

MODERATING EFFECT OF INNOVATION ON HUMAN CAPITAL AND SMALL FIRM PERFORMANCE IN CONSTRUCTION INDUSTRY: THE MALAYSIA CASE

M. Rosman¹, M. Z. Ahmad Suffian^{1,*}, Y. Najihah Marha², M. Z. Sakinah³ and R. B. Raja
Mariam⁴

¹Faculty of Business and Management, Universiti Teknologi MARA, Terengganu, Malaysia

²Faculty of Accountancy, Universiti Teknologi MARA, Terengganu, Malaysia

³Faculty of Business Management, Universiti Teknologi MARA, Machang, Kelantan,
Malaysia

⁴Academy of Language Studies, Universiti Teknologi MARA, Terengganu, Malaysia

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ABSTRACT

This study evaluate the importance of human capital on the performance of small firms in the construction sector in developing countries. Primary data was obtained from 255 small contractors in the construction sector in the state of Kelantan, Malaysia. Analysis of the study was carried out through descriptive and multiple regression methods. The results show that 2 elements of human capital namely business experience and level of education have significant positive correlation with the performance of small firms in the construction sector, while training elements do not due to small-contractors' low preference towards training programs. This study proves that human capital and innovation are important for the small firm performance in the construction industry. The findings are consistent with the Theory of Human Capital and Theory of Economic Development in the context of Western countries.

Keywords: human capital; innovation; small contractors; housing construction industry; small firm performance; entrepreneurship.

Author Correspondence, e-mail: ahmadsuf@tganu.uitm.edu.my

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1. INTRODUCTION

The long-standing construction industry is instrumental in fostering the Malaysian economic development. In the realization of Vision 2020, the industry has experienced many transformations and moved towards globalization where traditional construction practices and products have been revolutionized to be of better quality. The industry's contribution to Gross Domestic Product (GDP) has remained coherent over the last 9 years between 2005 and 2013. From 2000 to 2014, a total of 196 private and government projects have been launched with total investments amounting to RM219.3 billion. The project is projected to produce a large amount of employment opportunities and contribute significantly to the GDP, which is valued at RM144 billion. In 2015, CIDB expected the industry to attain a variety of major projects related to non-residential construction. Moreover, the industry is presumed to draw up to 800,000 workers per year consisting of operative, technical and supervisory, clerical and general workforces as well as management and professional staffs [1].

The economic growth in the construction, service and manufacturing sectors is expected to rise in the 11th Malaysia Plan (11MP) to drive Malaysia towards developed nation by 2020. The construction sector is becoming increasingly important due to the increasing demand for modern and efficient infrastructure, in line with the goal of developed countries. This sector is projected to grow at a rate of 10.3%, contributing RM327 billion or 5.5% to the GDP by 2020. According to the said plan, the government will introduce the Construction Industry Transformation Program 2016-2020 to accelerate industrial development to meet market demand. In the 11MP, efforts to transform the construction sector will be based on four strategies such as increasing productivity through enhanced usage of technology and modern construction methods.

Accordingly, developing and ensuring the continuous growth of the manufacturing sector is among the leading agendas of Malaysia. One approach that can be taken to accelerate the growth of this sector is through increased worker productivity. This is because the increase in labor productivity allows more output to be produced using the same amount of labor input. In [2] explains that higher labor productivity in the manufacturing sector can help the growth and continuous economic development of a country. Therefore, to become a fully developed

country, skills and new equipment should be used to create a more efficient production. Assenting to [3], construction industry has a great impact on economy and political aspects as well as society's education, health and, environment. Besides, it enriches the current economic situation in Malaysia [4].

The progress of the construction industry in Malaysia is consistent with that of other neighboring countries. Hence, various measures and strategies have been expounded to shape the direction of the country's future construction industry in making it competitive at the international level by being innovative and knowledgeable. The Construction Industry Master Plan and the Construction Industry Development Authority of Malaysia (CIDB) joint venture aimed to help the industry face the challenges ahead and to address existing weaknesses. Among the shortcomings and negative assumptions identified in the construction sector are the low construction quality and productivity, bad image and deferment due to bureaucracy, racism, lack of data and information and shortage of skilled labor [5].

In order to ensure that the construction sector remains significant in economic development, human resource development program will rank to be of utmost importance so that the prosperity shall be shared by all. The significance of skilled labour, especially construction workforces are not denied where the government has to build a lot of skills training institutions to meet the growing demand for skilled labour. Therefore, to become a developed nation by 2020, Malaysia requires skilled talents [6]. Manpower is one of the most vital resources in the construction industry besides expertise, machinery, capital and materials. Workers in the construction sector can be categorized into three main groups-the general workforce, semi-skilled labour and skilled workforce. In the future, this working group will become elite workers in line with the fast development in machineries. Along with these measures, the government through CIDB has allocated RM15 million to train 18,000 skilled workers in the construction industry.

