

HUMAN CAPITAL INVESTMENT (HCI) DETERMINANTS AFFECTING THE INSTITUTION'S PERFORMANCE: THE PRACTICALITY OF PARTIAL LEAST SQUARES STRUCTURAL EQUATION MODELLING (PLS-SEM) APPROACH

Farahiyah Akmal Mat Nawi^{1*}, Abdul Malek A. Tambi², Muhammad Faizal Samat³, Julaina Baistaman⁴

^{1,2,4}Senior Lecturer, University Teknologi MARA, Malaysia, and Universiti Sultan Zainal Abidin, Malaysia, ³Universiti Sultan Zainal Abidin, Malaysia.

Email: ^{1*}farahiyah_akmal@yahoo.com, ²malekahmad@unisza.edu.my, ³faizal951@uitm.edu.my, ⁴julaina.baistaman@gmail.com

Article History: Received on 20th January 2020, Revised on 26th February 2020, Published on 18th March 2020

Abstract

Purpose of the study: This paper aimed to assess the analysis of the role of human capital investment (HCI) determinants and its remarkable contribution towards the education institution's performance by adapting the Malcolm Baldrige Criteria for Performance Excellence.

Methodology: This research adopted a quantitative study and a survey tool comprises of sixty items with seven Likert scale was utilized as an instrument to assemble data from 309 lecturers in UiTM Kelantan. Next to test the research hypothesis data were then analyzed using the Structural Equation Modelling approach on the SmartPLS3 platform.

Main Findings: The analysis demonstrated the influences of HCI determinants towards the UiTM performance. The coefficient of determination (R^2) value of 66.9% suggested that the variance of institution performance could moderately be explained by the observed variables, namely knowledge, skill, and training. The result also indicates the highest positive significant value for skill towards performance with $\beta=0.283$, t -value= 1.981 and $p<0.005$. It is proven that a persistent skill development significantly contributes to the performance.

Applications of this study: The research finding is useful to help the Ministry of Higher Education (MOE) in Malaysia to identify the relevant determinants in improving human capital quality.

Novelty/Originality of this study: There were a lot of studies that were conducted involving higher education in Malaysia. But the only limited number of studies was conducted by scholars in assessing the main contribution of human capital investment factors towards the institution's success.

Keywords: Human Capital Investment, Public University, SmartPLS3, Malcolm Baldrige, Performance.

INTRODUCTION

The landscape is evolving as an alternative to the education institution in supporting the teaching and learning process by establishing access to the quality of higher education in Malaysia. Education has been key to Malaysia's rapid improvement. Subsequently in developing the most capable human, the government plays main roles in strengthening the education sector by concentrating on improving education's quality regardless of the initiatives in generating the outcome towards the Vision 2020. Fundamentally, human capital is an investment that capable to increase its efficiency through the resemble of skills resulting from education and previous experience (Palamida, Papagiannidis & Xanthopoulou, 2008). The investment in people through developing and maintaining the appropriate quality is a crucial part of the organization's strategy to sustain in business. Due to that, human capital positions among the foremost imperative determinants of individual growth and income (Blanchard & Olney, 2017). The combination of intelligence, skills, competencies, and expertise develops a character and social well-being growth. In identifying the influence of human capital investment on the institutions' performance, the researcher has identified two related theories to underpin the research. The independent constructs that consist of training, education, knowledge, skill development, experience, and ability are underpinned by the Human Capital Theory, as proposed by Schultz in 1961. Meanwhile, to identify the influence of the organizational performance, Malcolm Baldrige Criteria for Performance Excellence is underpinned as the dependent constructs.

Research by Ngari (2016) has stated human capital as an extension of valuable skills and knowledge gathered over time, moreover, it gives an organization a competitive advantage since it cannot be imitated by competitors. Therefore, it is classified as a strategic resource and an asset of an organization. On the other hand, Ykhymenko et al., (2019) discussed that the modern theory of human capital was developed at the stage of transition to a new era of economy and dimensions of knowledge which is permitted to govern the value of intellectualization of worker. A significant finding by Khasawneh (2011) explained that the quality enhancement of human capital within the context of university-type organizations should include the ongoing development of faculty quality in order to accelerate the development process. Despite this, Ruben (2007) also stated the crucial contribution of higher education institutions towards personal and professional lives, supplement the intellectual and cultural fabric of their communities, states, nations and beyond. Within the same way, Selig & Baston (2017) also agreed that organizational "assets" are people who endowed with high

people quality. This development process can help in molding maintainable skills, advanced knowledge and improve the quality of teaching instructors in playing their role as the change agent of effective transformation. The needs not only meet the requirement of the profession but it also vital to contribute to sustainable education ecology. Nevertheless, from the perspective of [Pasban & Najedeh \(2016\)](#), they classified the “human capital” as a key criterion in improving the organization by sustaining the competitive advantage in the competitive market to increase employees’ marketability value. Meanwhile, [Igbaekemen and E. Odivwri \(2014\)](#) explain managing and investing in human capital as one of the most critical tasks that must be taken carefully because of the relative relevance of human capital to the organization’s overall performance cannot be overemphasized. For education institution, the greatest challenges confronted by today’s university administrations is to avoid talent deficits while improving their agility to forecast the demand for future talent. Without an appropriate plan, universities can run the risk of being overstaffed or understaffed or having an inappropriate mix of skills they need while attaining a competitive advantage ([Khasawneh, 2011](#)). In many situations, this issue did not receive much consideration in the scholarly world until more recently. Moreover, today’s well-known Japanese companies also used to get participate in the human capital investment activity in improving their employees’ skills as this is one of the proactive strategies for their organizations to face the job turn over ([Yokoyama, Kodama & Higuchi, 2019](#)).

