

# A Positive Intervention of Farmer's Psychological Capital to Improve Perceived Farming Performance: Role of Agricultural Extension Knowledge

**Pornkul Suksod<sup>a</sup>, Mingkoun Dangsuwan<sup>b</sup>, Kittisak Jernsittiparsert<sup>c,d\*</sup>,**  
<sup>a,b</sup>Graduate School, Suan Sunandha Rajabhat University, Bangkok, Thailand,  
<sup>c</sup>Department for Management of Science and Technology Development, Ton Duc Thang University, Ho Chi Minh City, Vietnam, <sup>d</sup>Faculty of Social Sciences and Humanities, Ton Duc Thang University, Ho Chi Minh City, Vietnam,

**\*Corresponding Author Email:** <sup>c,d\*</sup>[kittisak.jernsittiparsert@tdtu.edu.vn](mailto:kittisak.jernsittiparsert@tdtu.edu.vn),  
<sup>a</sup>[pornkul.su@ssru.ac.th](mailto:pornkul.su@ssru.ac.th)

The purpose of the current research was to analyze the role of agricultural extension knowledge (AES) in improving perceived farming performance (PFP) along with the mediating role of psychological capital in this relationship. The mediating role of psychological capital was analyzed by analyzing the mediating role of four dimensions of psychological capital i.e. “hope, confidence, resilience and optimism”. The current study was performed in Thailand where the data was collected from 430 farmers through self-administered questionnaires. The data collected from those farmers was subjected to analysis in which CFA and structural equation modelling were performed on the data to check hypotheses. Findings of the current research suggested that agricultural extension knowledge significantly and positively affects the PFP. Results further revealed that hope, confidence, resilience and optimism act as significant mediators between the association of agricultural extension knowledge and PFP. Since, psychological capital is characterized by these four dimensions therefore it has been found that psychological capital is a significant mediator between agricultural extension knowledge and PFP. The current study and findings have important implications in theory and practice because they will help farmers to enhance their PFP by focusing on agricultural extension knowledge and psychological capital.

