



## THE RELATIONSHIP BETWEEN COMMITMENT AND ENVIRONMENTAL FACTORS TOWARDS RESEARCH COMMERCIALIZATION: THE MEDIATING EFFECT OF RESEARCH INTENTION

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### **ABSTRACT:**

The aim of this study is to identify the most significant relationship between commitment and environmental factors towards research commercialization. Besides that, the conceptual framework has also been designed to focus on the variables. The instrument method used for data collection to conduct this study is the questionnaire in order to measure data.

In this study, the questionnaire was personally distributed to respondents which is focusing among lecturers who were willing to participate in the survey. The findings show that the most significant relationship between commitment and environmental factors towards research commercialization. At the end of this study, it is hoped that the result may provide positive impact and benefits to the organizations. It is also hoped that this study may provide useful information to the future researcher who intend to study the same topic.

### **KEYWORDS:**

**COMMITMENT, WORK ENVIRONMENT, ENVIRONMENTAL FACTORS, RESEARCH COMMERCIALIZATION, RESEARCH INTENTION.**

### **1. INTRODUCTION:**

Universities in Malaysia, whether public or private, often face various issues regarding publications among lecturers. Publication production is an implementation that impacts knowledge on education. Universities should emphasize publications to improve information delivery and knowledge enhancement through research studies. Van Looy, 2013 states that the creation and transmission of information is very important and becomes one of the factors to the change of educational works.

Research commercialization and publication are a critical plan in reinforcing the brand and positioning for higher learning institution in Malaysia. Focal points of executing investigate is evident and brief, but the commitment in practicing among university lecturers are still low. A total of 100 respondents were involved in this study. Lecturers were arbitrarily chosen from multi teach zone of skill to maintain a strategic distance from any educated choice. Quantitative approach was applied through survey given and after that analyzed efficiently to decide the impact to the think about. In a nutshell, the comes about of the information examination demonstrate that commitment of

lecturer's have a noteworthy relationship towards investigate and commercialization compliment. Further recommendation and suggestion are given at the end of articles.

Commercialization is based on considerations, experiments, or models that bring ideal utility. Commercialization often requires an initial overview of efficient assembly and chain techniques, implementation methodologies, and improvements to the system.

### **THE OBJECTIVES OF THIS RESEARCH ARE:**

1. To identify relationship between Commitment towards Research Commercialization.
2. To identify relationship between Work Environment towards Research Commercialization.
3. To identify relationship between Research Intention towards Research Commercialization.
4. To identify the mediating effect of Research Intention between Commitment and Commercialization
5. To identify the mediating effect of Research Intention between Environmental Factors and

Commercialization.

## 2. MATERIALS AND METHODS:

As for Malaysia, the emphasis for commercialization can be seen from the Malaysia Budget Speech by the Treasury Ministry from year 2012 to 2019 in the research and innovation advancement. As proposed by the former Prime Minister in the budget speech back in 2012, research institutions should re-strategize and commercialize their research and development (R&D) findings.

Lecturers have pointed out a variety of problems that a university faces in the commercialization of its output. Study by Howells et al. in the UK listed and prioritized these problems. It includes lack of capital funds, lack of marketing and development skills to find precise partners, insufficient time commitment from academic staff, and the lack of expertise in this area.

A similar set of problems was identified as well, although a commitment to academic workload seems to be the most significant barrier to university commercialization. The increasing amount of commercialization of research and innovation has given a significant impact to the universities and other research institutions. This paper will examine the factors impacting research and commercialization on article publication among university lecturers.

The aim of the study is to investigate mediating effect of research intention among university lecturers towards research commercialization. This study is analyzing data from public university in Penang, the data collected is primary data which is taken from the questionnaire submitted to the lecturers in various fields that serve this university.

### COMMITMENT TOWARDS RESEARCH INTENTION

Commitment to research intentions is divided into two, namely employee commitment and personal commitment. Employee commitment includes promotion and compensation & social benefits.

Promotion is a career advancement that will affect the environment and self-satisfaction so that it will increase effort and achievement in work. This will also motivate other employees to improve the quality of work. Compensation & social benefits also play an important role in improving the quality of employee services. Will directly improve skills and expertise in performing tasks.