LITERATURE REVIEW

Institution Performance -Malcolm Baldrige Criteria for Performance Excellence

A study by [Asher, Leba, Ionica, Moraru & Ahmad \(2015\)](#) explains, the adaption of Organizational Excellence Models to qualify for grants and to identify organizations that accomplish high levels of performance. All excellence awards normally employ this model as the structure of evaluation measures, encourage improvements, as well as set the standard performance benchmarks because Baldrige is relevant for all sorts and sizes of organizations. It is normally being used by healthcare organizations, manufacturers, service companies, small businesses, schools, universities, government agencies, and non-profits organizations.

Training

[Slavic & Berber \(2019\)](#) describe the training and development of employees as the most important human resource activities, which involves the process of creating sustainable change through the attainment of new knowledge, skills, and abilities to achieve a better result of performance. According to [Schultz \(1961\)](#), formal education and training are among the vital tools for improving the quality of organizations' output. [Mohammad Sani \(2001\)](#) claims in his study regarding the initiative of lecturers in considering themselves to undergo continuous education, which aimed to increase their value and help to enhance their level of teaching professionalism. This will assist them while facing challenges that stem from outside the profession, such as the changing aspirations of society and the changes in technology. Besides, it also helps to prepare the lecturers in facing internal challenges such as educational organizations, changes in curriculum, pedagogy challenges and changes in government educational policies. From [Bo Hansson, Ulf Johanson, Karl-Heinz Leitner \(2004\)](#), the influence of education and training on performance is based on the large amount invested each year, together with the initiative of knowing the benefits gathered from these investments. As stated in a study conducted by [Khasawneh \(2011\)](#) and [Aziz et al. \(2019\)](#), training could help employees to increase their individual quality by learning new skills and perfecting their old job style. From [Jyoti & Rani \(2017\)](#), the extensive training program is vital for employees to promote any knowledge process in the organization for better performance. Such training programs could motivate the employees to segment their experience, generate new knowledge and utilize the gained knowledge in the job environment. This impact is synchronized with the aim of the institution in encouraging the development of learning organization through creating, acquiring and transferring knowledge.

Education

Higher education is certainly advantageous for both individuals and the entire institution. Nowadays, investments in human capital are constantly increasing to fill the institution’s demand. Besides, [Cefalo & Kazepov \(2018\)](#) encourage the investment of a higher level of education as it provides benefits in terms of economic and social development. Importantly on the national level, human capital affects economic growth and increases national competitive advantage. Through an increasing investment, it is very important to determine the return of it. In numerous nations, investment in higher education as a fundamental human capital form and performance indicators are calculated respectively ([Simanaviciene, Giziene, Jasinskas, & Simanavicius, 2015](#); [Majid et al., 2019](#)). Clear elaboration in human capital theory, knowledge and skills incorporated in the individuals can be referred to as capital. Meanwhile, all activities that the present input yields while the productivity of the individuals grows can be interpreted as an investment. As stated in a study conducted by [S. Chijindu, Grace & Gideon \(2016\)](#), education is an investment that could potentially bestow private and social benefits. Human capital theorists believe that education and earning power are correlated, which theoretically, the more education one has, the more one can earn, hence lead the skills, knowledge, and abilities that education provides to be transferred into the work of productivity.

Knowledge

According to [Ode & Ayavoo \(2019\)](#), effective knowledge management implementation enables organizations to speed

up their business processing and activities. Therefore, effective organizational development in practicing knowledge sharing is acquiring the change of behaviors and attitudes of the employees toward their readiness to contribute. This is a part of the process of accumulating and developing intellectual capital among the employees. [Selig and Baston \(2017\)](#) have determined knowledge is the most important strategic resource that enables the enhancement of institutional performance. Knowledge sharing is a type of communication that occurs in the working environment which involves activities such as open exchange of information, accessibility of knowledge, confirming and cooperative interactions, as well as an overall culture of sharing knowledge ([Mehrabani & Mohamad \(2015\)](#)). [Rabeea, Nassar, and Khalid \(2019\)](#) in their study have suggested universities to attain a better sustainable competitive advantage, generate, store, share and apply the knowledge that is backed by identifiable knowledge and formulating of its goals throughout every aspect of the organization.

Skill

The education, skills development, and lifelong learning are set as central pillars for the employment of workers. Also, it helps to expand individual employability conditions, quality of life and contribute towards sustainable business development ([Mehrabani & Mohamad \(2015\)](#)). An enhancing person involved a few factors. First is developing self-efficacy, as it is determined when someone is assumed to do well in particular areas. Then developing awareness of style for motivating other people is classified under the next factor. The last factor is developing leadership-specific skills and utilizing communication ability. These skills may contain interviewing methods, verbal technique, carrying out group gatherings and giving feedback. [Vokurka & Vokurka \(2006\)](#) and [Asnawi et al. \(2019\)](#) emphasize skills as the required mechanism for individuals to move from functional expertise to cross-functional expertise. Similarly, the need for organizations to continuously improve and learn, individuals also need to improve, both incrementally and in breakthroughs. As organizations and environment experience changes, individuals must maintain their proficiency and capabilities parallel with the job changes.

