai JCB scale. 260 participants were calculated by RMSEA for testing the structural model of Thai JCB scale, motivation, engagement, and job performance.

2.7.2 Instrument (validating Thai JCB scale)

The self-report online questionnaires were comprised of 4 sections including:

Section 1: The demographic data were designed to obtain information regarding: age; gender, job tenure and organizational tenure

Section 2: Thai JCB

Section 3: The existing well-established job crafting of [9]

Section 4: The questionnaire scale of self-efficacy of [22] and proactive personality of [23]

The 13-item of Thai JCB scale (from part I) was a 5-point rating scale ranging, from 1 (Not at all) to 5 [24]. Job crafting consisted of four factors which included task, relational, cognitive crafting and humor. Cronbach's alpha coefficient verified in pilot study was above .80.

For concurrent validity, Thai JCB was assessed with the existing well-established jobs crafting scales of [9]. That was a 5-point rating scale ranging from 1 (Never) to 5 (Often).

For convergent validity, Prior study found that employees with a proactive personality were more proactive in adapting to changes or crafting their jobs [25]. In addition, the study of [26] discovered that self-efficacy and job crafting behaviors have a positive relationship. Employees who are more self-efficacious are more likely to seek out more diversity in their work and to develop new skills [26]. The study found that employee who score high on self-efficacy was defined as the ability to do more than the job description requires [27]. As a result, the Thai JCB scale was associated with proactive personality and self- efficacy in order to determine convergent validity.

Thus, Thai JCB was assessed with a short version of the proactive personality scale from [23]. That was a 5-point rating scales ranging from 1 (completely disagree) to 5 (completely agree). Thai JCB was also assessed with the scale of self-efficacy from [22]. That was a 5-point rating scales ranging from 1 (not at all confident) to 5 (very confident).

2.7.3 Instrument (Validating the structural model for the linkage among Thai JCB scale, motivation, engagement, and job performance)

The self-report online questionnaires were comprised of 5 sections including:

Section 1: The demographic profiles were designed to obtain information regarding :age; gender, the job tenure and organizational tenure

Section 2: Thai JCB

Section 3: Motivation scale

Section 4: Work engagement scale

Section 5: Job performance scale

The Motivation scale as Work Preference Inventory scale (WPI) was from [28]. That was a 5-point rating scales ranging from 1 (fully disagree) to 5 (fully agree). Work engagement was assessed from the Utrecht Work Engagement Scale [29], which was a 5-point rating scales ranging from 1 (never) to 5 (always). Job

performance was assessed from [15]. This scale was a 5-point rating scales ranging from 1 (strongly disagree) to 5 (strongly agree).

2.7.4 Data collection and analysis

The study was applied the purposive sampling technique to determine one hospital. The invitation letter and measurement were circulated online link (QR code or URL website). The scales of Thai JCB was refined and translated from the 3-factor job crafting scale by [24] and added another dimension “humor”, which was extracted. Thai JCB scale validation was conducted in three steps. Firstly, the measurement of the scale was examined using EFA and CFA. Secondly, concurrent validity was performed by correlating Thai JCB scale with the existing well-established job crafting scales of [9]. Thirdly, convergent validity was examined to investigate the correlations of Thai JCB scale with other relating variables (e.g. self-efficacy and proactive personality). The measurement was validated through IBM SPSS Statistics 21 and Mplus7 [30].

For validating the structural model for the linkage among Thai JCB scale, motivation, engagement, and job performance, Structure equation model analysis (SEM) was employed, using Mplus7 to examine the hypothesis model (shown in Figure 2), of how well Thai JCB related to motivation, work engagement, and performance. To determine the fit of the model, well-known fit indices (shown in Table 1) were used as the criteria [31].

Table 1 Fit indices.

Goodness of fit criteria	Value
χ^2	$2.0 \leq \chi^2 \leq 5.0$
RMSEA	≤ 0.08
CFI	≥ 0.8
SRMR	≤ 0.08

3. Results

3.1 Demographic data

With 150 participants, 21.33% were female, and 78.67% were male. Most of participants were pharmacist (34%), follow by nurses (32.66%), doctor (19.33%), dentist (5.33%) and others professionals (less than 5%). The participants’ average job tenure was 8.15 years. The average organizational tenure was 7.37 years.