The importance of human capital in economic development was first proposed by [7], which led to the introduction of the Human Capital Theory. This theory was further developed by [8]. Human Capital Theory in principle suggests that investment in human capital, particularly education and training can improve employee productivity and efficiency, thus contributing to

economic growth. Unlike physical capital, human capital cannot be easily transferred from one person to another. This human capital can be formed or developed through investments in education, training before work, job training, health care, migration and the search for information that can improve a person's life. Investment in education and training is one of the most important human capital investments as argued by [9-11]. Since productivity is one of the indicators of competitiveness of an economy, sectors and organizations, many studies aimed at identifying factors that affect worker productivity have been made including the influence of human capital and relation to performance.

In this global market, it is important for organizations to achieve the best performance. Having consistent high performance in the organization means always being versatile with the market demands and responding to changes in the market at the time [12]. Organization, regardless of industry associated with it is constantly exposed to competition. To ensure competitiveness, it is important for organizations to rely on their smart human capital as an asset. Literature shows that the role of human capital in improving the performance of the organization is very important. It is a key element in improving the productivity, performance and competitiveness. Undoubtedly, skilled and efficient workforce is one of the most important tools for achieving the goals of the organization as it has an important role in strategic planning and can increase or reduce the productivity of the organization. Despite the importance of intangible assets in a competitive advantage and organizational performance, not many studies were conducted on the nature of human capital and its relationship with organizational performance. Furthermore, almost no research investigated the effect of innovation as a mediator in the relationship between human capital and organizational performance. Therefore, this empirical study explores the nature of human capital and its relationship with organizational performance as well as the mediating effect of innovation. Specifically, this study aims to address the limitations and gaps in the past studies relating to human capital.

2. LITERATURE REVIEW

2.1. Human Capital and Enterprise Performance

In modern economic development, human capital as one of the components of intellectual capital is seen as an important factor in determining the firm performance [13]. The importance of human capital to form competitive advantage of the firm is consistently described as the resource-based view theory. High human capital capabilities allow individuals to do their jobs more effectively [14], to enhance the professionalism and motivation of employees [15], raising the value added in the business [16], improve productivity [17], determine the competitiveness of businesses [18] and influence firm performance [19].

The relationship between human capital and performances is related to Human Capital Theory. The theory was pioneered by Theodore Shultz is an interesting evolution in the history of economic thought, particularly related to labor economics [20]. The basic theory is to explain the benefits that result from human capital investment in education, training, migration and health [21] and demographical factors including age [22] and experience [23]. While this theory has been criticized particularly in terms of indirect effects of investment, but it is seen as a significant contribution to the field of economics especially in improving the performance of firms. The findings of a study conducted by the [24], empirically demonstrated the importance of human capital in determining the firm performance.

Business experience is one of the critical elements of human capital in the growth of the firm. According to [25], the individual's ability to exploit the experience, talents and resources will lead to a competitive advantage and thus generate a firm's performance. Business experience refers to the skills and knowledge of entrepreneurship and business acquired by the businessman before running his own business [26]. Experience usually can be obtained from various sources, including family businesses, involvement in business and the experience of helping others to start a business. Business experience can help improve skills and efficiency in management, particularly in creating an effective strategy that have an impact on the development and performance of the business and generate business performance. Extensive business experience is also seen to pave the way for creating business networks among various stakeholders including suppliers and potential customers as well as relevant agencies in providing a range of supports to business.

The findings of previous studies clearly show the influence of experience on firm performance is inconsistent [27] and is depending on the type and source of the experience gained. The same experience as the current business will normally have a positive impact on firm performance. Meanwhile, the experience which is not related to current business will not help improve the performance of the firm. Supported by the studies of [28], the experience factor is not related to the performance of the firm. However, most studies empirically explain the existence of a positive relationship between experience and firm performance. Therefore, the hypothesis is:

H1a: Human capital in terms of experience is positively related to small firm performance.

In addition to its business experience, education factor is also seen as an important element of human capital that can affect the performance of small enterprise. A high level of education not only catalyzes the tendency of individuals to engage in business, but also will affect their business performance. Highlights of the research in entrepreneurship explain the level of education will affect the ability of an entrepreneur to formulate effective strategies, have technical and higher skills to improve the efficiency of the firm [29], easy to obtain the creditworthiness of the financial institutions and have values of innovation and creativity that can generate the ability to absorb changes in the environment.