Experience

[Mohammad Salameh \(2016\)](#) represent human capital as the assets an individual brings with himself into an organization, such as education, training in the previous job, age, and professional experience. Additionally, [Kwon \(2009\)](#) discusses it as expansively includes the meaning of 'human as creator' who frames knowledge, skills, competency, and experience originated by continuously connecting between self and the environment. According to a study conducted by ([Mehrabani & Mohamad \(2015\)](#)), and [Thomas & Cheese \(2005\)](#), they introduced job experience, life experience, and specific skill development as three components of approach that show a more complete way to the self-development. Experience-based advancement helps the employees to grow themselves to become a great leader and know how to lead in the future through the development opportunities. [Russo \(2017\)](#) claims that workers would be able to develop their skills and competencies through their working experiences. This is because the learning process and skill development significantly contribute to their job mobility in the future.

Ability

The human capital theory suggests that people possess skills, knowledge, and ability that have great potential to generate beneficial output to the organizations ([Schulz 1961](#)). [Zlate and Enache \(2015\)](#) stated in their study about the role of universities in implementing proper screening to select an individual who matches with organization's positions and values. The personality dimensions expressively contribute to the explainable and predictable organizational performance. It resembles such criteria as proficient performance, optimistic, great leadership abilities, goal-oriented, and have efficient work habits. These quality attributes positively contribute to the institution's success.

METHODOLOGY

The following discussion explains that there are relationships between human capital investment factors and institutions' performance.

- H1:** Training has positively influenced the institutions' performance.
- H2:** Education has positively influenced the institutions' performance.
- H3:** Knowledge has positively influenced the institutions' performance.
- H4:** Skill has positively influenced the institutions' performance.
- H5:** Experience has positively influenced the institutions' performance.
- H6:** Ability has positively influenced the institutions' performance.

A set of the survey with sixty questions was utilized to obtain feedback from respondents. Next, the SmartPLS 3 software is applied to assess the measurement and structural model. For the measurement model, the convergent validity was observed. Average Variance Extracted (AVE) is a method used to estimate the convergent validity. The AVE must exceed the value of 0.5 to achieve an acceptable convergent validity ([Aimran et al., 2017](#)). Composite reliability (CR) must be 0.7, or above is deemed to be acceptable. Table 2 shows the results of the measurement model. By

implementing the SmartPLS, the response gathered were analyzed for assessing the reliability of measurement. The recorded Cronbach Alpha for all variables that employed multi-items estimated range had exceeded the value of 0.9, which suggests that the survey was reliable for further analysis as cited in [Kline \(2011\)](#). Next, the assessment of the structural model runs the relationship between latent variables in the research model. The following criteria enable this assessment: Coefficient of determination (R^2), cross-validated redundancy (Q^2), and path coefficients ([Hair et al., 2014](#)). Table 4 shows the path coefficient for each item.

DISCUSSION / ANALYSIS

Population and Sampling

The overall total of the population for this research was 309 lecturers while the research sample consists of 95 lecturers from UiTM Kelantan. According to [Faul, Erdfelder, Lang, & Buchner \(2007\)](#), G*Power software can be applied to calculate the sample size based on statistical power. The minimum sample size required is 74 respondents, which is according to the actual statistical power of 0.95 for model testing. But for the purpose of analysis, all 95 questionnaires were analyzed respectively.

Demographic Profiles

From the overall sample, there are 71 female respondents with a percentage of 74.7%, as compared to only 24 male respondents with a percentage of 25.3%. From the overall population based on age, the highest frequency of respondents are 31-40 years old with a total of 56 (58.9%), followed by 41-50 years old with 26 (27.4%), then 51-60 years old with 8 (8.4%) and below 30 years old with 5 (5.3%). The highest faculty members are gathered from Faculty of Business Management with 37 respondents (38.9%) followed by Faculty of Computer Science and Mathematics with 18 respondents (18.9%), Faculty of Information Management with 13 respondents (13.7%), Academy of Language with 12 respondents (12.6%), Faculty of Art and Design with 6 respondents (6.3%), Faculty of Accounting with 5 respondents (5.3%), Faculty of Administrative Science and Policy with 2 respondents (2.1%), and Academy of Contemporary Islamic with 2 respondents (2.1%).

Common Method Variance (CMV)

According to [Podsakoff & Organ \(1986\)](#), common method variance refers to variance attributable to measurement method rather than to the constructs purportedly represented by the measures. Based on Harman's Single Factor, the CMV is performed by entering all the principal constructs into a principal component factor analysis and the percentage of variance should be less than 50 percent (%). The result showed that the variance explained by all the factors was 49.25%. As claimed by [Podsakoff and Organ \(1986\)](#), there is no common method problem occurs for the dataset.