3.2 Construct validity

Construct validity was statistically analyzed by EFA and CFA. The EFA of Thai JCB, including physical crafting, relational crafting, cognitive crafting and humor were extracted. Bartlett’s test of sphericity is significant ($\chi^2= 1,357.65$, $p < 0.05$) and the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy is 0.89 (> 0.5), indicating that EFA is valid. The patterns of correlations are relatively compact that generated distinct and reliable factors. The extracting factors with an eigenvalue were greater than one. Cronbach’s alpha of the total scale was .92. All observed variables have factor loading greater than 0.5, ranged from .71 to .88 exceeding the minimum standard for reliability (0.70) recommended by [32]. The items were grouped into four factors using the loading factor and eigenvalue. Humor (factor 1), which consists of four items and has a loading factor of 0.82 - 0.88, describes 26.54 percent of the overall variance. Factor 2 (cog) cognitive crafting, which consists of three items with loading factors ranging from 0.71 to 0.86, describes 18.82 percent of the overall variance. Factor 3 (relc) relational crafting, which consists of three items with loading factors ranging from 0.74 to 0.85, describes 17.73 percent of the overall variance. Factor 4 (phyc) physical crafting, which consists of three items with loading factors of 0.70 to 0.81, describes 16.07 percent of the overall variance. Table 2 provides more detail about the EFA (factor loadings). The scree plot to calculate the number of latent variables was also shown in Figure 3.

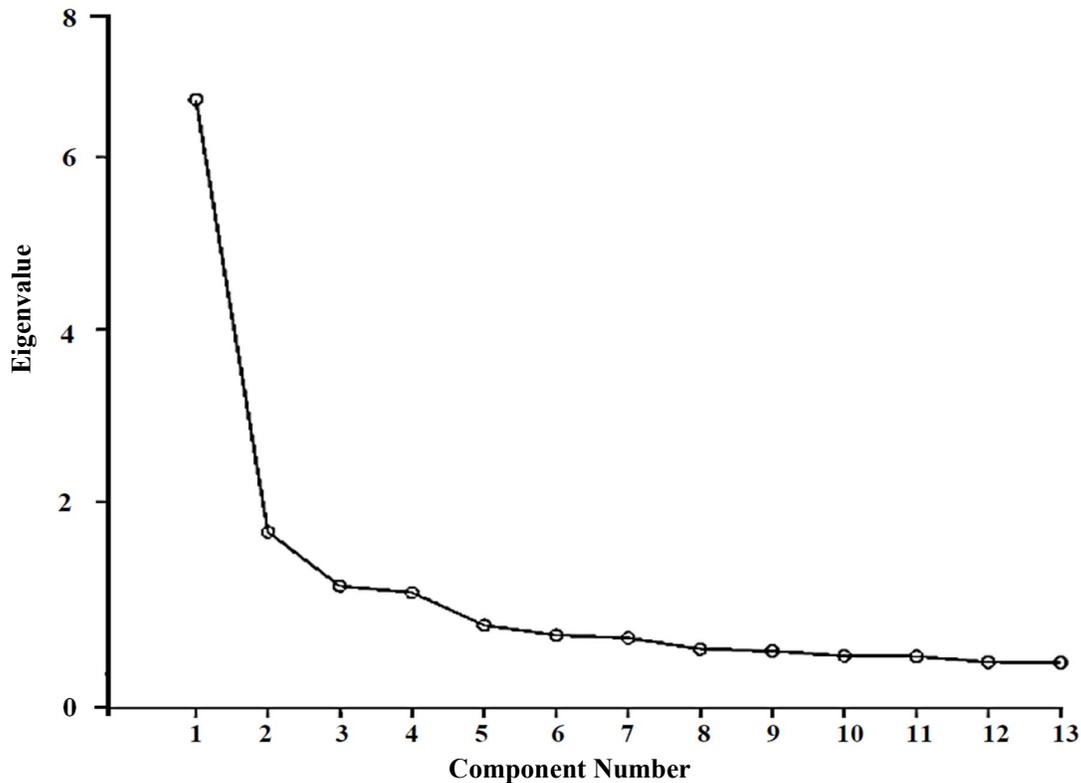


Figure 3 Scree plot of the latent variables (output of the model by Mplus, Version 7).

Table 2 Details of the EFA (Factor loadings).

