

DEVELOPMENT AND VALIDATION OF CHINESE-VERSION PSYCHOLOGICAL CAPITAL QUESTIONNAIRE OF PRESCHOOL TEACHERS

Lee, Hsing-Ming
Department of Child Care and
Family Studies, Sue-Te
University, TAIWAN

Chou, Mei-Ju
Department of Early Childhood
Education and Center for
Teacher Education
National Pingtung University
TAIWAN

Wu, Ho-Tang
(corresponding author)
Department of Education,
National Kaohsiung Normal
University, TAIWAN

ABSTRACT

The main purposes of this study are to develop Chinese-version Psychological Capital Questionnaire (PCQ) of preschool teachers to assess psychological capital (PsyCap), and test the reliability and validity. In the first place, we invited 10 subject matter experts to draw up the preschool teacher's PCQ items inclining to Chinese cultural phenomenon by using item-level content validity index (CVI) to proceed content validity. Then, 200 preschool teachers in Taiwan region conducted the pilot test, and exerted exploratory factor analysis (EFA) and internal consistency analysis to test reliability and validity. Lastly, 400 preschool teachers were used as the formal samples to implement confirmatory factor analysis (CFA) and Structured Equation Modeling (SEM) to test reliability and validity. In the exploratory analysis of the pilot test, we have found that the PsyCap's four-factor solution, including self-efficacy, hope, optimism, and resilience, can explain 74.14% of the total variance and total Alpha at .93. In the CFA in the formal samples, we have also found that self-efficacy, hope, optimism, and resilience are relative to the higher order factor (PsyCap). Besides, PCQ of preschool teachers has good reliability, convergent validity, and discriminant validity. Finally, professional commitment was exerted as the criterion to test criterion related validity. Based on SEM analysis, it shows that PCQ of preschool teachers has good criterion related validity. By such way, this research has developed the Chinese-version Psychological Capital Questionnaire with good reliability and validity, which is worthy of functioning as the tool to evaluate PsyCap among Chinese preschool teachers.

Keywords: Psychological capital, Chinese-version Psychological Capital Questionnaire, preschool teachers, validation.

INTRODUCTION

“Where there are good teachers, there will be good education”. With such principle, conduction of early childhood education relies on preschool teachers' bring their job responsibilities to an effective play. In addition, in our competitive times, improvements in organizational life have brought about resources that provide competitive advantage. Facing severe social changes and reform of education, preschool teachers demand good and positive psychological resources to utilize the competitive advantage in order to educate and take care of the next-generation social citizens. In Chinese region, no parents are willing to allow “the children to lost at the starting point”. They hold high expectation on preschool teachers, and it is necessary for preschool teachers' competitive advantages in respect with psychological capacities in Chinese region.

Luthans, Luthans and Luthans (2004) indicated that the traditional economic capital, human capital, or social capital have been no longer able to maintain the long-term competitive advantages. Therefore, by quoting the important positive constructs in positive psychology,

they have proposed psychological capital (PsyCap) that stresses on positive psychological resources and psychological capacities. Here, PsyCap is seen as a resource that goes beyond economic capital, human capital, and social capital (Gohel, 2012; Luthans & Youssef, 2004), and it deals with “who you are here and now”, and “who you can become” in the proximal future if your psychological resources are developed and nurtured in the workplace (Luthans & Youssef, 2004). Moreover, according to the meta-analysis results done by Avey, Reichard, Luthans and Mhatre (2011), PsyCap is related to desirable work attitudes and job performance, which shows the particular importance of preschool teachers’ PsyCap.

PsyCap is a relatively novel construct measured with the PsyCap Questionnaire (PCQ)(Luthans, Youssef, & Avolio, 2007). To use PCQ as a measuring tool, it has been proved by studies that PsyCap is a composite construct containing four first-order factors, including self-efficacy, optimism, hope, and resilience (Avey, Wernsing, & Luthans, 2008; Culbertson, Fullagar & Mills, 2010; Görgens-Ekermans & Herbert, 2013; Luthans, Avey, Avolio, & Peterson, 2010). In other words, PsyCap can be regarded as a higher-order construct. The individual psychological elements of psychological capita are self-efficacy, optimism, hope, and resilience. However, those studies did not adopt preschool teachers in Chinese region as the research subject. Since PsyCap is very important to preschool teachers, to understand preschool teachers’ PsyCap, Chinese-version PsyCap Questionnaire of preschool teachers must be developed and test the reliability and validity as the first priority. Therefore, this research aims to develop preschool teachers’ Chinese-version PsyCap Questionnaire, and test the reliability and validity in order to provide a high-quality measuring tool to understand preschool teachers’ PsyCap in the Chinese region.