Measurement Model

The measurement model was constructed before assessing the structural model. For the first phase of the measurement model of latent, which concentrated on evaluating the convergent validity with the main loading of 0.7 and above, Average Variance Extracted (AVE) must exceed the value of 0.5 to gain acceptable convergent validity, and Composite Reliability (CR) with 0.7 or above is deemed to be acceptable ([Hair et al. \(2014\)](#)). Items C2 with a loading value of 0.626 and C6 loading value of 0.621 were excluded from the dataset because the loading values should be greater than 0.7 ([Hair, Hult, Ringle, and Sarstedt, 2014](#)). Table 1 indicates the results of the measurement model.

Table 1: Goodness of Fit Measurement Model (n=95)

Latent Variable	Factor Loading	CR	AVE
Institution Performance (IP)	0.933	0.942	0.539
Training (TR)	0.945	0.954	0.722
Education (ED)	0.943	0.953	0.717
Knowledge (KN)	0.947	0.956	0.731
Skill (SK)	0.941	0.954	0.774
Experience (EX)	0.953	0.963	0.811
Ability (AB)	0.954	0.963	0.812

Discriminant validity is tested using assessment for Fornell Larcker, cross-loadings and the Heterotrait -Monotrait ratio (HTMT; [Afthanorhan et al., 2019](#)). Table 2 represents the square root of AVEs that is greater in all cases than the off-diagonal elements in their corresponding row and column. Hence, the required discriminant validity by Fornell-locker has been achieved. This is because when comparing the square root of the AVE against the correlations of the other constructs, the AVE extracted is greater than its correlations with all the other constructs, hence lead to the establishment of discriminant validity.

Table 2 represents the greater square root of AVEs in all cases than the off-diagonal elements in their corresponding row and column so that the required discriminant validity by Fornell-locker has been achieved. This is because when comparing the square root of the AVE against the correlations of the other constructs, the AVE extracted is greater than its correlations with all the other constructs, then discriminant validity has been established. The second option (Table 3)

of assessing the discriminant validity is conducting the Heterotrait-Monotrait (HTMT) test [Henseler et al. \(2015\)](#). If the HTMT value is greater than 1.0, then there is a problem with discriminant validity. The value must be lower than the required threshold value of HTMT [\(Garson, 2016\)](#). Therefore, for this HTMT assessment, all constructs do not exceed the threshold. So, there is no discriminant validity issue for this dataset.

Validity Assessment of Factor Loading, CR and AVE, Fornell and Larcker

Table 2: Fornell-Larcker criterion (n=95)

	AB	ED	EX	IP	KN	SK	TR
AB	0.901						
ED	0.644	0.847					
EX	0.765	0.703	0.900				
IP	0.473	0.502	0.528	0.734			
KN	0.576	0.745	0.697	0.709	0.855		
SK	0.433	0.566	0.552	0.730	0.816	0.880	
TR	0.574	0.669	0.612	0.725	0.798	0.689	0.850

Note: Values in the diagonal (bolded) represent the square root of the AVE while the off-diagonals are correlations

Table 3: Heterotrait-Monotrait ratio (HTMT) (n=95)

	AB	ED	EX	IP	KN	SK	TR
AB							
ED	0.673						
EX	0.805	0.735					
IP	0.492	0.524	0.548				
KN	0.605	0.788	0.729	0.810			
SK	0.454	0.596	0.578	0.775	0.863		
TR	0.602	0.706	0.644	0.762	0.843	0.725	

Assessment of Structural Model

The structural model provides the relationship between latent variables in the research model. The following criteria facilitate this assessment: Coefficient of determination (R^2), cross-validated redundancy (Q^2), and path coefficients ([Hair et al., 2014](#)). Table 4 shows the path coefficient of the item. The result shows the positive relationship of knowledge on the institution's performance with $\beta=0.451$ and significant with t -value= 2.774, $p<0.05$, and there is a positive relationship of skill towards institution performance with $\beta=0.283$ and significant with t -value= 1.981, $p<0.005$. Lastly, there is a significant positive relationship of training to institution performance with $\beta=0.299$ and significant with t -value= 2.371, $p<0.05$.

Table 4: Significance Result of Path Coefficients (n=95)

Hypo	Path	Beta value	Sample Mean	Std.error	t-value	P-value
H1	AB→IP	0.093	0.099	0.100	0.933	0.351
H2	ED→IP	-0.218	-0.184	0.162	1.348	0.178
H3	EX→IP	-0.027	-0.045	0.120	0.226	0.821
H4	KN→IP	0.451	0.418	0.162	2.774	0.006
H5	SK→IP	0.254	0.283	0.128	1.981	0.048
H6	TR→IP	0.299	0.292	0.126	2.371	0.018

Note: ** Significant at $p<0.005$ ($p<0.05$)

Assess the predictive relevance - Q^2

Based on the blindfolding procedure as presented by [Hair et al. \(2014\)](#), Q^2 evaluates the predictive validity of a model via PLS (table 5). Q^2 values which are larger than zero indicate that the exogenous constructs have a predictive relevance for the endogenous construct. Cited from [Hair et al., \(2014\)](#) the Q^2 value which is larger than 0 indicates that exogenous constructs are having a predictive relevance over endogenous constructs.