**Key words:** *Psychological capital, perceived farming performance, agricultural extension knowledge, Thailand.*

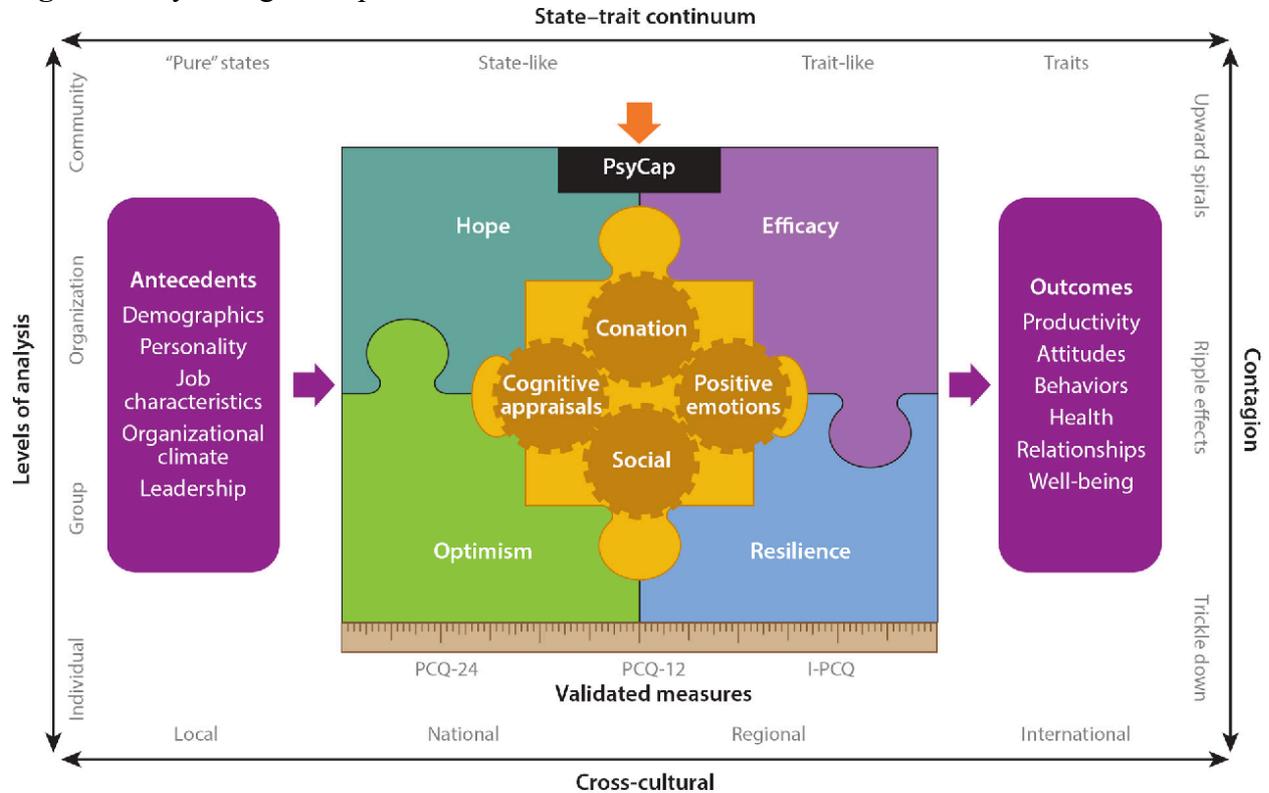
## Introduction

Agriculture in Thailand has huge importance on the basis of its competitiveness and successful export levels (Jermstittiparsert, Sriyakul, & Rodoonsong, 2013). Rice is the basic crop of Thailand (Asnah, Masyhuri, Mulyo, & Hartono, 2018). Before 1980, agriculture was the major output in the economy due to expansion of farming land and a huge labor force. However in 1980, a decrease in agricultural land in proportion to an increase in the industrial sector nationally became a factor. Still most of the labor force was associated with agriculture but employment was there. Studies have shown that most of the Thai people associated with agriculture are poor smallholder farmers. So it was very important to solve agricultural issues and help the poor. In addition, Thailand is the basic exporter of crops and its major income depends upon export, so the importance of farming performance is very clear (Cai, Quagraine, & Hishamunda, 2017).

Agricultural extension education is a very important factor in the farming process as it provides all the information about latest technologies and modern farming methods. In addition, it gives information about all the government policies related to agriculture (Chen, Wen, Kong, Niu, & Hau, 2017). It also acts as an intermediary and informs government about the problems faced by farmers in the agricultural process. In the absence of extension services, farmers usually face problems related to productivity and net revenues due to lack of awareness of new technologies and their problems are not easily addressed by government officials. Agriculture has great importance in Thailand, so agricultural extension education is mandatory in this country (Fayaz, Gopal, & Prasad, 2016).

Psychological capital is characterized by the four states of an individual i.e. confidence, optimism, hope and resilience. Later, with further treatment of different mental diseases, psychologists conceptualised a new approach called positive psychology (Youssef-Morgan & Luthans, 2015). This approach is based on two goals i.e. to help common individuals to live a better and meaningful life and to make individuals realize that they have potential to achieve. The four components of psychological capital are: Confidence in one's abilities to achieve a life, positive image or optimism, hope of achieving goals successfully and dealing with stress and failure positively. Because of the great importance of agriculture in Thailand, these are very important concepts for every farmer to allow them to excel in the agriculture field (Walker, Burton, Akhurst, & Degirmencioglu, 2015).

**Figure 1.** Psychological capital



Agriculture industry in Thailand is very much based on the perceived farming performance. It is clear from studies that performance can be improved by using modern technology and latest farming methods. Extension services play a very crucial role in the provision of information about such technology which ultimately increases the productivity and profit (Wuepper & Sauer, 2016). Unfortunately, PFP has decreased in Thailand because of certain factors such as unavailability of extension services in farming, unco-operative behavior of farmers and use of traditional farming practices and insufficient farmer skill. These problems are not confined to Thailand and rather are spread across many developing and under developed countries where modern technology and farming practices are not encouraged by the extension services and unskilled labor force (Yin, Gao, & Liu, 2017). This decrease in performance leads to decreases productivity and decreased net revenue which is obviously not in the best interest of any country.

The problem of lack of performance if it remains unsolved is that is not beneficial for the country in any way. National overall productivity will drop and net revenue will decrease which will ultimately make the country suffer. To avoid such adverse circumstances, the problem of lack of performance needs to be addressed (Müller, Meier, Schader, Gattinger, & Steffens, 2018). This can be achieved by activating extension services in the country which

provide necessary information about latest technologies and also address the farmers' problems to the government officials. They must also provide farmers necessary skills to adopt better farming practices. Although many studies have been done from the perspective of PFP, there are very few studies which have shown the impact of extension services on PFP. In addition, there are not sufficient studies to show the mediating role of psychological capital of farmers on the impact of AES on the performance of farmers (Glover, 2018). A research paper on the topic of psychology capital recommended studying the mediating role of psychology capital on the relationship between AES and PFP (Chipfupa & Wale, 2018). The study in this research paper has the following objectives:

- Analyze the impact of agricultural extension knowledge on perceived farming performance in Thailand agriculture sector
- Analyze the mediating role of psychology capital on relationship between agricultural extension knowledge and perceived farming performance in Thailand agriculture sector
- Analyze the mediating role of confidence, optimism, hope and resilience on relationship between agricultural extension knowledge and perceived farming performance in Thailand agriculture sector

Agriculture in Thailand is of huge importance because a large proportion of the population associated with it and primarily, the successful export of rice. Rice is the basic crop of Thailand. 60% of Thailand's farmers work for the production of rice crops on half of the agricultural land of Thailand. The major global exporter of rice is Thailand (Halloran, Hanboonsong, Roos, & Bruun, 2017). Rice production and rice export by Thailand has a prominent percentage in the country's GDP. 40% of Thailand's population works in the field of agriculture. Other crops produced in Thailand include tapioca, rubber, grain, coffee, coconuts, palm oil etc. There are three modules of significance in this regard, i.e. theoretical, practical and policy making. Theoretical significance includes different research and studies on psychology capital as well as extension services. This research has made much contribution to farmers by making extension services better and more easily accessible. These studies have also assisted government in developing policies for farmers which enable them to improve their farming practices and increase productivity (Kobayashi, Thaiyotin, Ishida, & Inoue, 2016).