LITERATURE REVIEW

Luthans (2002a, 2002b) claimed that studies on positive psychology should not focus on what is wrong with people, but severely ignore what is right with people. He made a step further to emphasize that positive experience can bring up desirable outcomes, and establish a variety of positive psychological resources. In addition, he tried his best to apply positive psychology constructs to organizational behavior, and further proposed so-called positive organizational behavior. Meanwhile, he strongly promoted quotation of psychological resources that are measurable, developing, impactful on performance, and proposed the concept of PsyCap. On the other hand, Luthans, Youssef et al (2007) asserted that PsyCap contains four elements. The first one is to put in the necessary effort to succeed at challenging tasks的self-efficacy; the second is making a positive attribution about succeeding now and in the future的optimism; the third is persevering towards goals and, when necessary, redirecting paths to goals in order to succeed的hope; and the last one is resilience bouncing back from difficulty.

Within the framework of Hobfoll’s (2002) psychological resources theory, Luthans, Avolio, Walumbwa and Li (2005) define PsyCap as ‘an individual’s positive psychological state of development. We can try to understand PsyCap’s definition from the following dimensions: 1. self-efficacy, optimism, hope, and resilience are all human strengths valued by positive psychology; 2. self-efficacy, optimism, hope, and resilience all transcend economic capital, human capital, and social capital as psychological resources used to to raise competitive advantages; 3. self-efficacy, optimism, hope, and resilience contained in psychological capital all meet the criteria of positive organizational behavior like being unique, measurable, development, and impactful on desired outcomes in the workplace. The four elements, self-

efficacy, optimism, hope, and resilience are all state-like psychological capacities (Avey, Wernsing, & Mhatre, 2011; Luthans, Avolio et al, 2007).

In other words, the content of PsyCap is extracted from four unique and physically measurable positive psychological capacities: self-efficacy, optimism, hope, and resilience, which all are state like and has the possibility of further developing and getting managed. Alternatively speaking, PsyCap refers to the positive psychological resources owned by the individual on one hand. On the other hand, rather than trait-like variables relatively stable and hard to change, PsyCap's constitutive parts (self-efficacy, optimism, hope, and resilience) are all positive psychological state that can be raised and developed. Unfortunately, what mentioned here cannot explain PsyCap is a distinctive construct sufficiently.

PsyCap is being proposed as a higher-order construct, it first must meet the conceptual and empirical criteria of being distinctive. To cut in from the conceptual angle, this higher order construct can be differentiated from other constructs in positive psychology (Luthans, Avolio et al., 2007; Peterson, 2006) involves focusing on the state-like versus trait-like distinction which has long been discussed in the psychology literature. In addition, according to the previous definition, PsyCap involves psychological resources that can positively influence the desired outcomes in the workplace. To discuss from the PsyCap's four dimensions, as far as self-efficacy is concerned, as Bandura's (1991) social cognitive theory of self-regulation asserts, it is actually a kind of mechanism used by the individual to conduct self-regulation for his/her behaviors. The higher the individual's self-efficacy is, the higher his/her self-confidence of the ability evaluation will be, resulting in reaction of self-satisfaction, and further exhibit better work behaviors. Next, in regard of hope, based on Snyder's (2002) hope theory, high-hope individuals will make good use of pathway thinking (waypower) to find different ways to achieve goals, make good use of agency thinking (willpower) to insist to the end for achieving the goal. Sense of achievement generated from carrying out the goal enables people to continuously conduct positive work behaviors with positive work attitudes, and further raise work satisfaction and reduce inclination of quitting the job (Cetin & Basim, 2011). Thirdly, for optimism, as Scheier and Carver (1985) developed the dispositional optimism on the conceptual basis of outcome expectancies, when the individual holds positive expectation, he/she will have positive work attitude and conduct good work behaviors in the feedback loop of self-regulation. In the meantime, since the individual will make effort to work for such solid expectation full of dreams, his/her work satisfaction will be raised and the inclination to quit will be reduced (Peterson, Luthans, Avolio, Walumbwa, & Zhang, 2011). Lastly, for resilience, in accordance with Tugade and Fredrickson's (2004) psychological resilience, those who are resilient knows more about the protective factors to resist against pressures, overcome obstacles and adverse situations. In such way, he/she can transcend all frustrating conditions, and present positive work behaviors through good work attitudes (Luthans, 2002b). Consequently, self-efficacy, optimism, hope, and resilience are all antecedent variables that may affect work behaviors. PsyCap is composed by self-efficacy, optimism, hope, and resilience, so it is doubtless that it can positively influence the work behaviors in workplace. At this point, a growing number of studies have clearly demonstrated that PsyCap has impact on the desired outcomes in the workplace (Diržytė, 2013).

