

Women's Commitment in IT Career: The Role of Social Cognitive Career Theory

Fahrina Yuliani^{1,*} Fanny Martdianty²

¹ University of Indonesia

² University of Indonesia

*Corresponding author. Email: fahrinayuliani77@gmail.com

ABSTRACT

The gender proportion in digital labor market is unequal, as the number of women workers is less than men workers. Additionally, the study shows that the number of women enrolment in IT studies reach 60%, yet the graduates are only 51.9% and the number of women who work in technology field is less than the graduates' number. Particularly in Indonesia, there is urgency to increase women representativeness in IT field as women tend to leave the IT profession due to certain reasons, including the work-family issue. Hence, by using social cognitive career theory in career self-management (SCCT-CSM), this study tried to investigate the psychological factors affecting the commitment of women who possess IT profession. The data collection is supported by online survey and analyzed using Structural Equation Modelling (SEM)-PLS due to limited number of respondents. The data confirms the impact of psychological factors in SCCT-CSM framework toward the commitment of women, both in terms of career and organization. This study gives a contribution toward the SCCT-CSM framework towards commitment concepts in the context of IT as a part of STEM (science, technology, engineer, math) field as well as in the context of gender analysis.

Keywords: *Social Cognitive Career Theory, Gender Studies, Digital Workers, Career Commitment, Organizational Commitment.*

1. INTRODUCTION

The gender proportion in labor market, both in formal and informal sectors are increasing over these past years, and the gender analysis has become one of the main feature to analyse the trend in labor market [1]. Recently, the labor trend market is moving towards science, technology, engineering and math, or as known as STEM field (2), and it is projected that the demand for STEM workers will likely to increase three times compare to other work fields [3]. The increasing demand for STEM workers, especially in digital field, is affected by the dominance of technology as an economy driver [4]. However, there is a gap between the need for digital workers and the lack of digital workers in labor market [4]. In addition, the gender proportion in digital labor market is also unequal, as the number of women workers is less than men workers [5].

The study [6] shows that the number of women enrolment in IT studies reach 60%, yet the graduates are only 51.9%. In addition, the number of women who work in technology field is less than the graduates' number, and it keeps decreasing. Another study [7] shows that the

women representativeness in IT field in Indonesia is relatively lower than men. This is due to the tendency for women to leave the career in IT field as they are no longer have a career commitment [7]. Another data shows that more than 50% of IT graduates are not working in the IT field [8]. During 2017, the number of women in Indonesia who work in IT field is only 20% [9], and it shows no significant improvement until 2020 [7].

Career commitment is defined as a strong motivational driver for someone to have a career according to their own choice [10]. Individuals who persevere in achieving their personal career goals despite the presence of challenges exhibit high levels of career commitment [11]. Career commitment concept is different with the concept of work commitment as well as organizational commitment [12]. Workers commitment practices are becoming less effective than ever because labor flows more frequently among organizations and workers no longer find it necessary to remain committed to one organization [13]. Thus, the concept of organizational commitment may not be the only form of attachment [14]. Therefore, the concept

of career commitment arises to answer the need for assessing the other form of workers' attachment, specifically in their chosen career.

There are several factors that may affected the commitment for women to have a career in IT field. Some studies show that there is a gender stereotype [9], as women need to take a responsibility in domestic works [15]. Another study shows that women tend to give up on their career in IT field due to lack of access to employee development program [16]. The inability to balancing the role in the work and personal life also become one of the main issue for women to continue their career in IT [17].

As there are various factors affecting women's decision to leave their profession in IT, one of the prominent finding from the previous studies [18][16] show that women having difficulties on balancing their work-family roles if they are working in IT or STEM field. This is due to the patriarchal culture in some countries which rooted from the past history of men who perceived as a breadwinner in the family and women are responsible in domestic works [19]. Consequently, when women have another role in professional work, they also have to work in domestic work as well, which in turn, difficult to managing both roles and impact their career commitment [21].