Table 5: Predication Relevance of the Model

Latent	SSO	SSE	Q^2 (=1-SSE/SSO)
Ability	570.000	570.000	
Education	760.000	760.000	
Experience	570.000	570.000	
Institution Performance	1,330.00	897.403	0.325

Knowledge	760.000	760.00
Skill	570.000	570.000
Training	760.000	760.000

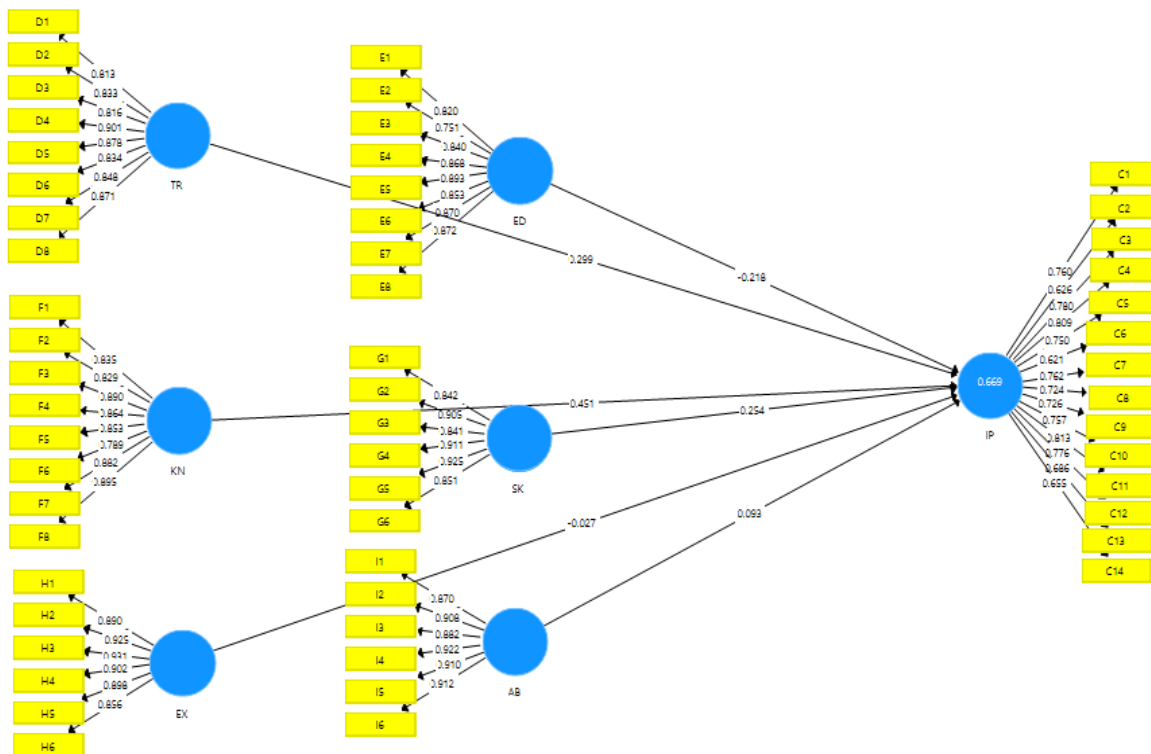


Figure 1: PLS-Path Diagram

As demonstrated in Figure 1, the R^2 value for endogenous latent is 0.669, which suggesting that 66.9% of the variance for institution performance can be explained by the factors of human capital investment among the respondents.