In the context of developing countries, the majority of employers, particularly micro-enterprises including those in working in the construction sector are composed of those who have relatively low levels of education. Most of them have education at the secondary school level only and not many people have the approval of the university level. In fact, some of them have no formal education and employment activities run the experiences they have. The distribution of such education was the reason for the existence of a significant negative correlation between these factors and firm performance. In addition, there is a study such as [30] which describes that the level of education does not affect the performance of the firm. Despite, the diversity of findings that explain the relationship between education level and firm performance but majority of the study empirically explained there was a significant positive effect of educational level factor on the performance of firms that viewed from several aspects of performance including firm growth, profitability and employment growth. These findings explain the positive relationship between the level of education with the firm's performance is

consistent with human capital theory emphasizes the importance of education level factor on the performance of the firm. This literature bring us to the following hypothesis

H1c: Human capital in terms of education level is positively related to small firm performance.

Entrepreneurs, particularly small housing contractors who have lack of training would show low competitiveness in business. Similarly, training is related to the survival of businesses, greater propensity to business growth [31], business performance [32] and enthusiasm and commitment. Accordingly, investments in training are anticipated from business outlooks. Thus, an educated and well-trained small housing contractor is deliberated to be significant for firm's competitive advantage in a global economy. In fact, training is a prevailing basis to expedite a firm's development and the expansion of its competences, therefore augmenting profitability. Given the positive impact of training on small business performance, the following hypothesis is derived: Some studies show that training activities are frequently correlated with sales, productivity, and turnover. Therefore, organizations that provide more training programs expect a higher firm performance. In [33] conducted an empirical study on employees training and organizational performance: mediation by employee's performance. Overall results revealed significant and positive association between training and organization performance. In [34] did a study on human capital investments and employee performance. The study examined whether human capital investment is directed toward employee training is effective in improving employee performance. The result has identified a significant positive impact of training on employee performance. In [35] analyzed the relationship between human capital and organizational performance of software companies. They found that the human capital indicators had a positive association on organizational performance. These indicators such as training attended and team-work practices, tended to result in superstar performers enhance the organizational performance.

H1c: Human capital in terms of training is positively related to small firm performance.

2.2. Innovation and Small Firm Performance

According to [58], innovation is a vital competitive driver of a firm, which can turn

opportunity into ideas then translate them into practices. Innovative entrepreneurs would implement entrepreneurial changes such as: 1) introduce new (or upgraded) products; 2) new production methods; 3) new markets; 4) the exploitation of a new supply source and 5) the re-engineering of business management processes. Incremental innovation promotes extensive competitive advantages and performance to small and medium companies. Hence, small housing contractors are entrepreneurs and business owners who need to come up with concrete manifestation of creative and innovative ideas. Specifically, to compete and withstand locally and globally, small housing construction firms should have the structures and processes to tolerate smooth creation of innovation. This is due the fact that firms' capability to develop new products and innovative concepts are crucial for venture performance. Indeed, innovation is essential not only for the survival of business organization, but also for the development of government agencies and institutions. In order to sustain and compete with other organizations, entrepreneurs should emphasis on generating creative thoughts regularly and exploiting its innovation process to gather the possible value of those notions. In particular, business organizations that can cope up with stiff competition are those which continuously innovate and find renewals in technology, product and market. Therefore, organizations need to develop and publish its definition of innovation implicitly for better performance.

As revealed in past studies, innovation and firm performance have a positive relationship. Administrative innovations turn to be the most vital factor in explaining increased sales rather than technological innovations. Technological innovation will eventually stop, hence financial innovation is necessary for sustaining economic growth of an entrepreneurial firm. Similarly, innovation has a big impact on the performance of small business start-ups. In [38] evaluate the impact of innovation on firm performance. Their findings confirmed the hypotheses that product innovation and process innovation influenced firm performance significantly. Besides, other empirical researches provide evident that innovation positively contributes to firm performance. To elucidate the connection technically, this study underlines on the following hypothesis:

H2: Innovation is positively related to small firm performance.

2.3. Innovation, Human Capital and Small Firm Performance

Human capital is an indispensable part of innovation and source of strategic rejuvenation. To create human capital, an organization should recruit and retain outstanding people, who have good level of education, experience and training as to generate value for the firm. These people shall have invaluable qualities like: creativity, innovation, uniqueness and pro-activeness, which are the most pertinent attributes for innovation. For small housing construction firms, their capability to innovate, assess and develop internal and external knowledge would provide distinctive competitive advantage.