Study shows that women who have more confidence in handling work-family issues are likely to pursue the career that they have chosen [21]. The concept of confidence or self-efficacy itself had been widely studied in a general term. Nowadays, the concept of self-efficacy has specifically studied in a certain domain such as self-efficacy in career domain, or knows as career-related self-efficacy [22]. Career-related self- efficacy impact has been empirically tested and it gives a significant impact toward career commitment in STEM field [23]. IT career has been perceived as a career field which dominated by men, and this perception could lead to unequal gender proportion [24]. As there are significant growing numbers of e-commerce and digitalization during these past years, while there is still a gap between the supply and demand in IT labor market, as well as the unequal proportion of gender in IT field, this could be a problem in the future [25]. Moreover, Indonesia has not received a great amount of FDI due to the lack of workers it IT [25]. Thus, this is the urgency to improve women's career commitment in IT field.

2. LITERATURE REVIEW

2.1. Gender Stereotypes in IT Career

Information technology (IT), as a part of STEM career field, often described as an individualist and materialistic job which is not suitable for women, as women often stigmatized of having lack of cognitive

abilities [26]. STEM (science, technology, engineer and mathematic) work environment also tend to have inconvenient working condition for women [27][28]. Moreover, women often experienced discrimination from their male co-workers in STEM job [29] and having more difficulties to attain strategic position in the organization [30]. Thus, there is lack of proportion of women in STEM works as they prefer to leave their chosen career and switch to another possible career [16]. Moreover, due to the social-role theory[19], women often perceived to have more responsibilities in domestic works rather than in professional works. Hence, women who have multiple roles both in professional and domestic works facing difficulties on how to balancing both roles at the same time [20].

2.2. Career Commitment

2.2.1. Career-related Self-Efficacy toward Career Commitment

Social Cognitive Career Theory Career Self-Management (SCCT-CSM) is one of the framework proposed to understand the social cognitive concept for the STEM workers [31]. Career studies are often use self-efficacy concept [32], which defines as the ability to manage and carry out an activity in order to achieve certain performance standards [33]. The SCCT-CSM framework mainly focused on the contextual variables that enable people to engage in career change [31], thus, self-efficacy as one of the concept discussed in the SCCT-CSM framework may predict workers' commitment, specifically career commitment in this context [23]. Moreover, career-related self-efficacy [CRSE] is highly associated in the context of women profession in IT and any other STEM area which often characterised as a masculine field [32][26]. Previous study shows that workers possessing a high career-related self-efficacy may impact on the increasing of their career commitment [23]. Another meta-analysis studies shows that there is a strong association between self-efficacy with the commitment to work [32][34]. Based on the previous discussion, thus, hypothesize that:

H1. Career-related self-efficacy (CRSE) has a positive effect towards career commitment of a women who have career in IT field

2.2.2. Work-family Balance Self-Efficacy (WFSE) toward Career Commitment

Another form of self-efficacy that particularly relevant to the framework of SCCT-CSM is process efficacy, which refers to person's perception towards their ability to manage generic tasks needed for career preparation, entry, adjustment, or change across various career choice [35]. One of the example of process efficacy including how a person tries to manage a multiple work/life roles which may lead to work-family

conflict [36]. One of the understudied construct related to the efficacy to manage work-life conflict is called work-family balance self-efficacy (WFSE).

WFSE defined as a person's belief to manage the roles both in work as well as in family at the same time [37]. The concept of WFSE arises in the context of STEM studies because STEM careers (such as IT programmer) are perceived to have a very different characteristics among the other career domain [23]. A previous study shows that WFSE is one of the important construct in the context of employment in STEM career [38] and become main consideration for career commitment and advancement [36]. Another study shows that workers' self-efficacy to manage work-life roles contributes to their level of commitment toward their chosen career [23]. Hence, the hypothesis is as follow:

H2. *Work-family balance self-efficacy (WFSE) has a positive effect towards career commitment of a women who have career in IT field*

2.2.3. Organizational Commitment toward Career Commitment

The concept of organizational commitment is widely studied in organizational industrial and psychology researches during these past decades, as this concepts had been empirically tested as a predictor as well as a consequence of the related variables [39]. Organizational commitment often identified as a critical variable to understand the work behaviour of the workers in the organization [40]. The concept of organizational commitment also different from the other forms of commitment, including career commitment [41]. Organizational commitment mainly defines the tendency for workers to stay and committed to work in a particular organization [42], while career commitment specifically describes how workers are committed to work in their chosen career or profession [41].

Some studies show that both organizational commitment and career commitment are two different dependent variables that differ from each other, as someone may feel committed to organization but not the career chosen [42][43]. Workers' commitment to an organization is not only associated with their recognition of an organization, but also associated with their recognition of the particular career choice they pursue in the organization [44]. The workers who are more concerned and committed to their chosen career shows a greater positive behaviour of organizational commitment, compared to those who have lower level of career commitment [45].

