

A Model for Enhancing the Functional Competencies of Automotive Glass and Window Film Technicians in the Eastern Region

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ABSTRACT

The objectives of this research were to: 1) study the components of functional competencies of the automotive glass and window film installation technicians in the Eastern Region; 2) examine factors affecting the enhancement of functional competencies of the automotive glass and window film installation technicians in the Eastern Region; and 3) develop a model for enhancing the functional competencies of the automotive glass and window film installation technicians in the Eastern Region. The research findings showed that: 1) the functional competencies of the automotive glass and window film installation technicians in the Eastern Region consisted of four components, namely, self-awareness, self-control, job expertise, and job accountability; 2) the factors affecting the enhancement of functional competencies of the automotive glass and window film installation technicians in the Eastern Region included organization culture, development and training, education, learning and a need to become an entrepreneur, of which development and training had the highest influence; and 3) a model for enhancing the functional competencies of the automotive glass and window film installation technicians in the Eastern Region was a model that focused on official job instruction, learning and education, the development of role-oriented organizational culture, and the establishment of social acceptance.

Keywords

Competency, Learning, Organizational Culture, Development and Training, Entrepreneurs

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Introduction

For the skill development and elevation to support Thailand 4.0, the government sector sets the national skill standards to be used as criteria in measuring the skill levels, knowledge, ability, and working attitude of professionals in various fields (Haseeb, Hussain, Slusarczyk, & Jermstittiparsert, 2019; Syazali, Putra, Rinaldi, Utami, Widayanti, Umam, & Jermstittiparsert, 2019; Chetthamrongchai & Jermstittiparsert, 2020). There are 3 levels of national skills standards and certified labor standards in 2017 for 15 fields and in 2018 for 12 fields (Department of Skill Development Ministry of Labor, 2018). The labor in the certified fields will receive higher wages in accordance with wage standards set by the government. Applying the skilled labor standards as a mechanism to drive the human resource development policy and set the criteria in many forms such as wage rates according to skill standards and skill test standards leads to the elevation of skill competency level with higher income according to the workmanship standards. This is an incentive for workers to realize the importance of self-development to meet the standards set by the profession as well as encouraging the employers or entrepreneurs to realize the benefits of employment including allowing workers to receive a standardized wage rate (Atchara Kaewkamchaicharoen, 2018). It yields direct benefit to the employees and also reduces conflicts between employees and employers. Entering the labor certification process is conducted by the establishment in selecting the positions for certification of skilled labor standards with the details about the job characteristics, qualifications, knowledge, capabilities and attitudes of workers in the positions to be certified.

As the skill standard certification has not covered all professions, the automotive industry entrepreneurs need a lot of skilled labor. At present, craftsmen in the automotive field having the performance framework and being certified for skilled labor standards consist of high-level technicians, auto paint technicians, auto body repair technicians, and mechanics to check car mileage only (Department of Skill Development, Ministry of Labor, 2015). For the technicians in installing the glass and window film, there is no performance certification. Therefore, they are unable to enter the standardization process for skilled labor. In the Eastern region, more than 1,600 glass and window film installation technicians lack the opportunity and progress in their field of work. The researcher is then interested in finding the capability and factors that affect the development of specific performance according to the work performed by glass and window film technicians in the Eastern region. The research was conducted by interviewing the key informants. The data was analyzed for components in order to get the specific performance according to the work performed by glass and window film installation technicians in the Eastern region and to search for factors that affect performance development including the influence of factors that affect the performance development of glass and window film installation technicians in the Eastern region.

Research's objectives

To study 1) specific performance elements according to the work performed by glass and window film installation technicians in Eastern region, 2) factors affecting the

development of such competency, and 3) creation on the above competency development model.

Research’s conceptual framework

According to the literature review, the researcher analyzed factors affecting the competency development consisting of organizational culture, development and training, education, learning, and the factors gained from the in-depth interview with key informants which are the needs to be an entrepreneur affecting the competency development of the glass and window film installation technicians. The research’s conceptual framework can be drawn in Figure 1.

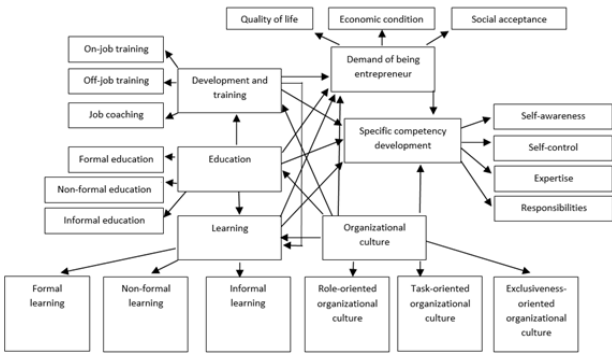


Figure 1: Research’s conceptual framework

Research’s methodology

This research set the integrated research methodology of qualitative research and quantitative research as detailed below.