## **Literature Review**

### ***Psychological Capital Theory (PsyCap)***

Psychological capital theory is based on the positive state of an individual's mind which can be determined by the higher levels of four aspects confidence, hope, optimism and resilience (Peterson, Luthans, Avolio, Walumbwa, & Zhang, 2011). Studies have revealed that we can

easily assess these four aspects of PsyCap. For the purpose of assessment, a scale was developed called the PsyCap questionnaire 24 (PCQ-24) and for more general assessment, another scale was developed called the compound PsyCap scale 12 (CPC-12). There are four aspects to this theory. The first aspect, confidence refers to an individual's belief that he/she has the capability to make efforts and achieve goals. Higher confidence leads to hard work and higher performance (Baron, Franklin, & Hmieleski, 2016). Researches have revealed that our confidence can be affected by processes such as cognitive, motivational and effective and selection etc. and we can empower our confidence in the following ways. First, we can focus on our past successful experiences and also listening to others experiences. By understanding all the factors that led to past success, we can use them in future and it ultimately boosts our confidence (Bouckennooghe, Zafar, & Raja, 2015). Secondly, when we see other people successfully overcoming difficulties in a specific situation, we can get the motivation that we can do it too. Third, by assuming situations of success in future, we can build our confidence to achieve those levels of success.

The second aspect of PsyCap is Hope, which means that an individual believes that he/she can find ways to achieve goals and work hard for it. We can develop hope by setting goals which are specific, measurable, attainable, relevant and time based. By setting goals, we can hope to achieve them through hard work and motivation (Luthans & Youssef-Morgan, 2017). The third aspect, resilience means to overcome negative emotions such as stress, fear, failure etc. and not be consumed by them. The final aspect, optimism means to have positive thoughts about future events. There are two types of people in this regard; some think that they have to work really hard to have good things in life while some say that they will surely get something good, no matter what. The latter belief belongs to the optimists.

In a nutshell, we can say that these four aspects of this theory are very important to being successful and to giving one's best performance (Paek, Schuckert, Kim, & Lee, 2015). Even having one of these four aspects can affect positively on the others. This theory was primarily studied on an individual level but now it is also being studied at a group level which will evaluate group performance. As this theory is being studied in regard to agriculture, we can say that the farmers must possess the four aspects of this theory to achieve their goals effectively and demonstrate high performance and high productivity (Youssef-Morgan & Luthans, 2015).

### ***Impact of agricultural extension knowledge on perceived farming performance***

We know that agricultural extension services AES are supposed to provide farmers information and intelligence about latest technology and modern farming methods. This also includes the provision of management and marketing skills to farmers in order to reach better markets and communicate with relevant costumers (Pedersen et al., 2019). These services

further identify farmers' problems and communicate them to the government officials. Traditional extension services have not been able to result in innovation adoption by farmers. This may be due to the reason that the extension services are not helpful in addressing the proper information about new technologies and latest farming practices. So, extension services must also be improved in order to get the desired results. All these services are meant to increase productivity and net revenue.

Studies have revealed that the use of modern technology has become urgent due to low productivity of crops and lowered profits (Garibaldi et al., 2017). The agriculture sector is continuously shrinking and other sectors are taking its place such as industry. Most of the labor is associated with agriculture but due to its shrinkage these workers are also moving to better options and extension services become even more important. In addition government must also devise agriculture friendly policies and it is the duty of extension service people to report those policies to farmers and provide sufficient information about them (Glover, 2018).

Moreover, technology companies must modernize older technology by producing new machines or by devising new ways to use the machines. The detailed information about this technology must be communicated to the smallholder farmers through extension services. When new technology is used, it produces interest and motivation in the farmers to work harder and thus improve performance (Khan, Khwaja, & Olken, 2015). This improved performance directly affects the overall productivity of crops in a particular region and also net revenue. Many studies have been conducted on the impact of extension services on perceived farming performance and the positive relation between them (Yin et al., 2017). From the above discussion we can develop the following hypothesis:

H1: Agricultural extension knowledge has significant impact on perceived farming performance.