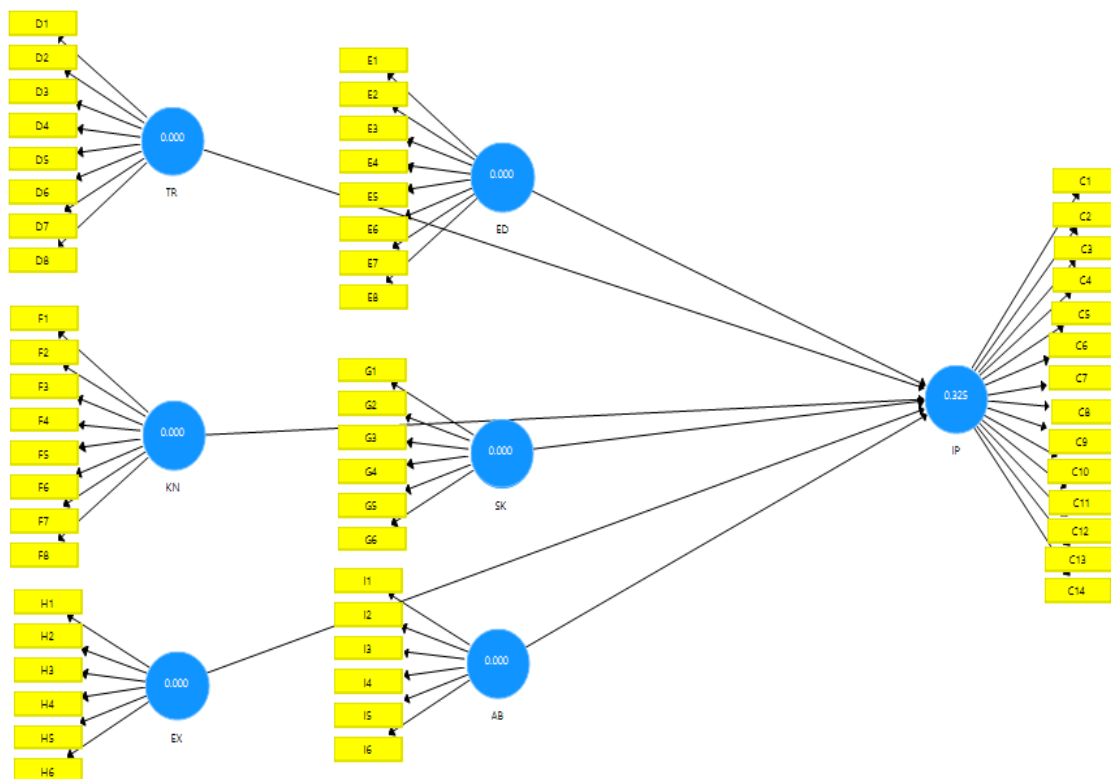


Figure 2: Blindfolding model (DV)- Q^2

Figure 2 shows Q^2 for institution performance as equal to =0.325, which signifies good predictive relevance of the research model.

CONCLUSION

The results of the study are used to answer the question about the human capital investment factors that affect the institution's performance in UiTM Kelantan. Among these six variables, three variables of ability, education, and experience are not significant, and another three variables namely knowledge, skill and training are significant to the performance as summarize in Table 6. Meanwhile, training is the most significant factor that affects the performance with the value of β is equal to 0. 299 and significant with t -value of 2.371 and $p < 0.05$.

Table 6: Summary of Hypotheses Analysis (n=95)

Hypotheses	Path	Results
H1: Ability has positively influenced the institutions' performance.	AB \rightarrow IP	Not supported
H2: Education has positively influenced the institutions' performance.	ED \rightarrow IP	Not supported
H3: Experience has positively influenced the institutions' performance.	EX \rightarrow IP	Not supported
H4: Knowledge has positively influenced the institutions' performance.	KN \rightarrow IP	Supported
H5: Skill has positively influenced the institutions' performance.	SK \rightarrow IP	Supported
H6: Training has positively influenced the institutions' performance.	TR \rightarrow IP	Supported

In summary, the findings are consistent with well-established research regarding the human resource system, human capital and institution performance, which show the initiative of organizations in adopting the high-involvement human capital development system to enhance the achievement of the overall goal of positive organizational performance. There is no doubt for human capital to play a crucial role in a current, challenging and aggressive business environment. Furthermore, human resources able to gain the greatest importance in gaining sustainable competitive advantage and efficiency (Pasban & Nojede, 2016). Finally, organizations that seek to be successful and competitive need to demand and find better ways to expand their business performance by exploiting their human capital proactively.

LIMITATION AND STUDY FORWARD

This research is limited to this group of the population only. The future study would be more interesting if it is expanding to other groups of academic institutions. Also, the future study may consider identifying the moderator or mediator effect on the research framework.

ACKNOWLEDGMENT

We would like to express a special thanks to The Ministry of Higher Education for the continuous support and opportunity to conduct this study. Not forgotten to our correspondent author, who contributed the strong commitment and effort through what initially seemed like an impossible journey. Finally, we would like to express the appreciation to the research participants for their response and feedback throughout the data collection process.

AUTHOR CONTRIBUTIONS

Farahiyah Akmal Mat Nawi was responsible to develop the theoretical approach to the influence of HCI determinants towards the institution's performance. Prof. Dr. Abdul Malek A. Tambi, Dr. Muhammad Faizal Samat and Juliana Baistaman jointly contribute to develop and supported the research model and the relationships hypothesized. Finally, all authors contributed to the conclusions, as well as reviewing, synthesizing and improving the final manuscript.

REFERENCES

1. Afthanorhan, A., Foziah, H., Rusli, R., & Khalid, S. (2019). Modeling reflective constructs in generalized structure component analysis: An application to service quality and customer satisfaction in the UniSZA library. *International Journal of Innovation, Creativity, and Change*, 7(10), 33-41.
2. Aimran, A. N., Ahmad, S., Afthanorhan, A., & Awang, Z. (2017). The development of the comparative bias index. Paper presented at the *AIP Conference Proceedings*, 1870 doi:10.1063/1.4995935 <https://doi.org/10.1063/1.4995935>
3. Asgher, U., Leba, M., Ionică, A., Moraru, R. I., & Ahmad, R. (2015). Human Factors in the Context of Excellence Models: European Foundation for Quality Management (EFQM) Excellence Software Model and Cross-cultural Analysis. *Procedia Manufacturing*, 3(Ahfe), 1758-1764. <https://doi.org/10.1016/j.promfg.2015.07.479>
4. Asnawi, A. A., Awang, Z., Afthanorhan, A., Mohamad, M., & Karim, F. (2019). The influence of hospital image and service quality on patients' satisfaction and loyalty. *Management Science Letters*, 9(6), 911-920. <https://doi.org/10.5267/j.msl.2019.2.011>
5. Aziz, M. I., Adnan, A. A., Afthanorhan, A., Foziah, H., Ishak, S. I. -, & Rashid, N. (2019). The influence of employer value proposition in talent demand towards talent shortage in the Malaysian Islamic banking institutions: A SEM approach. *Management Science Letters*, 9(6), 843-850. <https://doi.org/10.5267/j.msl.2019.3.004>