Qualitative research

Population consists of: 1) Director of the Institute for Skill Development of Eastern region 2) Entrepreneurs for installation of glass and car window films in Eastern region, and 3) Glass and film installation technicians. The **key inforants** are: 1) 4 Directors of the Institute for Skill Development of Eastern Region with experience in the position of 1 year or more who agree to participate in the research, totaling 4 cases. 2) 7 glass and film installation operators in the Eastern region who have registered with the Department of Business Development having experience in business management of 5 years or more and agreeing to participate in the research, and 3) 13 glass and film installation technicians in the Eastern region having experience of 10 years and more agreeing to participate in the research. The total population is 18 persons. The key informants are acquired from specific selection according to the research objectives.

Tools used in the research and quality inspection: The research tools are the structured interview forms for in-depth interviews. The 3 groups of key informants are interviewed about knowledge / expertise / skill, ability, attitude and behaviors of glass and window film technicians along with the questions of factors affecting the development of specific competencies according to the performance characteristics of

glass and film installation technicians in Eastern region for 11 open-ended questions to be determined for the Index of Item-Objective Congruence (IOC) equaling to .08-1.00

Data collection and data analysis

The data is collected from the in-depth interviews with key informants in the 3 groups individually. The data is analyzed with content analysis, categorization of opinions, performance issues, and factors that affect the development of specific performance according to the work performed by glass and window film technicians in Eastern region.

Quantitative research

The **population** consists of glass and window film installation technicians in Eastern region. The **sample group** for component analysis consists of glass and window film installation technicians in Eastern region with experience of 1 year or more who are able to communicate in Thai language in all 4 skills for 10 times of questions. There are 27 questions. The sample group then consists of 270 persons. The **sample group** for the analysis of structural equations consists of glass and window film installation technicians in Eastern region with experience of 1 year or more who are able to communicate in Thai language in all 4 skills for 20 times of observation variables. There are 19 research variables and the sample consists of 380 persons. The sample group was acquired from random sampling following the proportion of glass and window film installation technicians of the establishments of glass and window film installation which are legally registered in Muang District of each of the 7 provinces until completing the required number.

The population and sample group in the component analysis and structural equation analysis are shown in Table 1.

Table 1 Number of establishments, population, and sample group of Muang District of each province

Muang District	Establishments (places)	Population (persons)	Sample group (persons)	
			Component analysis	Structural equation analysis
1. Chanthaburi	7	52	18	25
2. Chachoengsao	6	58	20	28
3. Chonburi	22	250	87	123
4. Prachinburi	8	78	27	38
5. Rayong	13	162	56	79
6. Trat	7	85	29	41
7. Sa Kaeo	11	95	33	46
Total	58	780	270	380

Tools used in the research and quality inspection: Questionnaire on the competency of glass and window film installation technicians in Eastern region for analyzing the components consist of 2 parts; 1) Questionnaire on personal factors for 6 questions in the type of 2 - 7 options, and 2) Questionnaire on the performance of glass and window film installation technicians in Eastern region for 27 questions in 5-level estimation (1-5), from the least important – the most important to be brought to the advisor for checking and correcting following the advisor’s advice, 2) Questionnaire for analyzing the structural equation consists of 2 parts: 1) Questionnaire on personal factors for 6 questions in the type of

2 - 7 options, and 2) Questionnaire on the factors affecting the development of performance and specific performance according to the performance characteristics of the glass and window film installation technicians in Eastern region for 95 questions. The questions are in the type of 5-level assessment form (1-5) from the least agree – the most agree to be determined for the Index of Item-Objective Congruence (IOC) equaling to .60-1.00 with the confidence equal to .908

Data collection and data analysis: This is divided into 2 steps. The 1st step is to collect the data from the sample group with qualifications following the criteria for 270 persons. The obtained data is analyzed on the components to determine the specific performance according to work of glass and window film installation technicians in Eastern region. The 2nd step is to collect the data from the sample group with qualifications following the criteria for 270 persons. The obtained data is analyzed on the structural equations to find the influences of factors affecting the development on specific performance according to work of glass and window film installation technicians in Eastern region.

Research results

The specific performance according to work of glass and window film installation technicians in Eastern region consists of 4 components; 1) Self-awareness, 2) Self-control, 3) Job expertise, and 4) Job responsibility. The results analysis on the influences of factors of organization culture, development and training, education and learning, and demand of being entrepreneur affecting the development on specific performance according to work of glass and window film installation technicians in Eastern region are revealed as follows.