In [39] found that human capital influences firm performance depending on the firm's strategy. Accordingly, small firms especially in housing construction industry should be flexible, innovative, consumer focused, proactive and responsive in their business dealings and strategies in order to survive and grow. Studies on more implicit features of human capital were conducted on creativity and work experience. The performance of firms can be elevated via the elements of human capital namely commercial experience and managerial business experience which are in turn the contributing factors of innovation. Implicitly, housing contractors who possess human capital qualities would offer value added to the firms. These aptitudes can be gained from their business experience. Administrative innovations in terms of experience turn to be the most vital factor in explaining increased sales rather than technological innovations. Technological innovation will eventually stop, hence financial innovation is necessary for sustaining economic growth of an entrepreneurial firm. In line with this human resource practices can contribute to organizational performance such as firm productivity, innovativeness or growth.

The linkage between education and economic growth, productivity and income growth has strong empirical supports. It is not only education, training also influences the performance of a firm. The higher the levels of education and technical training, the more demand for the supply of technical and organizational innovation would be. The impact of human capital on high firm performance will explicitly through innovation and implicitly through technology relocation. Indeed, well-educated and trained workforces have a competent advantage in embracing and executing new technology as they could provide constructive suggestions to

the organizational production. Such human capital reacts as a production driver to novel strategies and knowledge of the organization. On the basis of an aforementioned literature review, a new conceptual framework/model has been proposed which puts forward the following research hypothesis.

H3a: Innovation moderates the relationship between human capital in terms of experience and small firm performance. Experience has a stronger and more positive relationship with small firm performance among entrepreneurs who exhibit a high level of innovation than for entrepreneurs who exhibit a low level of innovation.

H3b: Innovation moderates the relationship between human capital in terms of education and small firm performance. Education has a stronger and more positive relationship with small firm performance among entrepreneurs who exhibit a high level of innovation than for entrepreneurs who exhibit a low level of innovation.

H3c: Innovation moderates the relationship between human capital in terms of training and small firm performance. Training has a stronger and more positive relationship with small firm performance among entrepreneurs who exhibit a high level of innovation than for entrepreneurs who exhibit a low level of innovation.

3. METHODOLOGY

3.1 Sample Selection and Data Collection

The data in this study included small contractors in grades G1-B04 of building construction companies listed and registered with CIDB. The population of the study comprised of 1999 listed small construction companies. Initially, the population was divided into strata according to the district, which resulted in ten (10) strata. A sample size of 322 would be required to represent a given population size of 1999. Therefore, a sample was selected from each of the strata based on the proportionate number of small contractors in each stratum. Self-administered questionnaires were then distributed to the managers of the construction companies because they were the key informants who were fully responsible for decision making and able to identify and resolve problems in their firms. The data collection was either conducted personally by the researchers with the assistance of a few trained enumerators or via

mail to reach small contractors located in remote areas. Finally, from the total of 322 questionnaires distributed, 255 questionnaires were received, representing an overall response rate of 70.2%. The participation rate is slightly higher than a study conducted by [40] with a response rate of 67.5%. All the returned questionnaires (255) were useful for statistical analysis using SPSS software version 21.0. Table 1 shows the distribution of the sample for this study.

3.2. Measures

In this study, firm performance was used as a dependent variable. The questions related to firm performance were sales revenue, profitability, jobs creation, business stability, contribution to community development, business growth, customer satisfaction and business networking. For each item, the respondents were requested to assess their business performance indicators for the past three years using a 5-point Likert scale with potential answers ranging from 1 (strongly unsatisfactory) to 5 (strongly satisfactory). In [41] suggested that when performance measures are not objective, the use of multitude items is reliable to measure firm performance.

Table 1. Population and sample distribution

No	Districts	Population (n)	Sample Size (S)
1	Bachok	157	18
2	Gua Musang	159	17
3	Jeli	110	17
4	Kota Bharu	607	90
5	Kuala Krai	158	17
6	Machang	116	13
7	Pasir Mas	233	28
8	Pasir Puteh	166	20
9	Tanah Merah	183	21
10	Tumpat	113	14
	Total	1999	255