Additionally, Luthans, Avolio et al (2007) keep on stressing that PsyCap is a latent construct of the second-order, self-efficacy, optimism, hope, and resilience are all sub constructs, and PsyCap is their commonality. As per Hobfoll's (2002) psychological resource theories, self-efficacy, optimism, hope, and resilience have a common mental mechanism. Therefore, the higher-order factor of psychological capita may represent the common source of variance

(i.e., common mechanistic processes) connecting the four constructs of hope, optimism, resilience, and self-efficacy. At the same time, many studies have exerted PCQ developed by Luthans, Youssef et al (2007) as the measurement tool, and have proved that PsyCap is a second-order latent construct containing four first-order factors--self-efficacy, optimism, hope, and resilience (Avey et al., 2008; Culbertson et al., 2010; Gørgens-Ekermans & Herbert, 2013).

To sum up, PsyCap is a faith that the individual believes himself/herself can carry out the task when he/she is situated in a risk. In the process, he/she will not get discouraged by frustrations; rather, he/she learns in failure, attempts a variety of ways to achieve the goal, and interpret everything with an optimistic and positive way. In measurement, Luthans et al (2005) quoted Snyder, Sympson, Ybasco, Borders, Babyak and Higgins's (1996) State Hope Scale to assess hope; Scheier and Carver's (1985) Life Orientation Test to assess optimism, Block and Kremen's (1996) Ego-Resiliency Scale to assess resilience, and then plus the standard score in there scales to form the total score. On such foundation, Larson and Luthans (2006) added Parker's (1998) Self-Efficacy Scale to measure four psychological states, and add the four scales' standard scores to obtain the PsyCap's total score. Luthans, Youssef et al (2007) integrated Larson and Luthans' (2006) independent measurement by filtering 6 measuring items to develop PCQ with 24 items. Then, they presented the whole PsyCap by means of the total score. Also, relative studies used PCQ as the research tool to verify that PsyCap is a higher-order construct, with the individual psychological elements of psychological capital including self-efficacy, optimism, hope, and resilience. Those studies indicated that PsyCap can raise desired outcomes in the workplace. Nevertheless, those studies did not target at preschool teachers in Chinese region. Therefore, this research has developed preschool teacher's Chinese-version PsyCap Questionnaire, and tested the reliability and validity for the purpose of providing a high quality measuring tool to understand preschool teachers' PsyCap in Chinese region.

METHODOLOGY

The present study has been divided into two stages, from setting up formal preschool teacher's PCQ, to test the reliability and validity of the preschool teacher's PCQ.

Research participants

The Research participants in the present study included 10 subject matter experts with experience of preparing Chinese preschool teacher's PCQ items with Chinese cultural phenomenon, 6 academic experts to proceed content validity, 200 attending preschool teacher's PCQ pretest in Taiwan region, and 400 preschool teachers to implement preschool teacher PCQ's validity and reliability test in Taiwan region. Pretest sample consisted of 200 preschool teachers. These participants were all female with average age 35.52 years ($SD = 8.77$) and 54.50% from public preschools. Formal sample consisted of 400 preschool teachers. These participants were all female with average age 35.43 years ($SD = 10.01$) and 52.25% from public preschools. .

Research procedure

Initially, we invited 10 subject matter experts to prepare for 40 items for self-efficacy, optimism, hope, and resilience based on Chinese preschool educational ecology and referring to the PCQ framework. Then, after 6 academic experts' evaluated on each item's content