### ***Mediating role of Confidence between agricultural extension knowledge and perceived farming performance***

Confidence is considered a very crucial factor in everyday life. Confidence leads to the achievement of goals through hard work and motivation. Studies have shown that a person with good confidence level is sure about their success and thus becomes motivated to work hard and achieve goals (Badran & Youssef-Morgan, 2015). From the agricultural perspective, confidence is having the belief to attain a certain level of productivity and profit. Extension services provide information about new technology and government policies which increases the confidence of people as they are well aware of the fact that with that assistance and better technology they will ultimately going to get better productivity and revenue. So they become motivated and work hard for this purpose (Bergheim, Nielsen, Mearns, & Eid, 2015). In

addition, extension services communicate their complaints or problems to government officials who address them positively and solve their problems, which also increases farmers' confidence in government and they strive to perform better for their country. This ultimately results in better levels of farmer performance. In this way, confidence serves as a moderator between AES and PFP (Carmona-Halty, Salanova, Llorens, & Schaufeli, 2019). From this discussion, we can develop the following hypothesis:

H2: Confidence has a significant mediating role between agricultural extension knowledge and perceived farming performance.

***Mediating role of Optimism between agricultural extension knowledge and perceived farming performance***

Optimism is another aspect of psychological capital and it refers to the positive state of mind for future events. Studies have shown that these aspects of psychological capital are inter related (Costa & Neves, 2017). Optimism has a correlated effect on hope and confidence. An optimistic person is hopeful to have something good and beneficial in this future and this hope gives rise to confidence. From an agricultural perspective, a farmer must be optimistic in reference to productivity and profits. He/she must believe that no matter what they are going to have highest productivity and profits. Agricultural extension services support this optimism by providing necessary information to the farmers about latest technology which makes them confident and hopeful for better results (Joo, Lim, & Kim, 2016). A pessimistic person, despite having experience and more labor will not be confident enough. They cannot even motivate the labor working beneath them. This adversely affects productivity and leads to further pessimism and thus extension services lead to optimism in farmers which ultimately results in better performance levels. Better performance always results in higher productivity and net revenues (Dello Russo & Stoykova, 2015). We can develop the following hypothesis from the above discussion:

H3: Optimism has significant mediating role between agricultural extension knowledge and perceived farming performance.

***Mediating role of Hope between agricultural extension knowledge and perceived farming performance***

We are well aware that life is full of difficulties and hardships, so having goals is not enough, rather working hard for those goals is much more important. Hope is the aspect of psychological capital which enables an individual to work for his/her goals with a better strategy and be successful (Lorenz, Beer, Pütz, & Heinitz, 2016). Some researchers put forward a hope theory according to which hope is the will that a person to definitely achieve

their goals through different sets of pathways. In an agricultural context, the ultimate goal is higher productivity and higher profits and the pathways or strategies to meet those goals are the use of modern technology and better farming methods. Agricultural extension proves these pathways and farmers use these pathways to achieve the goals (Meyers, van Woerkom, de Reuver, Bakk, & Oberski, 2015). This hope ultimately results in better levels of performance by the farmers which leads to accomplishment of their ultimate goals i.e. higher productivity and profit. Farmers with hope are more inspired to engage with innovative ideas instead of using traditional methods. This provides a wider scope of experience to farmers (Pedersen et al., 2019). We can develop the following hypothesis from the above discussion:

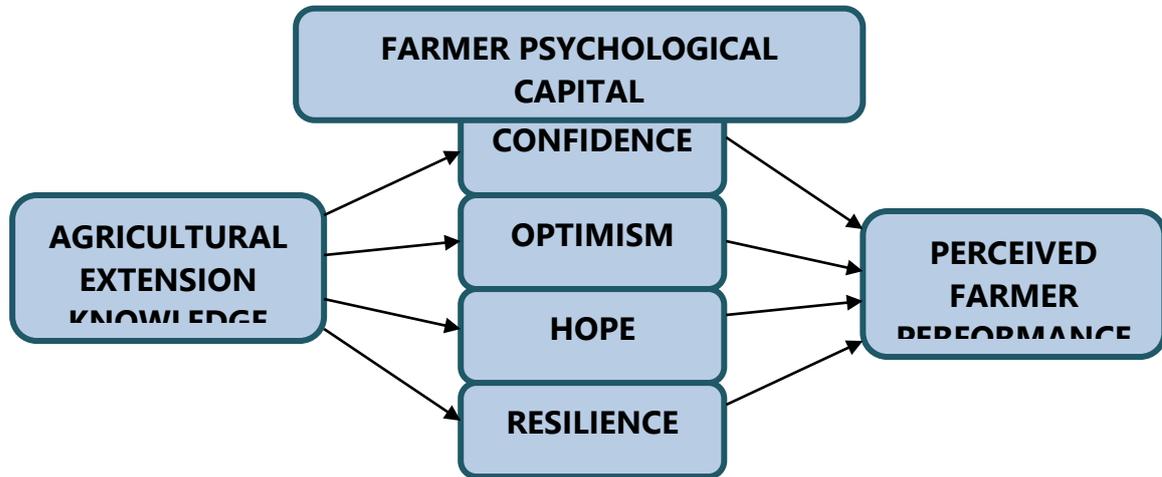
H4: Hope has a significant mediating role between agricultural extension knowledge and perceived farming performance.