While for personal commitment is knowledge and job satisfaction. Knowledge focuses on increasing knowledge on how to produce an article or journal for a publication. The more articles that are produced it will have a positive impact on individuals. Individuals better understand the best methods in producing better quality publications.

Job satisfaction is to increase job satisfaction for individuals. The more articles are produced, the more opportunities there will be for individuals. Therefore, satisfaction will be further increased directly increasing self-motivation and individual excellence.

### WORK ENVIRONMENT TOWARDS RESEARCH INTENTION

Divided into two, namely environment and characteristic. Environment is a work condition that is how it affects the work environment in determining the quality and productivity produced. With a good work environment will improve the quality of individual work. For personal relations is to improve the relationship between other employees. Therefore, the work done will be easy and convenient to work in groups.

Characteristic is a suitable task that is, employees will be more comfortable by performing tasks that are appropriate to the available skills and expertise. The quality produced will have an impact on the organization. As for the variety of tasks, employees will diversify the available tasks to achieve success. This factor will play an important role to research intention.

### RESEARCH INTENTION TOWARDS COMMERCIALIZATION

Industry need in the production of quality publications. This will have and give impact on entrepreneurs with the production of research in a particular field. Therefore, the skills and expertise and the discovery of scientific methods will boost profits. Turnover and profit will increase and increase profits to the industry. Foreign and domestic investors will also give confidence to the industry.

Universities also play an important role in commercialization. This will increase research in education. Therefore, the production of better quality journals and articles has a positive effect on the development of students' minds. With the production of research will also contribute to curriculum development. The University will place more emphasis on good learning and teaching methods to students.

## 3. RESULTS:

The goodness of fit test is a statistical hypothesis test to see how well sample data fit a distribution from a population with a normal distribution. Put differently, this test shows researchers if sample data represents the data expected to find in the actual population or if it is somehow skewed. Goodness-of-fit establishes the discrepancy between the observed values and those that would be expected of the model in a normal distribution case.

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.973 <sup>a</sup>	.948	.946	.10879	.948	597.260	3	99	<.001
a. Predictors: (Constant), Research_Intention_MV, Work_Environment_IV2, Commitment_IV1									

Above table shows the fitness of the model is 94.8%. This indicates selective IVs and MV are very good predicts towards Commercialization (DV). Almost 100% factors contributing to the fitness of the model in our study.

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21.206	3	7.069	597.260	<.001 <sup>b</sup>
	Residual	1.172	99	.012		
	Total	22.378	102			

a. Dependent Variable: Commercialization

b. Predictors: (Constant), Research\_Intention\_MV, Work\_Environment\_IV2, Commitment\_IV1

## PEARSON CORRELATION

Pearson correlation or validity is the extent to which the scores from a measure represent the variable they are intended to. When a measure has good test-retest

reliability and internal consistency, researchers should be more confident that the scores represent what they are supposed to.

Coefficients <sup>a</sup>								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.368	.123		2.992	.003	.124	.613
	Commitment_IV1	.352	.080	.383	4.432	<.001	.195	.510
	Work_Environment_IV2	.561	.083	.582	6.745	<.001	.396	.727
a. Dependent Variable: Commercialization_DV								

Palant (2001) if Pearson Correlation exceed 0.7 it is too close too close & no variation. Based on the table above, all independent are below 0.7 and significant to predict the dependent variable.

## HYPOTHESIS TESTING ANALYSIS

A p-value, or probability value, is a number describing how likely it is that researcher data would have occurred by random chance (i.e. that the null hypothesis is true).

The level of statistical significance is often expressed as a p-value between 0 and 1. The smaller the p-value, the stronger the evidence that researcher should reject the null hypothesis.

### H1: THERE IS A RELATIONSHIP BETWEEN COMMITMENT (IV 1) TOWARDS COMMERCIALIZATION (DV)

Coefficients <sup>a</sup>								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.611	.141		4.326	<.001	.331	.892
	Commitment_IV1	.852	.035	.924	24.318	<.001	.782	.921
a. Dependent Variable: Commercialization_DV								

The above table shown that the p-value < 0.001. According to Palant (2001) there is a significant relationship of the two variables if the p-value is below 0.05. The result of analysis shows that there is a significant relationship between Commitment and Commercialization, therefore H1 is accepted.