validity through item-level content validity index(CVI), those with CVI value lower than 0.8 were deleted, so totally 32 items were kept. We continue to invite 200 preschool teachers in Taiwan region to conduct pilot test. Through exploratory factor analysis, we decided to preserve the first 5 highest dimension factor loading in regard of self-efficacy, optimism, hope, and resilience, respectively, to construct the formal preschool teacher's PCQ. The preschool teacher's PCQ comprises four subscales with equal weight: (1) self-efficacy, (2) hope, (3) optimism and (4) resilience. Each of these subscales consists of five items with response options on a four-point Likert scale ranging from 1 ('strongly disagree') to 4 ('strongly agree'). After that, through 400 Taiwan preschool teachers, we implemented confirmatory factor analysis to compare one-factor model, uncorrelated factors model, hierarchical model, and fit indices, respectively in order to select the optimal model. Afterwards, we calculated composite reliability and average variance extracted to have a better idea of convergent validity, followed by estimating 95% confidence interval, setting up the correlation as 1 proceeded the Chi-square difference test for the nonrestrictive model and the restrictive mode for the purpose of evaluating discriminant validity. Finally, PsyCap has positive influence on desirable attitudes in the workplace, by exerting professional commitment as the criterion, we tested criterion related validity through structured equation modeling. Professional commitment used the Chinese-version preschool teacher's Professional Commitment Scale for measurement. This scale contains affective commitment, continuance commitment, and normative commitment, with 5 items in each sub scale, which was classified as a four-point Likert scale, the total Cronbach' α was .91, and the percentage of total explained variance was 79%.

RESULTS

Principal factor analysis using Promax rotation was conducted on the pilot sample ($N=200$). In the pilot sample, the average age was 38 years old, and the average service experience is 18.99 years, nearly half has bachelor's degree, and all were female. After analysis, $\lambda > .70$ and items with the largest value were selected in each construct. Those methods suggested a four-factor solution explaining 74.19% of the total variance as the best empirically and theoretically supportive solution. And the total α is .93. The analytical results are listed in Table 1. With items in Table 1 as those in the formal scale, the subsequent analysis was conducted.

Table 1 : The exploratory factor analysis of preschool teacher's PCQ

| Dimension | Item | λ | α | Total α & Variance |
|---------------|---|-----------|----------|---------------------------------|
| Self-Efficacy | X1: When my job is in bottleneck, I believe I can overcome it. | .89 | .90 | .93 74.14% |
| | X2: When my job is confined to the work environment, I believe I can overcome it. | .88 | | |
| | X3: I am full of self-confidence of my own education ability. | .85 | | |
| | X4: I am confident of being an outstanding preschool educator. | .83 | | |
| | X5: I believe I can adjust teaching content flexibly to correspond to the children's special needs. | .85 | | |

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|------------|--|-----|-----|
| | X6: I will design various kinds of creative methods to cultivate the children's good habits. | .84 | |
| | X7: I will try my best to co-teach with teachers with different personalities. | .75 | |
| Hope | X8: I will think a lot of interesting ideas to enhance parent-teacher communication. | .83 | .88 |
| | X9: I will encourage myself to devote myself to children's learning activities with continuous educational love. | .88 | |
| | X10: I can face trivial children daily life routine training persistently. | .83 | |
| | X11: I have high expectation on the kindergarten's future development. | .73 | |
| | X12: I expect myself to perform better and better in teaching in the future. | .91 | |
| Optimism | X13: I am full of expectation on children's education work. | .87 | .90 |
| | X14: I expect myself to perform better and better in taking care of children in the future. | .90 | |
| | X15: I estimate that my teaching ideals can be carried out one by one. | .84 | |
| | X16: I can quickly hold my ground in the conflict event happening in the kindergarten. | .87 | |
| | X17: After being attacked, I can quickly resume calm. | .89 | |
| Resilience | X18: When I am blamed by the parents, I will immediately encourage myself to elicit a lesson from failure experiences. | .89 | .91 |
| | X19: Involving in interpersonal dispute in the kindergarten, I am always respond calmly. | .86 | |
| | X20: Even if I encounter severe work frustration, I will not retreat easily. | .83 | |

Further, through 400 preschool teachers in Taiwan, we conducted confirmatory factor analysis. In the formal sample, the average age was 38 years old, and the average service year is 18.38. Nearly half had bachelor's degree, all female. Several models were computed to compare different conceptualizations of the factor structure, including the following:

1. A one-factor model tests whether the PCQ is measuring one overall factor.
2. An uncorrelated factors model tests the idea that the four factors are independent.
3. A hierarchical model tests the idea that a second-order factor can account for relations between the four factors.

By employing Structured Equation Modeling technology, under the premise of the absolute value of the skewness' observed variables' coefficient not larger than 3, and the absolute value of Coefficient of kurtosis not larger than 10, we exerted the LISREL software and Method of Maximum Likelihood for analysis. In accordance with Fit indices, the optimal model was selected to further estimate the composite reliability, average variance extracted, and discriminant validity. Confirmatory factor analysis of preschool teacher's PCQ's fit indices are shown in Table 2.