#### ***Mediating role of Resilience between agricultural extension knowledge and perceived farming performance***

Resilience refers to withstanding stress in a better way. There are certain negative things such as failure, fear, hesitation etc. which must be coped with in better way instead of being consumed by them (Thompson, Lemmon, & Walter, 2015). Resilience enables individuals to solve problems and make quick and effective decisions. As discussed earlier the aspects of psychological capacity are correlated to each other in one way or the other. Resilience is also related with confidence because a confident person can withstand stress and fear and make quick and effective decisions as compared to a confused person (Dello Russo & Stoykova, 2015). In the agricultural sector, there are many risks such as drought, floods and climate fluctuations etc. which sometimes have dire impact on productivity. These risks must be overcome by farmers by means of using the latest technology and farming practices supported by quick decision making and confidence. This technology and its related information is provided by AES and ultimately results in good performance and high productivity (Carmona-Halty et al., 2019). From this discussion we can construct the following hypothesis:

H5: Resilience has significant mediating role between agricultural extension knowledge and perceived farming performance.

**Model:**



**Methodology**

***Population and Sample Selection***

This research study has been conducted in order to observe the role of agriculture extension knowledge in improving the perceived farming performance, with positive intervention of farmer's psychological capital. The farmers of Thailand were selected as a population for this research study. As the agriculture industry is the major contributor in the Thailand economy, accounts for 9-10.5% of Thai GDP and almost half of the Thai population are employed in the agriculture industry, this is a good choice. As rice, cassava, fruit, sugarcane and cashew nuts are internationally traded crops, farmers who specialized in these crops have been selected in the sample. With the agriculture extension knowledge, farmers contributed to the farming performance as they learned how to be confident, optimistic, hopeful and resilient about unusual happenings. Through the intervention of farmer's psychological capital, farming performance improved which ultimately effected the economy of Thailand. The issue with the current study sample is size because Hazen et al. (2015) reported that sample size has to be large if the SEM approach has been used in analysis of data. Sample size has been selected on the bases of idea provided by Klein (2015) which states that formula "number of questions\* 10 generates exact sample size. In this research study, a questionnaire has been distributed among 430 farmers, out of which only 350 responded. After the deletion of invalid responses, only 307 responses have been considered valid and accurate.

### ***Data Collection Procedure***

Data collection procedure was conducted after the use of a Questionnaire as a data collection tool. Questionnaire was written originally in English language and then converted into the Thai language, as the farmers understand only Thai language. After the data collection, the questionnaire was again translated into English language by back translation method, so that the researcher can evaluate the data easily in English language. Further, content validity has been checked by another industrial practitioner. The questionnaire was administered through a self-administered method because farmers could face problems in understanding the specific terms in the questionnaire.

### ***Analysis of Validity, Reliability and Common Bias***

Reliability has been analyzed by SPSS and criteria have been administered for the evaluation states that Cronbach  $\alpha$  has to be greater than 0.70, as the Chin, (1998) has been reported that its values were stronger at 0.75 or at above. Regarding validity, the researcher has been used AMOS for the analysis of validity but criteria to examine the assessment of convergent validity and discriminant validity have been different. For convergent validity, the researcher used three criteria for evaluation: (1) items loading  $\lambda$  and its threshold range is greater than 0.70, (2) composite constructs reliability, its values were stronger when it has been greater than 0.80 and (3) average variance extracted has to be greater than 0.50. As far as discriminant validity between constructs is concerned, as per Fornell & Larcker, (1981) square root of AVE has to be greater when compared with the all other correlated constructs.

Common bias has been accompanied and the independent and dependent variables evaluated with the same measures. As respondents used the measures recommended by common ratio (Donaldson & Grant-Vallone, 2002; Podsakoff, MacKenzie, Lee, & Podsakoff, 2003) for explanatory and dependent variables, a common bias has been generated in study. A set of variables has been used in this research that includes agriculture extension knowledge, farmer's psychological capital and perceived farming performance. In order to check whether common bias has been generated in this study or not, Harman's single factor test has been administered. In this test, the researcher observed whether more of the constructs were interpreted on the bases of single factor or not. According to the outcomes, different factors have been used for the accounting of all the constructs. 84% of variance is accounted for by factors solution and 12% of variance is accounted for by single factor. Hence, it has been proved that common bias has not been observed in this research study because none of the constructs are accounted for by one factor.

### *Hypothesis Testing*

Hypothesis testing is an essential part of methodology as the significance of hypotheses relationships have been tested in this section. Structure equation model has been used by this researcher for the hypothesis testing, SEM has been run on AMOS. Approach has been used by AMOS, in order to run the diagnostics of SEM as a covariance-based approach. In this research study, hypotheses have been tested including role of agriculture extension knowledge in improving perceived farming performance and in mediating role of farmer's psychological capital. To assess the acceptance or rejection status of the hypotheses, direct, indirect and total effect and the significance of the relationship have been checked.