There were three dimensions of independent variables namely (1) business experience, (2) education and (3) training. For business experience, respondents were required to state the

number of years that they had been involved in the business. Education refers to the highest formal educational level that the respondents attained. There were 6 possible educational levels listed in the survey instrument namely (1) primary school, (2) lower secondary school (SRP/PMR), (3) upper secondary school (SPM), (4) pre-university (STPM), (5) diploma and (6) first degree. For the purpose of answering this question, the respondents had to choose the highest education level that they had earned. The education levels were then converted into the number of years: 6 years for primary school, 9 years for lower secondary school, 11 years for upper secondary school, 13 years for pre-university, 14 years for diploma and 16 years for first degree. In order to measure training, respondents were asked to indicate the number of training courses attended over the past three years (2013-2015). Innovations as a moderating variable was measured using twelve items namely (1) an innovative product design, (2) an attractive product design, (3) product quality, (4) unique design, (5) searching for new ideas, (6) creativity in operations, (7) using the latest technology, (8) exclusive after-sale services, (9) exploring new market segments, (10) using the latest advertising approach, (11) creating special customer relations and (12) hiring a professional architect in construction design. Measurements of all items were based on a 5-point Likert scale with possible answers ranging from 1 (strongly disagree) to 5 (strongly agree). In addition, the control variable comprised the firm's age and firm's size. Age of firm refers to the number of years the business was in operation while size of firm represents the number of full-time employees.

In order to determine the reliability and validity of the data, several statistical analyses were conducted. Initially, analysis of Cronbach's alpha was run to assess the reliability of the instruments and to search for internal consistency or uniformity of the Likert scale's items. Table 2 shows the Cronbach's alpha coefficients of two variables were higher than 0.7, indicating that all items used in this study were reliable [42].

Table 2. Reliability test

Construct	Items	Cronbach's Alpha
Innovation	12	0.846
Firm performance	8	0.896

In addition, diagnostics tests were conducted to determine the validity of data for multiple

regression analysis. Multicollinearity checking is a common diagnostic test to ensure that none of the independent variables are highly correlated. As presented in Table 4, the results of variance inflation factor (VIF) (less than 10 for all variables) and value of tolerance (more than 0.2 for all variables) signify that a multicollinearity problem did not exist. Finally, tests on the assumptions of linearity, normality and homoscedasticity revealed that the data were scattered on a straight line (p-p plot), and all the residuals seemed to be randomly dispersed around the horizontal line (Scatter plot). Because the inspection of the data discovered no serious violations of the assumptions of multiple regressions, the use of multiple regression analysis was appropriate.

4. RESULTS AND ANALYSIS

Descriptive statistical analysis involving means, standard deviation and correlation between variables is shown in Table 3. The mean and standard deviation for all variables showed a moderate value. Correlation analysis also showed that most of the variables have significant relationships. There are eight significant relationships at the level of 1% ($p < 0.01$), five significant relationships at the level of 5% ($p < 0.05$) and 3 significant relationships at the level of 10% ($p < 0.10$). In addition, there are 5 relationships showed no significant correlation.

Table 3. Descriptive statistics and correlation

Variable	Mean	SD	1	2	3	4	5	6	7
Age of business	14.07	8.471	1.00						
Size of business	4.480	3.017	0.080	1.000					
Business experience	14.65	8.619	0.622***	0.258***	1.000				
Education level	12.68	1.765	0.108*	-0.110*	0.017	1.000			
Training	3.263	2.283	0.147**	-0.121*	-0.054	0.282***	1.000		
Innovation	4.465	0.373	0.069	-0.355***	-0.139**	-0.316***	-0.064	1.000	

Firm	4.146	0.542	0.249***	0.140**	0.485***	0.317***	-0.127**	0.415***	1.000
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performance

Note: *p < 0.1, ** p < 0.05; *** p < 0.01

To explain the relationship between independent variables (human capital factors), moderating (innovation) with small and firm performance and moderating effect on the relationship between the independent variables with performance, hierarchical multiple regression analysis was performed. Summary of the analysis is presented in Table 4.

In model 1, the study uses age and size of the business (full-time employees) as control variables. The value of R² clearly shows that the two variables explain 7.6% variance of small firm’s performance in the construction sector. The two variables that control the age of the business (β = 0.239, p < 0.01) and the size of the business (β = 0.121, p < 0.05) visibly indicates significant relationships with firm performance. To see the effect of human capital on the performance of small firms in the construction sector (hypotheses H1a, H1b and H1c), the study simultaneously analyzed the involvement of the independent variables and control variables as shown in Model 2. Moreover, the study found that there was a significant change in R² (ΔR2 = 0.266, p < 0.01). Both control variables appear to have no significant relationship with firm performance. While the experience factor (β = 0.521, p < 0.01) and education level (β = -0.323, p < 0.01) significantly indicate a relationship with firm performance. These findings confirm H1a and H1b. However, the analysis demonstrated that training variables have no significant relationship with small firm performance (β = - 0.006, not significant.). Therefore, H1c could not be confirmed.