6. Beard, D. F., & Humphrey, R. L. (2014). Alignment of University Information Technology Resources With the Malcolm Baldrige Results in Criteria for Performance Excellence in Education : A Balanced Scorecard Approach, (c), 382–388. <https://doi.org/10.1080/08832323.2014.916649>
7. Blanchard, E. J., & Olney, W. W. (2017). Globalization and Human Capital Investment : Export Composition Drives Educational Attainment &. *Journal of International Economics*, 106, 165–183. <https://doi.org/10.1016/j.jinteco.2017.03.004>
8. Bo Hansson, Ulf Johanson, Karl-Heinz Leitner (2004). *The Impact Of Human Capital And Human Capital Investments on Company Performance. Evidence From Literature and European Survey Results* In Descy, P.; Tessaring, M. (Eds) Impact of Education and Training Third Report on Vocational Training Research in Europe: Background Report. Luxembourg.
9. Cefalo, R., & Kazepov, Y. (2018). Studies in the Education of Adults Investing Over the Life Course : The Role of Lifelong Learning in a Social Investment Strategy Investing Over the Life Course : The Role of Lifelong. *STUDIES IN THE EDUCATION OF ADULTS* 2018, VOL. 50, NO. 2, 203–218 <https://doi.org/10.1080/02660830.2018.1550709> Investing, 50(2), 203–218.
10. Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A Flexible Statistical Power Analysis Program for the Social, Behavioral, and Biomedical Sciences. *Behavior Research Methods*, 39(2), 175–191. <https://doi.org/10.3758/BF03193146>
11. Faul, F., Erdfelder, E., Buchner, A. and Lang, A.G (2009), *Statistical Power Analyses Using G*Power 3.1: Test For Correlation And Regression Analyses*. *Behavior Research Methods*. 41(4), 1149-1160. <https://doi.org/10.3758/BRM.41.4.1149>
12. Fornell C and Larcker DF (1981). *Evaluating Structural Equation Models with Unobservable Variables and Measurement Error*. *Journal of Marketing Research*, 18(1): 39-50. <https://doi.org/10.2307/3151312>
13. Garson D (2016). *Partial Least Squares: Regression Structural Equations Models*. Statistical Publishing Associates, Asheboro, USA.
14. Goddy Osa Igbaekemen & James E. Odivwri (2014). Impact of Human Capital Development on Workers Productivity in Nigeria Public Sector Social Work Chronicle Volume 3, Issue 1 & 2, 2014
15. Hair JF, Sarstedt M, Hopkins L, and Kuppelwieser VG (2014). *Partial Least Squares Structural Equation Modeling (PLS-Sem): An Emerging Tool in Business Research*. *European Business Review*, 26(2): 106-121. <https://doi.org/10.1108/EBR-10-2013-0128>
16. Henseler J, Ringle CM, And Sarstedt M (2015). *A New Criterion for Assessing Discriminant Validity in variance-based Structural Equation Modeling*. *Journal of The Academy of Marketing Science*, 43(1): 115-135. <https://doi.org/10.1007/s11747-014-0403-8>
17. Hair, J. F., Hult, G. T. M., Ringle, C. and Sarstedt (2014), *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. Los Angeles, CA, Sage. <https://doi.org/10.1108/EBR-10-2013-0128>
18. Igbaekemen G.O & Odivwri j. E (2014). Impact of Human Capital Development on Workers Productivity in Nigeria Public Sector. Social Work Chronicle Volume 3, Issue 1 & 2.
19. J, S. C., & O, I. G. (2016). *Effect of Human Capital Development Programmes in Optimizing Employees Performance : a Study of Abia State House of Assembly*, 5(4), 1–12. <https://doi.org/10.12816/0031277>
20. Jeevan Jyoti, Asha Rani, (2017). High-Performance Work System and Organisational Performance: Role of Knowledge Management, *Personnel Review*, Vol. 46 Issue: 8, pp.1770-1795. <https://doi.org/10.1108/PR-10-2015-0262>
21. Khasawneh, S. (2011). *Human Capital Planning In Higher Education Institutions: A Strategic Human Resource Development Initiative In Jordan*. *International Journal of Educational Management*, 25(6), 534–544. <https://doi.org/10.1108/09513541111159040>
22. Kline, R.B (2011), *Principles and Practices of Structural Equation Modelling* (2nd ed.). New York, NY: Guilford.
23. Kwon, Dae-Bong (2009). *Human Capital And Its Measurement*. The 3rd OECD World Forum on “Statistics, Knowledge, and Policy” Charting Progress, Building Visions, Improving Life Busan, Korea
24. Majid, N. A., Zainol, F. A., Wan Daud, W. N., & Afthanorhan, A. (2019). Cooperative entrepreneurship in Malaysian secondary schools: A review of current practices. *Journal of Social Sciences Research*, 5(3), 812-818. <https://doi.org/10.32861/jssr.53.812.818>
25. Mehrabani, S. E., & Mohamad, N. A. (2015). *New Approach To Leadership Skills Development* (Developing a Model and Measure). <https://doi.org/10.1108/JMD-03-2013-0046>
26. Mohammad Sani Ibrahim. (2001). *The Development of Teacher Professionalism: A Claim and A Must*. Paper presented at the National Seminar Training and Leadership Education To 10, Genting Highlands: Aminuddin Baki Institute.
27. Ngari, J. (2016). Human Capital and Business Performance of Pharmaceutical firms in Kenya. *Journal of Human Resource and Entrepreneurship Development*, Vol 4 Number 1 July 2012, Pp. 15-29, ISSN 1819-4370, (
28. Ode, E., & Ayavoo, R. (2019). *The Mediating Role of Knowledge Application in the Relationship Between Knowledge Management Practices and Firm Innovation*. *Suma de Negocios*. <https://doi.org/10.1016/j.jik.2019.08.002>