### **Findings**

The purpose of this research was to analyze the impact of knowledge of agricultural extension service (AES) on the perceived farming performance (PFP) with mediating role of psychological capital. The current study has taken four dimensions of psychological capital: "confidence, hope, optimism and Resilience" to investigate. The data was collected through self-administered questionnaires distributed to Thai farmers and the sample size was 430 farmers. Of 430, 350 farmers responded and after screening, only 307 questionnaires were found in a position to be considered for analysis.

### *Demographic Analysis*

The demographic analysis of respondents has been presented in Table 1 below.

**Table 1:** Demographic Analysis (N=307)

<b>Characteristic</b>	<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Gender</b>	Male	133	43.3
	Female	174	56.7
<b>Age</b>	20-25 years	246	80.1
	26-30 years	49	16.0
	31-40 years	10	3.3
	41-60 years or above	2	.7
<b>Education</b>	Intermediate	23	7.5
	Bachelors	145	47.2
	Masters	128	41.7
	Other	11	3.6

The results of demographic analysis show that there were 56.7 percent females who responded to the questionnaires while there were 43.3 percent males of total participants.

Most of the respondents were aged between 20 to 25 years at 80%. 16 percent participants were aged between 26 to 30 years while 3.3 percent of participants were aged between 31 to 40 years. Furthermore, 47.2 percent of participants have a bachelor degree while 41.7 percent of participants reported education level at masters.

### *Descriptive Statistics*

The descriptive statistics against all current variables are presented in Table 2 below.

**Table 2:** Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
AES	307	1.00	4.90	3.5583	1.07434	-.802	.139
RES	307	1.33	5.00	3.7980	.89160	-.648	.139
HOP	307	1.00	5.00	3.3051	1.08261	-.425	.139
OPT	307	1.00	5.00	3.3713	1.11193	-.208	.139
CON	307	1.00	5.00	3.6211	1.14495	-.826	.139
PFP	307	1.00	5.00	3.5668	1.08692	-.808	.139
Valid (listwise)	N 307						

The results of descriptive statistics show that the mean value of AES, PFP, hope, confidence, optimism and resilience range within their minimum and maximum values thus showing the absence of any outlier in the data. Furthermore, the skewness for all of them also ranges from -1 to +1 therefore, the adequacy and normality of the data is confirmed.

The suitability of data was checked through “**KMO and Bartlett's Test**” and is represented in Table 3 below.

**Table 3:** KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.932
Bartlett's Test of Sphericity	Approx. Chi-Square	7942.786
	Df	325
	Sig.	.000

The value of KMO is 0.932 for the current data which is meeting the threshold value (i.e. >0.60) so, the current data is suitable and reliable.

### ***Discriminant and convergent validity***

The multi-collinearity of the current data was checked through discriminant validity and the internal consistency of variables was analyzed with the help of convergent validity, see Table 4 below.

**Table 4:** Discriminant and Convergent Validity

	CR	AVE	MSV	RES	AES	OPT	CON	HOP	PPF
RES	0.818	0.601	0.002	<b>0.775</b>					
AES	0.966	0.743	0.386	0.012	<b>0.862</b>				
OPT	0.904	0.759	0.674	-0.013	0.603	<b>0.871</b>			
CON	0.922	0.797	0.674	-0.046	0.621	0.821	<b>0.893</b>		
HOP	0.949	0.862	0.328	-0.018	0.553	0.528	0.516	<b>0.928</b>	
PPF	0.921	0.744	0.328	0.007	0.537	0.466	0.542	0.573	<b>0.862</b>

The values of CR and AVE have been checked to analyze the discriminant validity. Since the value of CR for all current variables is more than 0.7 and the value of AVE is more than 0.5 for all of them, the threshold values of both these indicators are met. Hence, it is found that the validation of the data of PFP, hope, confidence, optimism, resilience and AES is proven. The values of MSV confirm the convergent validity. Furthermore, each variable is most correlated with itself as compared to others. Therefore, the convergent validity of the current variables is also confirmed.

### ***Confirmatory Factor Analysis***

The fitness of the current model was checked by running CFA of the data in AMOS. The key indicators to check model fitness are “CMIN/DF, GFI, CFI, IFI, and RMSEA”, see Table 5 below.