Items	Factor loadings			
	1	2	3	4
phyc1	0.219	0.062	0.327	0.722
phyc2	0.112	0.190	0.063	0.812
phyc3	0.172	0.345	0.236	0.704
relc1	0.179	0.112	0.746	0.331
relc2	0.209	0.235	0.854	0.120
relc3	0.184	0.425	0.743	0.175
cog1	0.272	0.782	0.254	0.276
cog2	0.200	0.857	0.197	0.140
cog3	0.370	0.716	0.269	0.247
hum1	0.829	0.136	0.225	0.211
hum2	0.868	0.268	0.078	0.171
hum3	0.882	0.193	0.195	0.126
hum4	0.884	0.233	0.174	0.110

(Extraction Method: Principal Component Analysis, Rotation Method: Varimax with Kaiser Normalization)
(Phyc = physical crafting, relc = relational crafting, cog = cognitive crafting, hum = humor).

The CFA of Thai JCB, the empirical data was validated by the development model due to the comprised indicators as $\chi^2 = 90.22$, $df = 59$, CFI = 0.98, SRMR = 0.04, and RMSEA = 0.03, which assume that the four variables can be clarified by a broader dimension of job crafting. The result is confirmed and consisted of 4 factors, which include physical crafting (phyc), relational crafting (relc), cognitive crafting (cog), and humor (hum). Figure 4 show that all of the items have a strong relationship with their respective factors. Regression coefficients for the factor of physical crafting range from 0.63 to 0.82 ($p < 0.01$); for the factor of relational crafting, regression coefficients range from 0.70 to 0.88 with ($p < 0.01$); for the factor of cognitive crafting, regression coefficients range from 0.79 to 0.87 ($p < 0.01$); and for the factor of humor, regression coefficients range from 0.84 to 0.92 ($p < 0.01$).