Previous meta-analysis study show that organizational commitment may become one of the antecedents of career commitment [46]. Another study also support this idea by empirically testing the effect between organizational commitment and career

commitment, and it shows that organizational commitment has impact towards career commitment. Based on this discussion, thus, the hypothesis is:

H3. *Organizational commitment has a positive effect towards career commitment of a women who have career in IT field*

2.3. Organizational Commitment

2.3.1. Work-Family Balance Self-Efficacy (WFSE) toward Organizational Commitment

Work-family balance self-efficacy (WFSE) as a part of social cognitive framework, also become one of the prominent construct to identify workers' organizational commitment [47]. Previous study suggested that workers recognition toward organization's values may influence their tendency to fully-committed with the organization if the organization support their workers to achieve work-family balance [48]. Moreover, work-family issues lead to strained labor relation, the poor organizational performance and resulted in a lower organizational commitment and increasing the turnover intention among workers [49]. In addition, due to gender stereotype issue which makes women have more difficulties to balance work and family, it is important for organization to support the women workers and career [50]. A study revealed that women's work-family conflict directly impacted their organizational commitment. Hence. the following hypothesis is:

H4. *Work-family balance self-efficacy (WFSE) has a positive effect towards organizational commitment of a women who have career in IT field*

2.3.2. Career-related Self-Efficacy (CRSE) toward Organizational Commitment

Career-related self-efficacy tend to exhibit greater self-esteem and confidence to manage workers' chosen career, and tend to contributes more to achieve organizational goals [51]. Some studies confirm that workers who have higher self-efficacy toward their career is associated with the attainment of positive outcomes including job satisfaction and organizational commitment [52]. Another studies also empirically tested the effect between career self-efficacy with the organizational commitment, and it shows significant effect if workers believe on the abilities and skills necessary for their career [53][54]. Thus, the hypothesis proposed is:

H5. *Career-related self-efficacy (CRSE) has a positive effect towards organizational commitment of a women who have career in IT field*

2.4. Mediation Effect of Organizational Commitment

As discussed above, previous studies imply that organizational commitment and career commitment affected by both self-efficacy, which is career-related self-efficacy (CRSE) and work-family balance self-efficacy (WFSE). Some studies also show that organizational commitment also predict women's career commitment [44][45][46]. Consequently, organizational commitment may have an indirect impact toward the effect between CRSE and WFSE to career commitment. Hence, the hypotheses tested are:

H6. Organizational commitment mediates the effect between career-related self-efficacy (CRSE) towards career commitment of a women who have career in IT field

H7. Organizational commitment mediates the effect between work-family balance self-efficacy (WFSE) towards career commitment of a women who have career in IT field

3. METHODOLOGY

3.1. Data Collection

The data have been collected from all of women who currently possess IT profession in Indonesia. As the data shows that only 20% of women representation in IT career [9], thus the respondents are particularly focused on women workers in IT profession. The data have been obtained through an online survey using the approach of snowball sampling. The survey consists of close-ended questions with a 6-Likert scale in order to avoid centroid answer which may lead to data bias [55]. The respondents need to fill the consent form at the first time to ensure the code of ethics in research and they also have to pass the screening tests in order to make sure that they are the suitable respondents. The screening questions including the gender (which only specific on women), age, and also their current profession in IT. The online survey itself is self-administered using Google Form so that there is no interruption between the researchers and the respondents.

3.2. Measurement

There are four variables used in this study, and one of the variable, which is organizational commitment, consists of three dimensions, which are affective, continuance, and normative commitment [56]. The measurement variable for organizational commitment also adopting from the Organization Commitment Questionnaire (OCQ) which introduced by Porter [40]. This measurement has been widely used in previous studies and it also had been statistically tested for its consistency. Furthermore, the OCQ can also be used in

gender studies [57]. Career commitment variable is measured by adopting the measurement from the Career Commitment Measure (CCM) developed by Blau [58]. The career commitment measurement used in this study is a unidimensional variable that consists of 7 indicators and widely used in the study of career management.