Table 4. Multiple regression analysis

Step	Variable	Collinearity Statistics					
		Tolerance	VIF	Model 1	Model 2	Model 3	Model 4
Step 1-Controls	Age of business	0.547	1.828	0.239***	-0.037	-0.170***	0.186***
	Size of business	0.777	1.286	0.121**	-0.027	0.168***	0.172***
Step	Experience	0.540	1.853		0.521***	0.622***	-1.029*

2-Human capital	Education level	0.750	1.334	0.323***	-0.104**	-2.629***
	Training	0.866	1.155	-0.006	-0.054	4.353***
Step		0.696	1.436		0.543***	-0.733**
3-Innovation						
Step 4-	Innovation*					1.669***
Interaction effect	Experience (INEX)					
	Innovation* Education level (INED)					2.565***
	Innovation* Training (INTRAIN)					-4.502***
	R ² change		0.076***	0.266***	0.205***	0.071***
	R ²		0.076	0.343	0.548	0.619
	Adjusted R ²		0.069	0.330	0.537	0.605
	F		10.433***	25.974***	50.085***	44.184***

Note: Enterprises performance as dependent variable; * $\rho < 0.10$, ** $\rho < 0.05$, *** $\rho < 0.01$

To analyze the relationship between moderating variable (innovation) with firm performance, all variables were entered simultaneously including control variables and independent variables. The analysis can be explained in Model 3. There is a significant change in R² ($\Delta R^2 = 0.205$, $p < 0.01$). The innovation showed a significant positive correlation with firm performance ($\beta = 0.543$, $p < 0.01$). This finding confirms H2, which explains the importance of innovation factor in determining the performance of small firms in the construction sector. Model 4 shows the effect of moderating variable on the interaction of the three factors of human capital. The results show that there is a significant change in R² ($\Delta R^2 = 0.071$, $p < 0.01$). The findings display that there are two interaction effects of INEX ($\beta = 1.699$, $p < 0.01$) and INED ($\beta = 2.565$, $p < 0.01$), indicating significant positive relationships with firm performance. In

addition, the interaction effect of INTRAIN ($\beta = -4,502$, $p < 0.01$) showed a significant correlation with the performance of the firm. Hence, the analysis of the study confirms the hypothesis of the interaction effects (H3a, H3b and H3c). In brief, the study describes that innovation factor has a great influence on the relationship between human capital factor and the performance of small firms in the construction sector.

5. DISCUSSION AND CONCLUSION

The housing construction industry sector is an important sector for the economic development of Malaysia. In addition, the process of globalization and trade liberalization require local construction industry especially small firms to enhance their competitive advantage in competing with foreign firms and markets or within the country. The main objective of this study is to examine the moderating effect of innovation as well as the relationship among the three dimensions of human capital namely (1) business experience, (2) education, (3) training on the performance of Malaysia housing construction industry. Three (3) hypotheses (H1a, H1b, H1c) have been developed: (i) hypothesis 1 tests the proposition the human capital that consists of business experience, education and training have significant positive influence on the performance of small firm performance; (ii) hypothesis 2 examines whether innovation has a significant positive influence on the performance of small firm performance; (iii) hypothesis 3 tests the proposition that innovation moderates the relationship between human capital dimension such as business experience, education and training and small firm performance. Data were obtained from a total of 255 samples of small contractor residential constructions (G1) through survey methods.

Two important issues raised in this study were associated with human capital and innovation influence on performance of small firms in the construction sector. The analysis on human capital clearly shows the factor of experience acquired by small-contractors, particularly in the construction sector is an element which greatly affects the performance of small firms. This finding is consistent with results of studies conducted by [26]. The education level is also found to have a significant effect on the performance of small firms in the construction sector. A high level of education allows small contractors to better absorb all the changes and

developments in the business environment of the sector. From the theoretical aspect, the importance of two factors i.e. experience and level of education are clearly consistent with Human Capital Theory which explains the contribution of both these elements in determining the performance of a firm.

Based on the analysis on the factor of training, the availability of it does not have an influence on the performance of the firm indicating the lack of involvement of small contractors in training programs. In contrast to developed countries, the level of awareness among small contractors/entrepreneurs in developing countries towards training programs is still at a very low level. Given a variety of reasons such as lack of time, financial problems as well as disputing the effectiveness of the programs has negated their participation in the training programs. The finding also significantly explains the major influence of innovation factor on the performance of small firms in the construction sector. This is consistent with the results of studies conducted by [43]. The importance of innovation factor in affecting firm performance is consistent with the Theory of Economic Development by [34] that highlights the importance of innovation in the development of entrepreneurial activities. In addition to the effect of the innovation technique on the performance of small firms in the construction sector, analysis also found that innovation has a significant influence on the relationship between the three factors of human capital (education, experience and training) with the performance of the business.