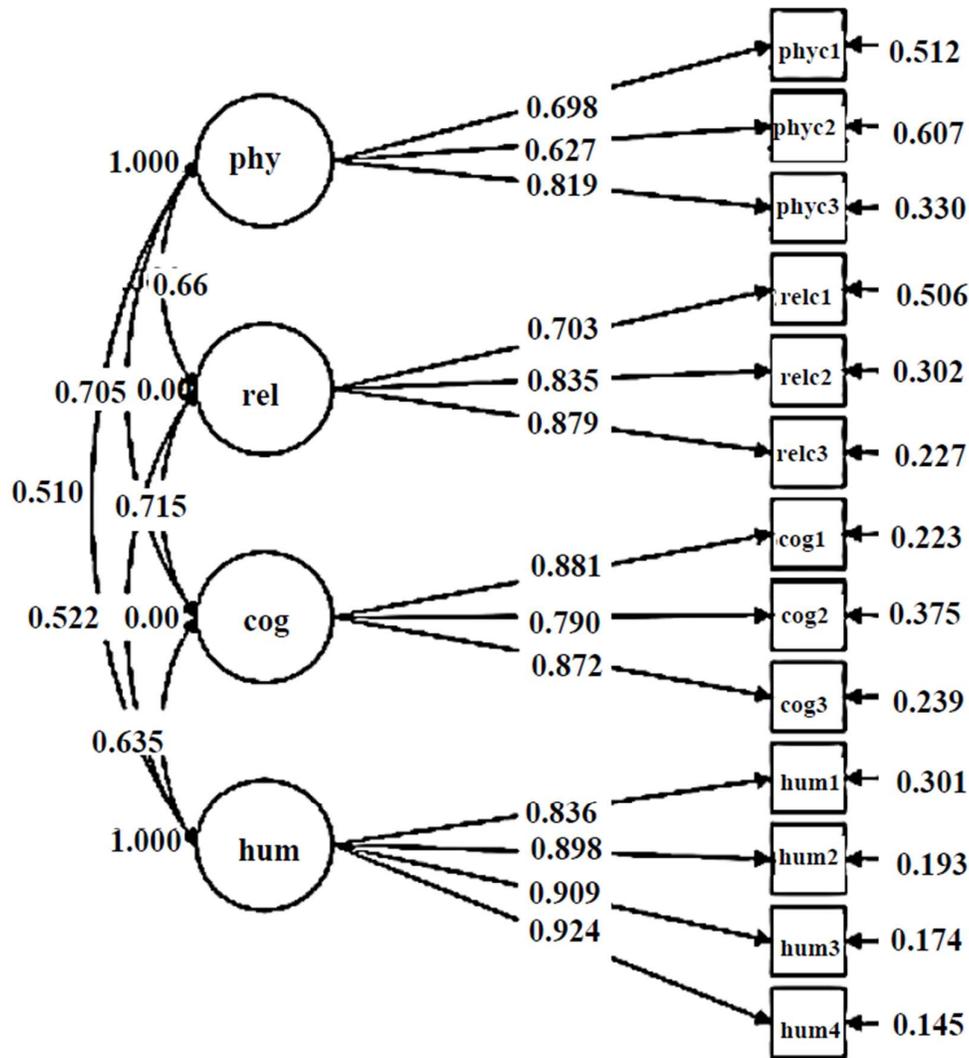


Figure 4 The confirmatory factor analysis model (phy (phyc) = physical crafting, rel (relc) = relational crafting, cog = cognition crafting, hum = humor) (output of the model by Mplus, Version 7).

In addition, the CFA was used to assess whether the 4-factor model of Thai JCB fit the data better than 3-factor model of existing job crafting model from [24] by comparing the relative chi-square difference, and evaluate the significance to confirm for the proper model of Thai JCB in the Thai healthcare context. The results showed that a significant difference was observed between the two models (as shown in table 3). With the chi-square difference value is significant; the “larger” model with more freely estimated parameters fits the data better than the “smaller” model. Therefore, Thai JCB was fit to be the model in Thai healthcare professional.

Table 3 The chi-square difference.

Model	χ^2	<i>df</i>	Δdf	$\Delta \chi^2$
job crafting model from Niessen (2016)	40.92	24		
Thai JCB	90.21	59	35	49.29*

3.3 Convergent validity and concurrent validity

Convergent validity was validated significant correlations between Thai JCB scale and self-efficacy ($r = 0.31$; $p < 0.01$) and between the newly developed job crafting scale and proactive personality ($r = 0.45$; $p < 0.01$). Concurrent validity was validated and performed significant correlation coefficients between Thai JCB scale and the existing well-established job crafting scales ($r = 0.67$; $p < 0.01$).

3.4 Result (Validating the structural model for the linkage among Thai JCB scale, motivation, engagement, and job performance)

3.4.1 Demographic data

From total of 260 participants, 21.33% were male, and 78.67% were female. Most of participants were nurses (40.23%), follow by pharmacists (23.37%), doctor (15.71%), dentist (10.34%) and others professionals (less than 6%). The participants' average job tenure was 7.49 years. And average organizational tenure was 7.06 years.

3.4.2 The structural model

The mean scores of job crafting dimensions were 4.18 (SD =0.72) in physical crafting, follow by 4.03 (SD = 0.75) in cognitive crafting, 3.67 (SD = 0.75) in relational crafting, and 3.64 (SD = 0.69) in humor.

The SEM was used to examine research hypothesis, the structural relationship between Thia JCB, motivation, work engagement and job performance. The results showed that the proposed causal model fit well with the data. Model indices demonstrated adequate fit with $\chi^2=55.39$, $df = 21$, CFI = 0.93, SRMR = 0.04, RMSEA = 0.02. The model was composed of 4 latent variables from 9 observed variables. The latent variables were classified into 1 result variable (job performance) and 1 causal variable (job crafting) and 2 latent mediators (motivation and work engagement).

From the Structural Equation Modeling, all causal variables in the model had positive effects on job performance in Thai healthcare context. Considering the important sequence of the causal variable from the total effect value, it was found that Job crafting had a higher significant positive effect on work engagement

($B = 0.43$, $p < 0.05$) than effect on motivation ($B = 0.16$, $p < 0.05$),

Work engagement and motivation, had a significant positive effect on job performance ($B = 0.16$, $p < 0.05$ and $B = 0.25$, $p < 0.05$ respectively). Thus, the condition for mediation was met for the job crafting–motivation–job performance link and the job crafting– work engagement – job performance link.