For the exogenous variable of WFSE, this study adopts the measurement from Basuil and Casper [37] which consists of four indicators, which on that study confirms that workers who have the ability and believe to balancing the role of work-family may impact their commitment in the future. Lastly, the other exogenous variable of CRSE use the measurement by Rigotti, Korek and Otto [22] which consists of six indicators.

3.3. Data Analysis

The data collected for this study is analyzed using two approach from Structural Equation Modelling (SEM), which are measurement model and structural model [2009]. The measurement model analysis using confirmatory factor analysis (CFA) by traditional technique of Cronbach's alpha value which above 0,7 [60], and also using composite reliability (CR) and average variance extracted (AVE) calculation for the latent constructs. The CR values should be greater than 0.7 and the AVE should be greater than 0.5 [59]. After the calculation of measurement model, then the structural model have to be conducted to test the relationships and effects between the exogenous and endogenous variables. All of the data analysis is using SmartPLS version of 3.0 to support only few data.

4. RESULTS

4.1. Data Analysis

This study aims to investigate women's self-efficacy both in their career as IT workers as well as their confidence in managing work-family conflict towards their career commitment and organizational commitment. All of the data collected from 68 respondents are women workers who currently have career in IT field. Most of the respondents' age are below 30 years, with 87% of them have an educational background of undergraduate studies. More than half of the respondents (60.29%) are having career in IT field for less than 3 years.

Most of the respondents are working in start-up companies and private sectors (72%), and the rest of the respondents are working in public sectors. As the growing number of digitalization during these past years, there is also the increasing number of start-up companies who work in IT-based system, and the some of the private sectors are also implementing the digital

transformation to adapt and compete with the current condition. Based on the data, it shows that 68.1% of the respondents are still single or unmarried.

There are two steps taken to analyse the data using Structural Equation Modelling, which are measurement model and structural model [59]. Measurement model can be used to analyse the factors from each latent variables to identify their reliability as well as their validity. Both the measurement model and structural model can be seen at Figure 1 below.

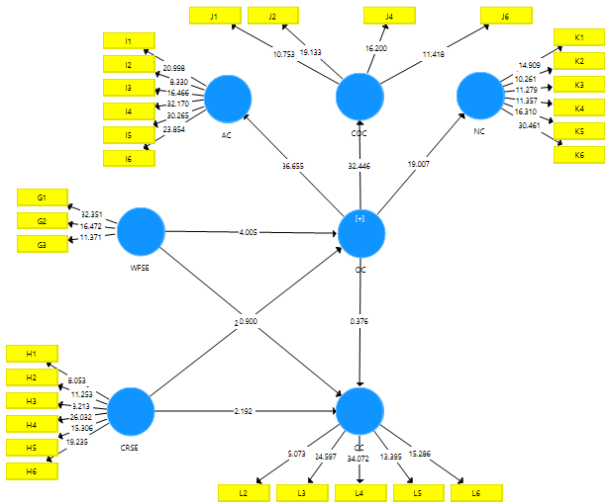


Figure 1 Structural Model Result from SmartPLS

Table 1 summarizes the result from the measurement model and some factors need to be omitted as they do not meet the requirement for the outer loading score, which is more than 0.5. Based on Table 1, it can be seen that the construct reliability and validity has fulfil the requirements, with the composite reliability (CR) score is more than 0.7 and average variance extracted (AVE) score is higher than 0.5, as well as the Cronbach’s Alpha score is more than 0.6 [59].

Table 1. Measurement Model

Variables	Cronbach’s Alpha	CR	AVE
Work-family Balance Self-efficacy	0.853	0.911	0.773
Career-related Self-efficacy	0.903	0.925	0.673
Organizational Commitment	0.950	0.956	0.577
Career Commitment	0.891	0.918	0.692

After analysing the measurement model, the second step to analyse the data is using the structural model in order to answer the research hypotheses as well as to identify the model fit proposed in this research. In the Table 2, it can be seen that the value of the correlation effect between constructs is used to test the hypotheses. Here are the result of the structural model.