1) Comparing the hypothesis models, alternative models, modification of structural equation models based on the hypothesis in order to be consistent with the empirical data by adjusting each parameter one by one gives relative tolerances until the coherence index is consistent with the empirical data to obtain the alternative models. The calculated statistics are Chi-square = 87.19, df = 77, p-value = 0.200, GFI = 0.97, AGFI = 0.94, RMR= 0.025, RMSEA = 0.020, CFI = 1.00, and CN = 383.58. The alternative models and the results of model comparison following the research hypothesis are shown in Figure 2 (following Table 2).

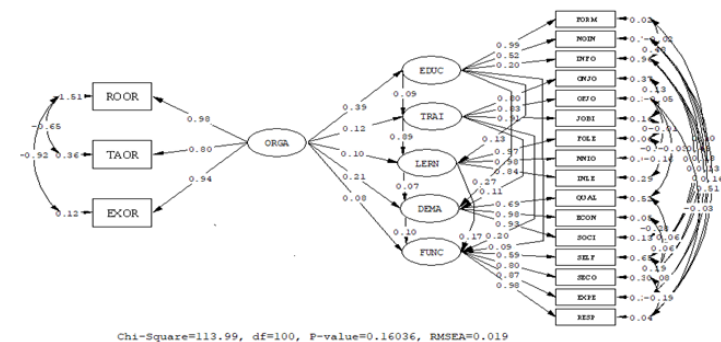


Figure 2 Model presenting the alternative relationship structure used in describing the relationship of gauge equations.

2) The results of the influence path analysis from the structural model which is an alternative model explaining the correlation path from the prediction equation reveal that the development and training (TRAI) had the most direct relationship with the competency development (FUNC) equaling to .36, followed by learning (LERN), Organization Culture (ORGA), Education (EDUC) and Demands of being Entrepreneurs (DEMA) equaling to .18, .13, .12 and .10 respectively (according to Table 3).

TABLE 2 RESULTS OF COMPARING THE MODELS BASED ON RESEARCH HYPOTHESIS AND ALTERNATIVE MODELS

ITEMS	STATISTICS	HYPOTHESIS-BASED MODEL	ALTERNATIVE MODEL
1. Chi-square (χ^2)	*LOW AND CLOSE TO 0	1032.97	113.99
	*EQUAL TO df	137	100
Relative Chi-square (χ^2/df)< 2.00	DIVISION	7.54	1.14
2. GFI	> 0.90	0.78	0.97
3. AGFI	> 0.90	0.69	0.94
4. RMR	CLOSE TO 0.00	0.085	0.033
5. RMSEA	< 0.05	0.131	0.019
6. CFI	*0.00–1.00	0.85	1.00
7. CN	> 200	56.20	462.18

TABLE 3 RESULTS OF ANALYSIS ON THE INTEGRATED RELATION, DIRECT, AND INDIRECT RELATION OF ALTERNATIVE MODEL

Dependent variables	RELATION	Independent variables					
		ORGA	EDUC	TRAI	LERN	DEMA	FUNC
EDUC	DE	0.39**	-	-	-	-	-
	IE	-	-	-	-	-	-
	TE	0.39**	-	-	-	-	-
TRAI	DE	0.12*	0.09*	-	-	-	-
	IE	0.04*	-	-	-	-	-
	TE	0.16*	0.09*	-	-	-	-
LERN	DE	0.10**	0.13**	0.89**	-	-	-
	IE	0.04*	0.08*	-	-	-	-
	TE	0.14*	0.21*	0.89	-	-	-

		**					
DEMA	DE	0.21*	0.27*	0.11*	0.07	-	-
		*	*		**		
	IE	0.11*	0.00	0.05	-	-	-
		*					
	TE	0.32*	0.27*	0.16*	0.07	-	-
		*	*		**		
FUNC	DE	0.08*	0.09*	0.20*	0.17	0.10	-
		*	*		*	**	
	IE	0.05*	0.03	0.16*	0.01	-	-
		*		*			
	TE	0.13*	0.12*	0.36*	0.18	0.10*	-
		*	*	*	*	*	
Chi-Square= 113.99, df=100, p-value = 0.160, GFI=0.97, AGFI=0.94,							
RMR=0.033, RMSEA=0.019 CFI=1.00, CN= 462.18							

3) The hypothesis testing found that development and training had an effect on the competency development with the path coefficient equaling to .20 and statistical significance at the level of .05. The learning affects the development of competencies with the path coefficient equaling to .17 and statistical significance at the level of .05. The desire to be an entrepreneur affects the development of competencies with the path coefficient equaling to .10 and statistical significance at the level of .01. Education and organizational culture affect the development of competencies with the path coefficient equaling to .09 and .08 respectively, and statistical significance at the level of .01 (as in Table 4).