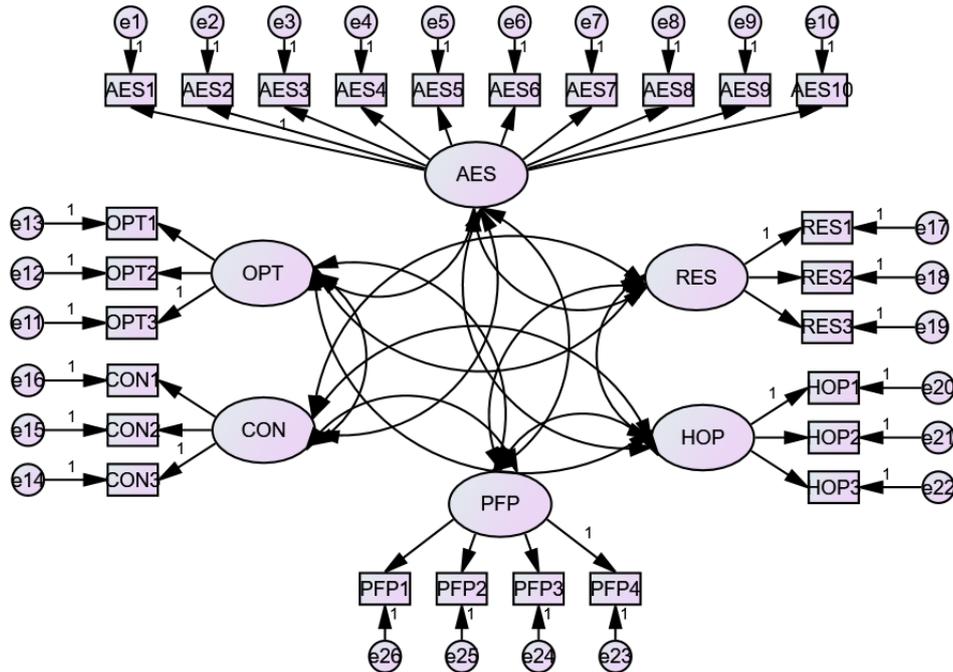
**Table 5:** CFA

Indicators	Threshold range	Current values
CMIN/DF	Less or equal 3	2.169
GFI	Equal or greater .80	.864
CFI	Equal or greater .90	.958
IFI	Equal or greater .90	.958
RMSEA	Less or equal .08	.062

Table 5 presents the observed values of key indicators and their threshold range. It can be seen that the values of all indicators meet the threshold values because CMIN is more than 3, the value of GFI (i.e. 0.864) is more than 0.8 and the values of CFI and IFI are more than 0.9

(i.e. 0.958 and 0.958 respectively). These indicators prove that the current model containing AES, PFP, hope, confidence, optimism and resilience is good fit. Following is the screenshot of CFA taken from AMOS.

**Figure 2.** CFA



### Structural Equation Modeling

The current model and hypotheses were tested by running “structural equation modelling” (SEM) in AMOS which is a kind of “multivariate regression”. SEM produces the results about the direct as well as indirect effects of variables at the same time. Table 6 below depicts the direct, indirect as well as total effects of variables along with their significance.

**Table 6:** Structural Equation Modeling

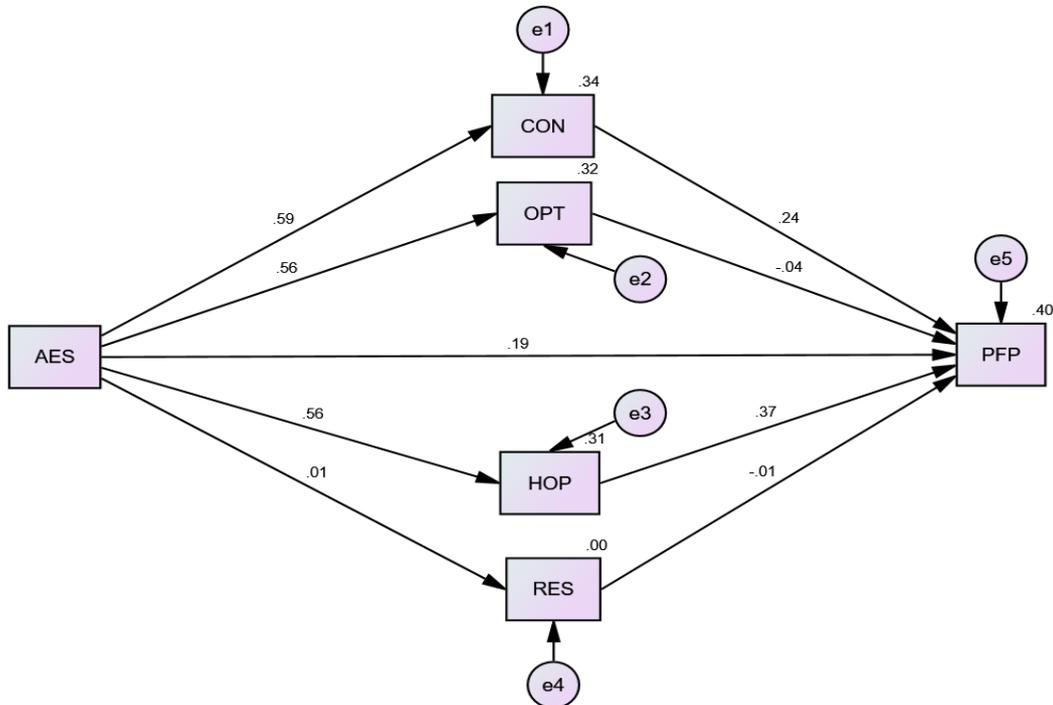
Total	AES	RES	HOP	CON	OPT
RES	.012**	.000	.000	.000	.000
HOP	.559**	.000	.000	.000	.000