In order to presents the full mediation, the results indicated a significantly indirect effect of Thai JCB to the job performance via the motivation ($B = 0.40$, $p < 0.05$). Similarly, there was also a significantly indirect effect of Thai JCB to the performance via the engagement ($B = 0.07$, $p < 0.05$). The results indicated that the positive direct effect of Thai JCB to performance was not statistically significant ($B = 0.03$, ns.) when the mediators were added. This implied that the motivation and engagement variable in the study had the full mediation. The effect of predictor (job crafting) on the performance was significant when motivation and engagement were included. Results of the structure models are shown in Table 4 and Figure 5.

Table 4 Results of the structural models.

Effect Estimate	Estimate	Standard error	<i>p</i> value
Thai JCB→Motivation	0.16	0.07	0.018
Thai JCB→Work engagement	0.43	0.09	0.000
Thai JCB→ Job performance	0.03	0.06	0.632
Motivation→ Job performance	0.25	0.07	0.000
Engagement→ Job performance	0.16	0.07	0.021
Thai JCB→Motivation→Job performance	0.04	0.02	0.044
Thai JCB→Work engagement→Job performance	0.07	0.03	0.034

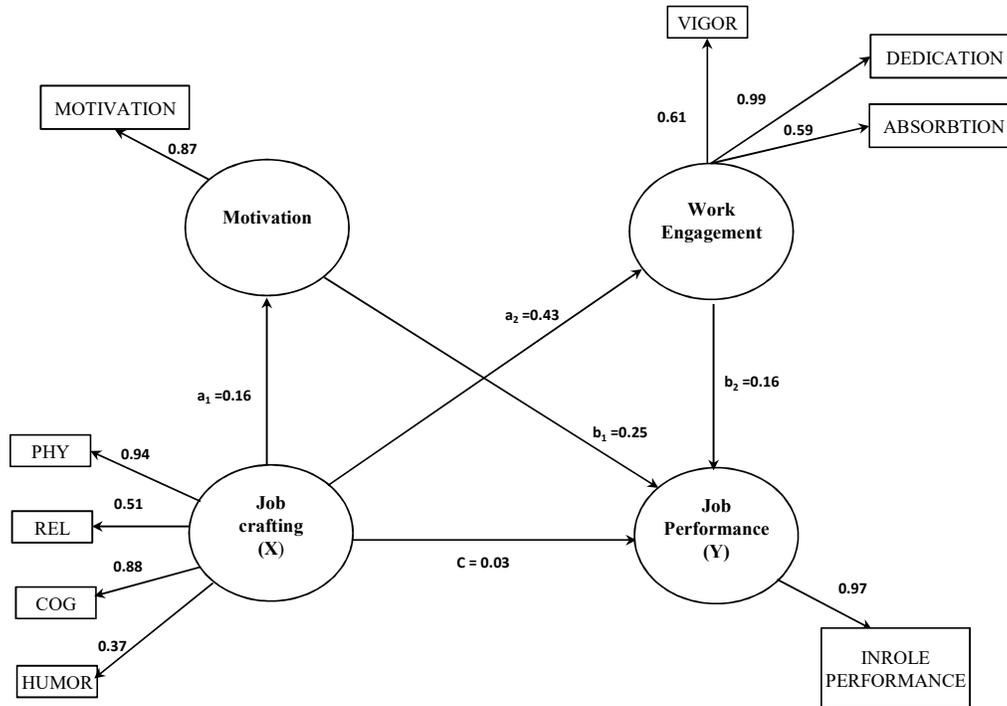


Figure 5 Results of the structure models (PHY = physical crafting, REL= relational crafting, COG = cognition crafting) (Total effect (c') = $ab+c$, c_1' = 0.07, c_2' = 0.098).

Based on Table 5, the result indicated the factor loading in sub variable of the job crafting (x) that physical crafting has higher loading factor compared to the other sub-variables, follow by cognitive crafting, relational crafting and humor. Based on the values of the estimate and standardized estimate of the causal model of job crafting, overall, the hypothesis of the model was well-fitted with the observed data.

When considering the coefficient of determination, the model presents an appropriate predictive power for dependent variables. Following the variance (R^2), Table 5 represents the values of variance (R^2), for variables of study. The predictors explained 94% of variance in in-role performance. Of all variable relationships received by job performance, the variance (R^2) was explained by engagement for the dedication of engagement (91%), follow by motivation (76%).

Table 5 The values of variance (R^2) in structural model.