Table 2: Fit indices of confirmatory factor analysis

| Models | χ^2 | df | p | χ^2/df | RMSEA | GFI | NNFI | CFI |
|----------------------------|----------|-----|------|-------------|-------|-----|------|-----|
| one-factor model | 5647.10 | 170 | .00 | 33.21 | .27 | | | |
| uncorrelated factors model | 611.48 | 170 | .00 | 3.60 | .08 | .88 | .97 | .97 |
| hierarchical model | 193.24 | 166 | .07 | 1.16 | .02 | .94 | .99 | .99 |
| Criteria | | | >.05 | <3 | <.08 | >.9 | >.9 | >.9 |

Note. RMSEA= Root Mean Square Error of Approximation. GFI= Goodness of Fit Index. NNFI= Non-Normed Fit Index. CFI = comparative fit index. N=400.

On the basis of Table 2, and according to Table 2, as Browne and Cudeck's (1993) and Hair, Anderson, Tatham and Black's (1998) structural equation model fit indices criteria, hierarchical model was the model with the best fit. Through chi-square difference test, we further evaluated one-factor model's, uncorrelated factors', and hierarchical model's fit, and found that the chi-square difference value were $\Delta\chi^2 (3) = 5453.8$ and $\Delta\chi^2 (3) = 418.24$, respectively, p values were all less than .001, showing that one-factor model's, uncorrelated factors', and hierarchical model's quality became worse apparently. Therefore, we chose the complete hierarchical model as the final solutions. This model shows that self-efficacy, hope, optimism, and resilience are relative to the higher order factor (PsyCap). Hierarchical model path diagram, as Fig. 1 presents.

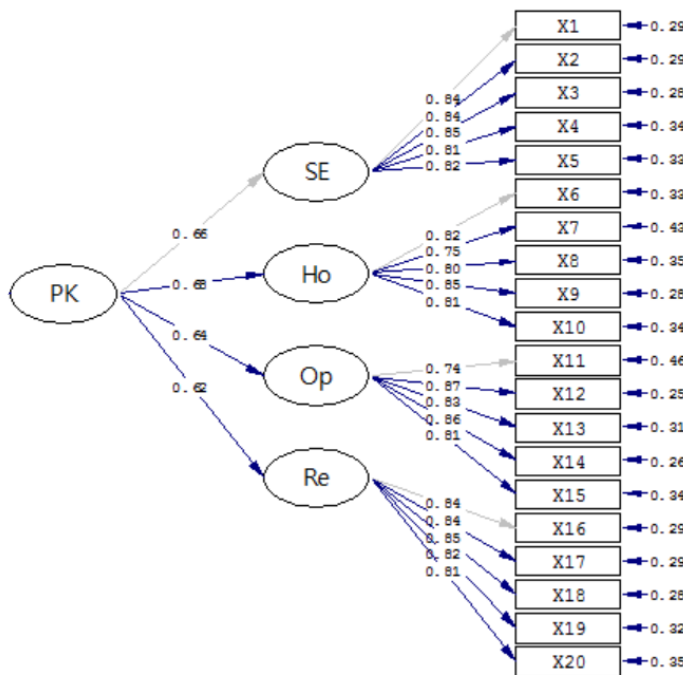


Fig. 1 The Hierarchical Model Path Diagram

Note. PK= PsyCap, SE=self-efficacy, Ho=hope, Op=optimism, Re=resilience. X1 – X20 represent items.

According to Fig. 1, we estimated composite reliability (CR) and average variance extracted(AVE), the calculating results presented that the CR of self-efficacy, hope,

optimism, and resilience were .91, .90, .91, and .91, respectively. In addition, the AE of self-efficacy, hope, optimism, and resilience were .69, .65, .67, .69, respectively.

Each composite reliability is higher than 0.6, each average variance extracted (AVE) is higher than 0.5, meeting what Fornell and Larcker's (1981) suggested range, and presenting that the PCQ developed by this research has good reliability and convergent validity, and explains that summing up the score of items in the whole scale is appropriate and represents a meaningful and interpretable score.