29. Palamida, E., Papagiannidis, S., & Xanthopoulou, D. (2018). Linking Young Individuals' Capital to Investment Intentions : Comparing Two Cultural Backgrounds. *European Management Journal*, 36(3), 392–407. <https://doi.org/10.1016/j.emj.2017.06.004>
30. Pasban, M., & Nojeded, S. H. (2016). *A Review of the Role of Human Capital in the Organization*. *Procedia - Social and Behavioral Sciences*, 230(May), 249–253. <https://doi.org/10.1016/j.sbspro.2016.09.032>
31. Podsakoff, P.M. and Organ, D.W (1986), *Self-reports in Organizational Research: Problems and Prospects*. *J Manag.* 1(4), 531-544. <https://doi.org/10.1177/014920638601200408>
32. Rabeea, O., Nassar, I. A., & Khalid, M. (2019). *Knowledge Management Processes And Sustainable Competitive Advantage : An Empirical Examination In Private Universities*, 94. <https://doi.org/10.1016/j.jbusres.2018.02.013>
33. Ringle, C. M., Sarstedt, M., and Straub, D. W. (2012). Editor's Comments: A Critical Look at the Use of PLS-SEM. *MIS Quarterly*, 36(1). <https://doi.org/10.2307/41410402>
34. Ruben, B. D. (2007). *Higher Education Assessment: Linking Accreditation Standards and the Malcolm Baldrige Criteria*, (137). <https://doi.org/10.1002/he.246>
35. Russo. G (2017). *Job Design and Skill Development in the Workplace*. *Skill Mismatch in Labor Markets*, 409-445. <https://doi.org/10.1108/S0147-912120170000045011>
36. Sampson Chijindu J, Ibeh Grace O & Emerole Gideon.A (2016). Effect Of Human Capital Development Programmes in Optimizing Employees Performance: A Study of Abia State House of Assembly, *Nigeria Singaporean Journal of Business Economics, and Management Studies (SJBem)*, 5(4). <https://doi.org/10.12816/0031277>
37. Selig, P. M., & Bastos, R. C. (2017). *A Human Capital Measurement Scale*. <https://doi.org/10.1108/JIC-08-2016-0085>
38. Schultz, T. W. (1961). *Investment in Human Capital*. *The American Economic Review*, 51(1), 1–17. <https://doi.org/10.12816/0031277>
39. Simanaviciene, Z., Giziene, V., Jasinskas, E., & Simanavicius, A. (2015). *Assessment of Investment in Higher Education: State Approach*. *Procedia - Social and Behavioral Sciences*, 191, 336–341. <https://doi.org/10.1016/j.sbspro.2015.04.430>
40. Slavic, A., & Berber, N. (2019). The Role of Training Practice in Improving Organizational Performance in Selected Countries of the Danube Region. *Inzinerine Ekonomika-Engineering Economics*, 2019, 30(1), 81–93, 30(1), 81–93. <https://doi.org/10.5755/j01.ee.30.1.17857>
41. Thomas, R.J. and Cheese, P. (2005). Leadership: experience is the best teacher. *Strategy & Leadership*, Vol. 33 No. 3, pp. 24-29. <https://doi.org/10.1108/10878570510594424>
42. Vokurka, R. J., & Vokurka, R. J. (2006). *Using The Baldrige Criteria For Personal Quality Improvement Using The Baldrige Criteria For Personal Quality Improvement*.
43. Walker D.C. (2001). *Exploring the Human Capital Contribution to Productivity Profitability and Market Evaluation of the Firm*. Webster University: DBa. Thesis.
44. Yukhymenko, P., Sokolska, T., Danylenko, A., Babytska, O., Bilyk, O., & Prykhodko, T. (2019). Agricultural Enterprises Human Capital Intellectualization As A Factor Providing Their Competitiveness : Theoretical Analysis. *International Journal of Recent Technology and Engineering (IJRTE)* ISSN: 2277-3878, Volume-8, Issue-2S3, July 2019 Activities, (2), 1557–1561. <https://doi.org/10.35940/ijrte.B1284.0782S319>
45. Yokoyama, I., Kodama, N., & Higuchi, Y. (2019). Japan & The World Economy Effects of State-Sponsored Human Capital Investment On The Selection of Training Type. *Japan & The World Economy*, 49, 40–49. <https://doi.org/10.1016/j.japwor.2018.07.003>
46. Zlate, Ş., & Enache, C. (2015). The Interdependence Between Human Capital And Organizational Performance In Higher Education. *Procedia - Social and Behavioral Sciences*, 180, 136–143. <https://doi.org/10.1016/j.sbspro.2015.02.096>