Variable	Estimate	Standard error	p value	R^2
Job performance				
In-role performance	0.97	0.00	0.00	0.94
Motivation				
Motivation	0.87	0.01	0.00	0.76
Thai JCB				
Physical crafting	0.90	0.09	0.00	0.89
Relational crafting	0.51	0.06	0.00	0.26
Cognitive crafting	0.88	0.09	0.00	0.78
Humor	0.37	0.06	0.00	0.13
Work engagement				
Vigor	0.61	0.05	0.00	0.38
Dedication	0.99	0.09	0.00	0.91
Absorption	0.59	0.05	0.00	0.34

4. Discussion

The aim of the study was to develop and validate the newly job crafting scale in Thai healthcare professionals. In order to gain more in-depth insight into the causal attributions of job crafting, the study was conducted with two methods as qualitative and quantitative method. From the interview, the result replicated and extended the existing dimensions of job crafting (physical crafting, relational crafting and cognitive crafting), with the additional dimensions of ‘the humor dimension’. This implied that professionals found ‘humor’ as the tool for increase in productivity, creativity and relieving their tensions at work. Humor appeared to encourage professionals to take the initiative to change their working styles by themselves, which is relatively to the concept of job crafting (as bottom-up approaches). As mentioned, prior study also indicated that employees who used humor deliberately and frequently might improve their performance and problem solving skill [33]. There was the study indicated that humor serves as one of the personal resources. With positive psychology, personal resources are the tactics that people use to express emotionally, socially, and physically for dealing with situations. In working environment, the study indicated personal resources describe as the employees’ abilities such as self-efficacy and self-esteem that have been related to express in their job performance. Likewise, the former study related humor as personal resources in order to redesign job, deal with intense work situation and improved job challenges [34].

In this interview results, professionals feel more comfortable managing their tasks when the environment had certain levels of humor. The results might be explained by Thailand’s collectivist cultures. Employees in collectivist are characterized by their concern for the in-group rather than individuality. They may be more likely to use humor as a personal resource for not only generating personal positive emotion but also developing a positive environment in the group because of their in-group concerning. Humor in healthcare professionals also contributed. For example, when professionals work long hours, they experience tension and stress. Workplace stress can affect how well they treat their patients. As a result, professionals use amusing items or encounters with humor to help them creating a positive emotion during activities or creating a positive working environment with their team.

There was evidence also supporting that humor was a more constructive way for professionals to create their better performance. Prior study found that humor allowed nurses to notice the amusing aspects for dealing their daily tension tasks and provided a creative outlet for coping professionals’ emotion with difficult situations to manage their effective work [35]. Therefore, the findings of new dimension as humor appeared to support the new construct of the full model in Thai healthcare professionals.

After obtaining the interview results, the newly developed of Thai JCB model was validated using quantitative method. The Thai JCB was supported with demonstrating the new measure with initial evidence of construct model and structure model validity. The findings support for the use of four dimensions model of Thai JCB. Additional humor dimension is sought.

For content validity, the final scale of 13 items filled the acceptable scale with the CVI score of 0.8. Then for underlying structure of this scale, the validity in both the EFA and CFA revealed to load on four dimensions of Thai JCB (task crafting, relational crafting, and cognitive crafting and humor) with the acceptance criteria.

For the EFA, the KMO value testing (for the adequacy of the sample to run EFA) was found as 0.89 and statistically significant differences was observed ($\chi^2 = 1,357.65, p < 0.05$) after Bartlett’s test of sphericity. The EFA showed the factor loading ranging from 0.70 to 0.81 for physical crafting. The relational crafting dimension had factor loading from 0.74 to 0.85. The cognitive crafting dimension had factor loading from 0.71 to 0.85. For humor dimension, factor loading was ranged from 0.82 to 0.88. With the CFA, the model was also applied to determine the validity of Thai JCB. The result was run with fit index values ($\chi^2 = 90.22, df = 59, CFI = 0.98, SRMR = 0.04, RMSEA = 0.03$) that were at an acceptable level. Moreover CFA were compared whether model of Thai JCB (the 4-factor) fit the data better than existing job crafting model (3-factor model) by Niessen et al. (2016) [24]. By using by using the relatively chi-square difference ($\Delta \chi^2$), the result found that model of Thai JCB was significant provided support ($\Delta \chi^2 = 49.29, \Delta df = 35$). Thus, it was concluded that the items of the Thai JCB were in accordance with the related 4 dimensions of physical crafting, relational crafting and cognitive crafting and humor.