Table 4

Research hypothesis	Path coefficient	t statistics	ผลลัพธ์
1. Organization Culture affects the development of competencies (ORGA --> FUNC)	0.08**	2.88	สนับสนุน
2. Education affects the development of competencies. (EDUC --> FUNC)	0.09**	3.56	สนับสนุน
3. Development and training affect the development of competencies. (TRAI --> FUNC)	0.20*	2.30	สนับสนุน
4. Learning directly affects the development of competencies. (LERN --> FUNC)	0.17*	2.16	สนับสนุน
5. Demands of being Entrepreneurs affect the development of competencies. (DEMA --> FUNC)	0.10**	2.67	สนับสนุน

** p value ≤ 0.01, * p value ≤ 0.05

Result discussion

The development and training affect the development of specific performance according to work of glass and window film installation technicians in Eastern region. It can be discussed that the studied development and training consists of on-job training, out-of-job training, and job coaching in order to increase knowledge, understanding, skills, competences, and behaviors of glass and window film installation technicians in Eastern region. The development

and training is the important process of human resource development (Harrison & Kessels, 2004). This agrees with Knowles, Holton & Swanson (2011, p.165), Jiraprapha Akkaraboworn (2006, p. 10) and Nanthawatthachai Wongchanachai et al. (2011).

The learning affect the development of specific performance according to work of glass and window film installation technicians in Eastern region. It can be discussed that the learning is natural. Human always learn. The good learning needs the understanding, think, and apply such knowledge for development systematically. However, that learning yields the maximum benefits of not depends on how much the learners can endure and how much the knowledge gained from learning can be applied in working or daily life Kathrynna, Lindab & Keith Zhi Guoc (2017) Ellström & Kock (2008), and Chappell & Hager (1995).

The demands of being entrepreneurs affect the development of specific performance according to work of glass and window film installation technicians in Eastern region. According to the results of qualitative research, it is found that the demand of being entrepreneurs is the factor affecting the development of specific performance according to work of glass and window film installation technicians in Eastern region. It can be discussed that growth in the practical field requires the accumulation of experiences and performance to be higher. In comparison to others, the distinctiveness of this subject may be the inspiration for self-creation and stepping into an entrepreneur. The government sector is trying to promote new entrepreneurs based on the idea of Thai 4.0 development in line with the country's economic drive to create stability, wealth and sustainability in the 21st century. This is also the attempt to be free from the trap of middle-income countries to high-income countries by focusing on balanced development based on the idea of the sufficiency economy philosophy (The Secretariat of the Council of Education, Ministry of Education, 2018) in accordance with Saranya Arunphu (2014).

The education affects the development of specific performance according to work of glass and window film installation technicians in Eastern region. It can be discussed that the education is divided into 3 types; formal education, non-formal education, and informal education. Each type of education gives different learning perceptions and the goals of each type of education are also different. However, education is the basis that humans perceive learning since childhood which may come from family or society. When growing up, schools or educational institutes are the sources of knowledge to help elevating the mind, individual learning, creating knowledge, understanding and developing human beings to be full and prosperous in physical, emotional, social and intellectual aspects (Sommair Pawabutra, 2015, p. 9). The education can increase the human potential in performing the operations that are different from previous jobs. It is the process of human development both as humans and oneself and as the development of people based on knowledge (Pichitra Thongpanich, 2018). In addition, education also increases expertise, increase personnel with knowledge and skills in order to keep up with the changing world and reduce social disadvantage (Krittana Chaimun, Anuchin Phromsuk and Chakkrit Pummak, n.d.) Therefore, it can be seen that the factor of education affects the development of performance according

to work of glass and window film installation technicians in Eastern region.

The organization culture affects the development of specific performance according to work of glass and window film installation technicians in Eastern region. It can be discussed that the organization culture consists of the role-oriented organization culture, task-oriented organization culture, and individual-oriented organization culture. The 3 features of organization cultures affects the development of specific performance according to work of glass and window film installation technicians in Eastern region because the organization culture can create and direct the way of work for the personnel in the organizations (Cummings & Worley, 2009). The organizational culture also helps the personnel of the organization adapt to the external environment, helps people in the organization have and understand the rules of living together, and serves to foster the beliefs and behaviors of people in the organizations in the same direction (Samaphorn Phuwichit, Yupaphorn Yuphat, and Sanya Kenapoom, 2012). Especially the organizational culture that emphasizes roles, positions, duties and responsibilities, it is clearly specified in writing. There is a clearly defined organizational structure in accordance with the hierarchy of management. There are also clear rules and regulations in various operational procedures throughout the organization (Somyot Nawikarn, 2003, p. 59). As the structure results in competition with knowledge, ability, staff, organizational culture, it is involved in competency and development of personnel competency in the organizations (Chaowanee Panlapa, 2017). Therefore, it can be seen that the factor of organizational culture affects the development of performance according to work of glass and window film installation technicians in Eastern region

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