<b>Total</b>	<b>AES</b>	<b>RES</b>	<b>HOP</b>	<b>CON</b>	<b>OPT</b>
CON	.587**	.000	.000	.000	.000
OPT	.563**	.000	.000	.000	.000
PFP	.514**	-.014**	.374**	.236**	-.045**
<b>Direct</b>	<b>AES</b>	<b>RES</b>	<b>HOP</b>	<b>CON</b>	<b>OPT</b>
RES	.012**	.000	.000	.000	.000
HOP	.559**	.000	.000	.000	.000
CON	.587**	.000	.000	.000	.000
OPT	.563**	.000	.000	.000	.000
PFP	.192**	-.014**	.374**	.236**	-.045**
<b>Indirect</b>	<b>AES</b>	<b>RES</b>	<b>HOP</b>	<b>CON</b>	<b>OPT</b>
RES	.000	.000	.000	.000	.000
HOP	.000	.000	.000	.000	.000
CON	.000	.000	.000	.000	.000
OPT	.000	.000	.000	.000	.000
PFP	.322**	.000	.000	.000	.000

The results of SEM reveal that the AES has significant and positive total impact on PFP which is 51.4 percent (p-value<0.05). This means that the one unit increase in AES causes a 51.4 percent increase in PFP however the total effect of AES on PFP is not equal to its direct effect on PFP which means that there is some sort of mediation between AES and PFP. This mediating role is played by hope, confidence, optimism and resilience. The indirect impact of AES on PFP is 0.322 which is significant at p-value less than 0.05 and this impact has been caused due to the mediators between AES and PFP. The results indicate that resilience is a significant mediator between AES and PFP with effect of -0.014, that hope is a significant positive mediator between AES and PFP with effect of 0.374, that confidence is a mediator between AES and PFP with an effect of 0.236 while optimism is a significant mediator

between AES and PFP with an effect of -0.045 on PFP. The following, Figure 3 describes structural equation modeling taken from AMOS.

**Figure 3. SEM**



## Discussion

The study aimed to determine the impact of agricultural extension knowledge on perceived farming performance. The study took farmer psychological capital as a mediator which involves confidence, optimism, hope and resilience. The study proposed some hypotheses regarding the relationship of these variables and the proposed hypotheses were exposed to different rigorous testing techniques and after the testing stage the hypothesis were analyzed and the results discussed as follows. The first hypothesis proposed in the study was that “Agricultural extension knowledge (AEK) has a significant impact on perceived farming performance (PFP).” This hypothesis is accepted according to the research work of M. Abbas, AEK enhances PFP in a positive and significant way (Truelove, Carrico, & Thabrew, 2015). The second hypothesis proposed was that “Confidence has a significant mediating role between AEK and PFP.” This hypothesis is accepted according to the research work of N. Arunrat, C. Wang, confidence is the factor that is enhanced by proper knowledge of agricultural sector and this significantly enhances PFP. The third hypothesis proposed was that, “Optimism has a significant mediating role between AEK and PFP.” This hypothesis is also accepted according to the study of SK. Padhy, S. Sarkar, which concluded that with the

help of proper optimism, the impact of AEK enhances and because of that PFP increases (Padhy, Sarkar, Panigrahi, & Paul, 2015). The fourth hypothesis proposed in the study was that “hope has a significant mediating role between AEK and PFP.” This hypothesis is accepted according to HB. Truelove, AR. Carrico, L. Thabrew, who state that hope significantly enhances the impact of AEK and increases it positively and thus plays a significant role in increasing the PFP (Arunrat, Wang, Pumijumnong, Sreenonchai, & Cai, 2017). The fifth hypothesis proposed was that “Resilience significantly mediates between AEK and PFP.” This hypothesis is accepted as N. Bakoh supports the idea of increasing PFP with the increased impact of AEK through resilience on PFP.

## **Conclusion**

This study was conducted with the aim to determine the impact of agricultural extension knowledge on perceived farming performance. The study took farmer psychological capital as a mediator which involves confidence, optimism, hope and resilience. This study was performed in Thailand and the sector that was selected was the Agricultural industry of Thailand. The data was collected from a sample of three hundred people of the agricultural industry of Thailand and the data was collected with the help of questionnaires that were written originally in English language and then converted into the Thai language as the farmers of Thailand understand only Thai language. The data was then exposed to analytical techniques and after proper analysis the results showed that, AEK has a significant impact on PFP and that farmer psychological capital factors significantly and positively impact PFP.

## ***Implications of the study***

This study has significantly contributed to the theoretical material of AEK and PFP and highlights the factors that enhance the impact of AEK on PFP and because of this significant contribution this study can be used as a basis for the practical implication of farmer psychological capital in the enhancement of PFP through AEK. This study can also be used as a basis for the policy making process in order to enhance PFP through AEK and through farmer psychological capital factors.

## ***Limitation and future research indications***

Future researchers are encouraged to conduct the same research with a larger sample size and in a different country to assess the results from a different environment. Future researchers could also conduct the same research with a different mediator such as farmer’s motivation and perform the research by both qualitative and quantitative methods to increase accuracy.

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