Together with the Thai JCB, there was also positively correlated with existing job crafting scale [8], proactive personality and self-efficacy. All correlations support the measure’s concurrence and convergent validity as same as the previous study [36]. For concurrence validity, the result found well correlation ($r = 0.67; p < 0.01$). For the convergent validity in this study, the Thai JCB was moderate correlated with self-efficacy ($r = 0.31; p < 0.01$) and proactive personality ($r = 0.45; p < 0.01$). Therefore, it was anticipated that the Thai scale can be used to further job-crafting research in Thai healthcare context.

For the structural equation model in this study, there was applied to investigate whether the Thai JCB scale would be related to motivation, work engagement and job performance among Thai healthcare professionals. Start with the SEM results, this study revealed a positive relationship of job crafting with motivation, work

engagement and performance. All predictors were able to account for over 50 percentage of the variance that were enlightened from the motivation, work engagement to job performance as same as previous studies [37].

Moreover, the result indicated that motivation and work engagement was shown to be a significant mediator of the relationship between job crafting and job performance. This is in line with the findings from [25] who studied job crafting in many organizations, with a differentiation in all occupations. The study indicated that when employees tried to craft their job this was led to higher levels of their motivation, increase in their engagement, and increase in the achievement of their performance [25].

By considering factor loadings of each job crafting's facet from the SEM results, physical crafting had higher loading factor compared to other dimensions. This implied that physical crafting seems to have impact in healthcare professionals' motivation, engagement and performance in order to managing their excessive workloads and long working hours than other forms of job crafting. Similar to previous research, the result of physical crafting study found that healthcare professionals were looking for working with the best performance to the patients by having the autonomy at work, decreasing control over the work environment [38]. Following that, healthcare professionals are engaged in cognitive crafting, which included modifying the way they viewed tasks and attempting to make the meaning of their work. The findings were consistent with earlier research about negative experiences in employees' role that can be counterbalanced by rethinking to make their job more meaningful [39]. There was also a study that suggested cognitive crafting could enhance meaningful work and be linked to the outcomes of elderly care in the health care sector [40].

Relational crafting and humor appeared to have less effect size on motivation, work engagement and job performance comparing to other dimensions. The findings might be explained by professionals' personality. There was the study found that five-factor model of personality including openness, conscientiousness, extraversion, agreeableness, and neuroticism, provides a meaningful theoretical framework that certain traits lead to have high sense of humor and the development of interpersonal relationships at work [41]. For example, employee with extraversion scales can contain statements to tell jokes and funny stories in their environment. To said that professionals who on extraversion were seem to more enjoy socializing and developing relationships than the professionals on neuroticism [42]. Thus, the less effect size from relational crafting and humor to the level of motivation, work engagement and job performance might be depend on healthcare professionals' personality. A professionals' personality should be taken into account for job crafting research in the further study.

4.1 Limitation

In the first place, the current study was specifically conducted in public tertiary hospital. The findings might not be generalizable to private hospital or other contexts. Secondly, the results of current study found that most of the participants were professional with 5-8 years' tenure experiences, which might influence the motivation, work engagement and job performance. As, meta-analysis study found that the employees with longer tenure were likely to become more bored and less motivated and engaged at work [43]. Due to this limitation, the replication of the job crafting research by applicable variety of tenure experiences should be required for further study. Thirdly, the study took place at the pandemic situation time. It was possible that the participants were more motivated to change their working habits right before. Thus, the study of job crafting in regular routine time should be included for further studies.

5. Conclusion

This current study aimed to develop and validate the measurement scale of Thai JCB. The result found the newly added dimension towards professional's perspective apart from existing job crafting model (physical, relational and cognitive crafting) as "(humor)" from the interviews. From the validity of Thai JCB, it was found obvious with the goodness of fit criterions in all quantitative validity methods in this current study. Therefore, based on validated properties, the Thai JCB is a valid and reliable tool, that is possible to manage, apply and integrate in the future.

6. Ethical approval

This study was approved by the Institutional Review Board of Chulalongkorn University, Thailand No. 188.1/62.

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