Table 2. Structural Model

Path Coefficient	Original Sample	T Statistics	P Values
WFSE → OC	0.436	4.005	0.000
WFSE → CC	0.158	0.900	0.369
CRSE → OC	0.286	2.196	0.029
CRSE → CC	0.389	2.192	0.029
OC → CC	0.071	0.108	0.707

Based on the data, there is a significant effect for work-family balance self-efficacy (WFSE) towards organizational commitment (OC), as it shows the P-value of 0.000 (≤ 0.05), T-statistic of 4.005 (≥ 1.96), along with the original sample score is 0.436. However, the WFSE does not have a significant impact toward the career commitment of women in IT field. Based on the data from Table 2, the original sample score for path coefficient between WFSE to career commitment is 0.158, and it shows that WFSE has an impact, but not giving the significant impact with P-value is higher than 0.05 and T-statistic value of 0.900 ($T\text{-value} \leq 1.96$). Thus, the hypothesis stated that WFSE gives impact on career commitment must be rejected and in this study, WFSE only affect the organizational commitment.

Other exogenous variable used in this research is career-related self-efficacy (CRSE), which may impact both organizational commitment and career commitment. The path coefficient from CRSE toward organizational commitment shows that CRSE have a significant impact to organizational commitment, as it can be seen from the original sample value of 0.286, along with the P-value of 0.029 (≤ 0.05) and T-statistic of 2.196 (≥ 1.96). Thus, it concludes that CRSE has a significant effect to organizational commitment. Beside the effect toward organizational commitment, CRSE also has a significant impact on women’s career commitment in IT field. Based on the data, it shows that the original sample score is 0.389, along with the P-value of 0.029 (≤ 0.05) and T-statistic of 2.192 (≥ 1.96).

However, based on the calculation above, the organizational commitment variable itself has no significant impact, with the P-value of 0.707 (≥ 0.05) and T-statistic value below 1.96. The T-statistic of 3.207 indicates that organizational commitment cannot mediate the effect between CRSE and career commitment as the P-value of indirect effect is 0.759. Furthermore, since the effect of WFSE on career commitment is not significant,

organizational commitment also cannot mediate that effect. The details of the indirect effect to answer the mediation hypotheses are written in Table 3 below.

Table 3. Mediation Effect

Path Coefficient	Original Sample	T Statistics	P Values
WFSE → OC → CC	0.031	0.367	0.714
CRSE → OC → CC	0.020	0.307	0.759

4.2. Discussion

A previous study found that organizational commitment, job involvement, work-ethic endorsement as well as career commitment are composed into one big concept called work-related commitment [12]. Despite the fact that there are different types of work-related commitment that linked to one another, however, the concept of career commitment itself is distinguishable from other commitment forms, including organizational commitment [10]. Based on the analysis above, it concludes that both the organizational commitment and career commitment are two different concepts which also affected by different factors as well. This is due the fact that organizational commitment is often viewed as emotional attachment to the current organization that a person work with, rather than to the vocation or profession [61]. In contrast to organizational commitment, career commitment binds individuals to their career goals regardless of their current employment status [62]. Despite the finding from this research suggests that organizational commitment has no connection with career commitment, yet, another study finds that organizational commitment have an impact on career commitment [63]. However, the previous finding is supported by the various antecedents which comes from a framework of Employee-Organization Relationship (EOR), thus it gives different effect on career commitment. Meanwhile, this study using different framework of psychological factor consists of two different forms of self-efficacy. In addition, previous study [63] also did specify its context on gender, thus, it may contribute to the different finding. Another meta-analysis study [46] also identified that organizational commitment may become one of the predictors of career commitment, yet, it has not been empirically tested by other researchers. Hence, it would be worthwhile to investigate the relationship between organizational commitment and career commitment in future studies.

In spite of different predictors, both organizational commitment and career commitment are affected by career-related self-efficacy (CRSE). According to

previous studies, a wide variety of antecedents may influence workers' career commitment, and one of the prominent antecedents is regarding the psychological factors such as self-efficacy [46]. This self-efficacy concept is also studied by previous researchers using the framework of Social Cognitive Career Theory (SCCT)[64]. As the growing studies of SCCT, it is also extending the traditional SCCT models into the SCCT-CSM (Social Cognitive Career Theory Career Self-Management) [31]. Compared to the previous version of SCCT, this concept focuses on how people direct their own professional and educational careers using the process perspectives [31]. The process perspective emphasizes the many ways individuals can adjust to educational and vocational challenges and task [23], as mentioned in this research is about on how women who works in IT career have their belief to cope, adjust, and advance in their chosen career. When women workers have career-related self-efficacy in the IT field, they are more likely to believe that they can continue and commit to their career in the long run [23].