From the perspective of policies, the study reminds the parties involved in the development of the construction sector including the government, trust agency and small contractors on the importance of human capital factor in affecting performance of small firms in the construction sector. In turn, the innovation factor does not only influence performance directly, but also affect the relationship between human capital factors with the performance of the firm. Based on the findings of the study, there are several suggestions that should be taken into consideration as to enhance the performance of small firms in the construction sector: (1) emphasis on innovation, particularly in connection with the use of technology and the establishment of creative and innovative ideas in management, (2) handling self-development program to small contractors to strengthen the values of entrepreneurship and (3) emphasis on

training programs to ensure that small contractors understand the basics of entrepreneurship, improve management efficiency and enrich business experience.

6. LIMITATIONS AND FUTURE RESEARCH

While this study contributes in several ways to the body of knowledge and practical aspects, there are some limitations that need to be highlighted. The limitations are acknowledged as essential for further study. The study involved only small firms in the construction sector undertaken by Bumiputera (Malay) and unheeded other major races which have already embarked on economic growth in Malaysian housing construction industry. However, to get a more accurate picture of the impact of human capital and innovation on the performance of firms in the construction sector, the scope of the study should cover: (1) contractors from among all the major races and (2) all construction firms of various sizes (not only the small firms). Such a comprehensive study scope could lead to more significant findings, particularly about the influence of human capital and innovation on the performance of construction firms in developing countries.

7. REFERENCES

- [1] Department of Statistics Malaysia (DOSM). Quarterly construction statistics, first quarter 2014. Putrajaya: DOSM, 2014
- [2] Sahar M, Labor productivity: An important business strategy in manufacturing. *Integrated Manufacturing Systems*, 2002, 13(6):435-438
- [3] Alaghbari W, Salim A, Dola K, Abang Ali A A. Identification of significant factors influencing housing cost in Yemen. *International Journal of Housing Markets and Analysis*, 2012, 5(1):41-52
- [4] Ismael A J, Nor'A Y, Mohd W M S. The organizational performance of housing developers in Peninsular Malaysia. *International Journal of Housing Markets and Analysis*, 2010, 3(2):146-162
- [5] CIDB News Issues 1. 50 tahun membina kegemilangan Malaysia. CIDM Malaysia, 2007
- [6] Junaimah J, Yusliza M Y. Propensity to leave by Malaysian professionals. *International*

Journal of Innovation. Management and Technology, 2011, 2(2):119-122

[7] Schultz T W. Investment in human capital. *American Economic Review*, 1961, 51(1):1-17

[8] Becker G. S. *Human capital: A theoretical and empirical analysis with special reference to education*. Chicago: University of Chicago Press, 1993

[9] Benhabib J, Spiegel M. The role of human capital in economic development-Evidence from aggregate cross-country data. *Journal of Monetary Economics*, 1994, 34(2):143-173

[10] Almeida R, Carneiro P. The return to firm investment in human capital. *Labour Economics*, 2009, 16(1):97-106

[11] Baldacci E, Clements B, Gupta S, Cui Q. Social spending, human capital, and growth in developing countries. *World Development*, 2008, 36(8):1317-1341

[12] Owen K, Mundy R, Guild W, Guild R. Creating and sustaining the high performance organization. *Managing Service Quality*, 2001, 11(1):10-21

[13] Lafuente E, Rabetino R. Human capital and growth: Romanian small firms. *Journal of Small Business and Enterprise Development*, 2011, 18(1):74-96

[14] Rauch A, Frese M, Utsch A. Effects of human capital and long-term human resources development and utilization on employment growth of small-scale business: A causal analysis. *Entrepreneurship Theory and Practice*, 2005, 29(6):681-698

[15] Halim S. Statistical analysis on the intellectual capital statement. *Journal of Intellectual Capital*, 2010, 11(1):61-73

[16] Al-Ma'ani A I, Jaradat N M S. Impact of human capital on the organization performance. *Interdisciplinary Journal of Contemporary Research in Business*, 2010, 2(4):63-73

[17] Nedrum L, Erikson T. Intellectual capital: A human capital perspective. *Journal of Intellectual Capital*, 2001, 2(20):127-135