So far as discriminant validity is concerned, plus and minus the correlation coefficient with standard error of 1.96, if the confidence interval does not include 1, it indicates that there is discriminant validity in latent variables. The correlation and the relative 95% confidence interval among the constructs have been organized in Table 3 presenting that none of the pairing include 1. In addition, the restrictive model which sets up the correlation as 1 proceeded the Chi-square difference test for the nonrestrictive model and the restrictive model, and, as shown in Table 3 there is difference in the restrictive model with pairing correlation set up as 1 and nonrestrictive model. Namely, correlation among the four latent variables is discriminant. It means that there is indeed discriminant validity among self-efficacy, hope, optimism, and resilience.

Table 4: Correlation and 95% confidence interval among the four constructs

| | Hope | Optimism | Resilience |
|---------------|---|-------------------------------|-------------------------------|
| Optimism | .45 a (.39; .53) ^b [56.70*] ^c | | |
| Resilience | .41 (.36; .46) [49.81*] | .44 (.38; .60) [46.14*] | |
| Self-efficacy | .42 (.37; .47) [46.54*] | .42 (.36; .48) [54.49*] | .39 (.34; .44) [39.35*] |

Note. a is correlation coefficient, b is confidence interval, c is Chi-square difference. * $p < .05$

Lastly, we exerted professional commitment as the criterion to test criterion related validity. We proceeded structured equation modeling analysis, which path diagram is presented in Fig. 2, and the model's fit indices are listed below: RMSEA=.05, GFI=.97, CFI=.99, NNFI=.98, and $\chi^2/df=2.55$, showing that the whole model's quality has been accepted. According to Fig. 2, the path coefficient between PsyCap and professional commitment is 0.69 ($t=6.13$, $p < .05$), and criterion related validity was acceptable.

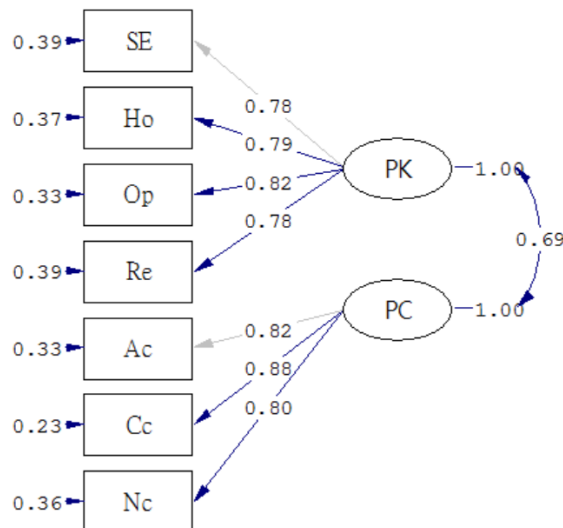


Fig. 2 The Path Diagram

Note. Note. PK= PsyCap, SE=self-efficacy, Ho=hope, Op=optimism, Re=resilience
PC=professional commitment, Ac=affective commitment, Cc=continuance commitment, Nc=normative commitment

DISCUSSION

PsyCap is identified as positive psychological capacities contributing to individual productivity by psychologists (Gohel, 2012). Luthans, Youssef et al., (2007) delineate PsyCap as the study and application of positively oriented human resource strengths and psychological capacities that can be measured, developed, and effectively managed for performance improvement in today's workplace. According to PsyCap's concept frame, we have developed Chinese-Version preschool teacher's PCQ containing four scales-- self-efficacy, hope, optimism, and resilience. EFA analysis shows that this scale has good factor validity, reliability analysis with good internal consistency. CFA further pointed out that, PsyCap is a higher-order construct, and self-efficacy, optimism, hope, and resilience are all sub constructs, with PsyCap as their commonality. Moreover, preschool teacher's PCQ has good convergent validity, discriminant validity, and criterion related validity. It has proved that when we summed up the items' scores, it is appropriate and represents a meaningful and interpretable score. Therefore, this research not only proved self-efficacy, optimism, hope, and resilience have a common mental mechanism. The higher-order factor of psychological capital represents the common source of variance (common mechanistic processes) connecting the four constructs of self-efficacy, optimism, hope, and resilience. Also, it preliminarily proved that PsyCap has impact on the desired outcomes in the workplace, such as professional commitment. In practice, we can utilize Chinese-version preschool teacher's PCQ to measure Chinese preschool teachers' PsyCap. If preschool teachers' PsyCap is insufficient, we can learn from Luthans, Avey, Clapp-Smith and Li (2008), Luthans, Avolio, Norman and Avey (2006), to conduct psychological capital intervention program to enhance preschool teachers' PsyCap, to raise preschool teachers' positive psychological resources, and to further provide quality human labor resource for early childhood education institutes, schools, and enterprises.

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