Another important finding from this study is that career-related self-efficacy also has an impact on organizational commitment. This is also supported by previous study which revealed that occupational self-efficacy has a direct impact towards organizational commitment and work engagement [51]. This result supports the idea that self-efficacy enhances workers' attitudes to their work and their commitment to the organization [65]. Another study also shows that there is a positive relationship between self-efficacy and organizational commitment [53]. Hence, the concept of career-related self-efficacy as a part of SCCT-CSM framework, may have a prominent impact both on organizational commitment as well as career commitment.

Lastly, this study reveals that the other form of self-efficacy, which is work-family balance self-efficacy (WFSE) may influence workers' commitment toward their organization. This is also supported by previous study that suggest the tendency for workers to recognize and embrace their company's values when they are supported to achieve work-family balance by their organization [48]. Another study also reveals that the work-family conflict that workers' facing may lead to the poor organizational performance and resulted in a lower organizational commitment [49]. In the context of women workers, especially in the IT career, it is difficult for them to cope and balancing their role both in work and family area without the support from the organization [50], which may lead to the decreasing of organizational commitment [52]. Thus, it is important to have WFSE for women workers in IT career, as they still facing a great amount of challenge in that career field.

5. CONCLUSIONS

5.1. Theoretical and Practical Implications

The study reveals the impact of self-efficacy as a part of social cognitive career theory toward the career commitment as well as organizational commitment for women who work in IT profession. This study contributes and gives insights on how to manage women's commitment both in career and organization. Previous study shows the significant impact between organizational commitment on career commitment, yet, that study using another approach of Employee-Organization Relationship (EOR) which stated that there is a significant role from the organization to provide structural factors such as inducement. However, this study particularly focused on the psychological factors using SCCT-CSM framework to understand the role of individual career self-management and its impact toward the commitment.

Hence, this study confirms empirically that social cognitive aspects of self-efficacy for both career (CRSE) and work-family (WFSE) have different impact toward different form of commitments, which in this study specifically discussed about career commitment and organizational commitment. Based on the analysis, it confirms that career-related self-efficacy may impact both organizational commitment and career commitment, and this finding also supported by previous studies as well [23][34][51]. However, as there is no significant impact between organizational commitment and career commitment, thus, it can be concluded that both forms of commitment are mutually exclusive and have no link to each other, which in this study also reveals that organizational commitment cannot mediate the effect between CRSE and WFSE variables towards career commitment.

Another important finding from this study is that work-family balance self-efficacy (WFSE) only gives impact on organizational commitment, but not with the career commitment. This is contrary from the previous study [23] that shows a significant relationships between WFSE and career commitment. This is due to the fact that most of the respondents are still single and have no responsibilities in domestic works such as raising child. Hence, they have no burden in managing work and family issues which impact their decision in career changes.

In practical, this study also reveals that even though there is growing number of digitalization which leads to the increasing demand for IT workers, it turns out that the IT field is still dominated by men [9] and the urgency to increase the gender equality in the STEM area necessary to be considered to ensure nation's economic development. While the previous study [63] shows that organizations need to be considered the structural factor to

ensure workers' commitment, this study giving more attention on how the psychological effects of self-efficacy may effect women's commitment in IT field. Hence, the organization need to be considered about provide some concerning supports to enhance women's self-efficacy, for instance, by providing a convenient work environment and eliminate the discrimination toward women in IT field career so that it will increase women's career commitment and organizational commitment.

5.2. Limitations and Future Studies

There are several limitations from this study. The first limitation is due to the limit number of respondents, as the population itself is only 20% in Indonesia [9]. Moreover, the unequal proportion of marital status from the respondents may also impact the result. Thus, the future studied must also be considered about using a quota sample to analyse the data as it will give robust and unbiased findings.

Secondly, this study only focused in IT field, which also lack of women workers. Hence, it is necessary to analyse the commitment for women workers who work in other field of STEM such as engineer field. The findings from this study also cannot be generalized in STEM, since it only concerns on IT fields. This is also supported by previous study [66] which stated that pharmacy, as one of the field in STEM area, still continue to increase, contrary with IT field. Thus, different field of STEM may give different result for the future studies.

Lastly, this study only limited its framework on SCCT-CSM, which is psychological factors. As the previous studies suggested that it is necessary to consider different context to assess workers' commitment, the need for combining the SCCT-CSM with other non-psychological framework need to be taken into account [63][23].

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