[18] Fernandez B M, Jose Sanzo P M, Gutierrez A T. Training in small business retailing: Testing human capital theory. *Journal of European Industrial Training*, 1999, 23(6/7):335-352

[19] Garcia M. Training and business performance: The Spanish case. *International Journal of Human Resource Management*, 2005, 16(9):1691-1710

[20] Mixon F G Jr, Laband D N, Ekelund R B Jr. Rent seeking and hidden in-kind resource distortion: Some empirical evidence. *Public Choice*, 1994, 78(2):171-185

-
- [21] Bruwer J D W, Haydam N E. Human capital investment: Higher educational and on the job training of the marketing practitioner. *South African Journal of Business Management*, 1996, 27(1 & 2):1-8
- [22] Strober M H. Human capital theory: Implications for HR managers. *Industrial Relations*, 1990, 29(2):214-239
- [23] Van Loo J B, Rocco T S. Continuing professional education and human capital theory. In *Academy of Human Resource Development International Conference*, 2004, pp. 98-105
- [24] Ubeda-García M, Marco-Lajara B, Sabater-Sempere V, García-Lillo F. Does training influence organizational performance. *European Journal of Training and Development*, 2013, 37(4):380-413
- [25] Swinney J L, Runyan R C, Huddleston P. Differences in reported firm performance by Gender: does industry matter? *Journal of Developmental Entrepreneurship*, 2006, 11(2):99-115
- [26] Rosman M, Mohd Rosli M. Microcredit position in micro and small enterprise performance: The Malaysian case. *Management Research Review*, 2013, 36(5):436-453
- [27] Reuber A R, Dyke L S, Fischer E M. Experientially acquired knowledge and entrepreneurial venture success. In *Academy of Management Best Paper Proceedings*, 1990, pp. 69-73
- [28] Acar A. The impact of key internal factors on firm performance: An empirical study of small Turkish firms. *Journal of Small Business Management*, 1993, 31(4):86-92
- [29] Omerzel D G, Antoncic B. Critical entrepreneur knowledge dimensions for the SME performance. *Industrial Management and Data Systems*, 2008, 108(9):1182-1199
- [30] Alowaihan A. Gender and business performance of Kuwaiti small firms: A comparative approach. *International Journal of Commerce and Management*, 2004, 14(3/4):69-81
- [31] Goetz S J, Hu D. Economic growth and human capital accumulation: Simultaneity and expanded convergence tests. *Economics Letters*, 1996, 51(3):355-362
- [32] Najihah M Y, Rosman M, Sakinah M Z, Mazidah P. An investigation of small business start-ups performance. *Journal of Basic and Applied Scientific Research*, 2014, 4(3s):10-17
- [33] Shaheen A, Naqvi S M H, Khan M A. Employees training and organizational: Mediation

by employee's performance. *Interdisciplinary Journal of Contemporary Research Business*, 2013, 5(4):490-503

[34] Ravi B, Nishtha Amit M, Ram G, Alok G. Human capital investments and employee performance: An analysis of IT services industry. *Journal of Management Science*, 2013, 59(3):641-658

[35] Seleim A, Ashour A, Bontis N. Human capital and organizational performance: A study of Egyptian software companies. *Management Decision*, 2007, 45(4):789-801

[36] Schumpeter J. A. *The theory of economic development*. Massachusetts: Harvard University Press, 1934

[37] Rosman M, Ahmad S M Z, Najihah M Y, Sakinah M Z. Small firm performance: An empirical analysis in Malaysian housing construction industry. *International Journal of Housing Markets and Analysis*, 2017, 10(1):50-65

[38] Mohd R, Syamsuriana S. The impact of innovation on the performance of small and medium manufacturing enterprises: Evidence from Malaysia. *Journal of Innovation Management in Small and Medium Enterprise*, 2013, 3(4):66-78

[39] Volonte C, Gantenbein P. Directors human capital, firm strategy, and firm performance. *Journal of Management and Governance*, 2016, 20(1):115-145

[40] Olaniran O J. The effects of cost-based contractor selection on construction project performance. *Journal of Financial Management of Property and Construction*, 2015, 20(3):235-251

[41] Kellermanns F W, Eddleston K A, Sarathy R, Murphy F. Innovativeness in family firms: A family influence perspective. *Small Business Economics*, 2010, 38 (1):85-101

[42] Nunnally J. C. *Psychometric theory*. New York: McGraw-Hill, 1978

[43] Zhang J, Duan Y. The impact of different types of market orientation on product innovation performance: Evidence from Chinese manufacturers. *Management Decision*, 2010, 48(6):849-867

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