## H2: THERE IS A RELATIONSHIP BETWEEN WORK ENVIRONMENT (IV 2) TOWARDS COMMERCIALIZATION (DV)

Coefficients <sup>a</sup>								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.410	.134		3.067	.003	.145	.675
	Work_Environment_IV2	.905	.033	.938	27.221	<.001	.839	.971

a. Dependent Variable: Commercialization\_DV

The above table shown that the p-value < 0.001, which is below 0.05. The result of analysis shows that there is significant relationship between work environment and commercialization, therefore H2 is also accepted.

## H3: THERE IS A RELATIONSHIP BETWEEN RESEARCH INTENTION (MV) TOWARDS COMMERCIALIZATION (DV)

Coefficients <sup>a</sup>								
		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
Model		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	-.064	.187		-.342	.733	-.436	.308
	Research_Intention_DV	1.007	.044	.918	23.082	<.001	.920	1.093
a. Dependent Variable: Research_Intention_DV2								

The above table shown that the p-value < 0.001, which is below 0.05. The result of analysis shows that there is significant relationship between research intention and commercialization, therefore H3 is accepted.

## MEDIATING EFFECT

### H4: THERE IS A MEDIATING EFFECT OF RESEARCH INTENTION (MV) IN THE RELATIONSHIP BETWEEN COMMITMENT (IV 1) AND COMMERCIALIZATION (DV).

In order to test this hypothesis, the researcher took two steps as follow:

#### Step 1 – Testing the relationship between commitment (IV 1) and commercialization (DV)

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.924 <sup>a</sup>	.854	.853	.17978	.854	591.357	1	101	<.001

a. Predictors: (Constant), Commitment\_IV1

R<sup>2</sup> value = 0.853

**Step 2** – Perform regression test by combining commitment (IV 1) and research intention (MV) and test the relationship towards commercialization (DV). If the R<sup>2</sup> value increased, then there is a mediating effect of research intention.

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.971 <sup>a</sup>	.942	.941	.11346	.942	819.123	2	100	<.001

a. Predictors: (Constant), Research\_Intention\_MV, Commitment\_IV1

New R<sup>2</sup> value = 0.942

This proof that there is a mediating effect of Research Intention (MV) in the relationship between Commitment (IV 1) and Commercialization (DV), thus H4 is accepted.

### H4: THERE IS A MEDIATING EFFECT OF RESEARCH INTENTION (MV) IN THE RELATIONSHIP BETWEEN WORK ENVIRONMENT (IV 2) AND COMMERCIALIZATION (DV).

**Step 1 – Testing the relationship between work environment (IV 2) and commercialization (DV)**

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.938 <sup>a</sup>	.880	.879	.16303	.880	740.964	1	101	<.001
a. Predictors: (Constant), Work_Environment_IV2									

R<sup>2</sup> value = 0.880

**Step 2 – Combining work environment (IV 2) and research intention (MV) and test the relationship towards commercialization (DV).**

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.973 <sup>a</sup>	.948	.947	.10829	.948	904.086	2	100	<.001
a. Predictors: (Constant), Research_Intention_MV, Work_Environment_IV2									

New R<sup>2</sup> value = 0.948

This proof that there is a mediating effect of Research Intention (MV) in the relationship between Work Environment (IV 2) and Commercialization (DV), thus H5 is also accepted.

**4. DISCUSSION:**

Commitment is something that exists in the individual consciously and it focuses on something. Theoretical or practical understanding is necessary to enhance individual knowledge to produce achievements that will have a positive impact on self, technology, environment and organization. Commitment and environmental factors play an important role in determining the production of quality research.

Commercialization is the process of knowledge, skills and research findings produced by the university or organization in the form of methods, research findings, tools used, research processes, teaching and learning as well as training courses conducted. The benefits of research results can have an impact on the university to produce products. Even the development of human resource and service capabilities is produced and improved.

The role of universities in commercialization will drive local economic growth. The university products produced will affect financial generation due to lack of knowledge to business management. Universities are more inclined to commercialization to improve rankings and achievement. These factors will have an impact on local and national economic growth.

An adequate and extensive industry network is essential for commercialization. It will be the best determinant of quality research findings. Therefore, the commitment of lecturers is very necessary for the production of research.

**5. CONCLUSIONS: (OPTIONAL)**

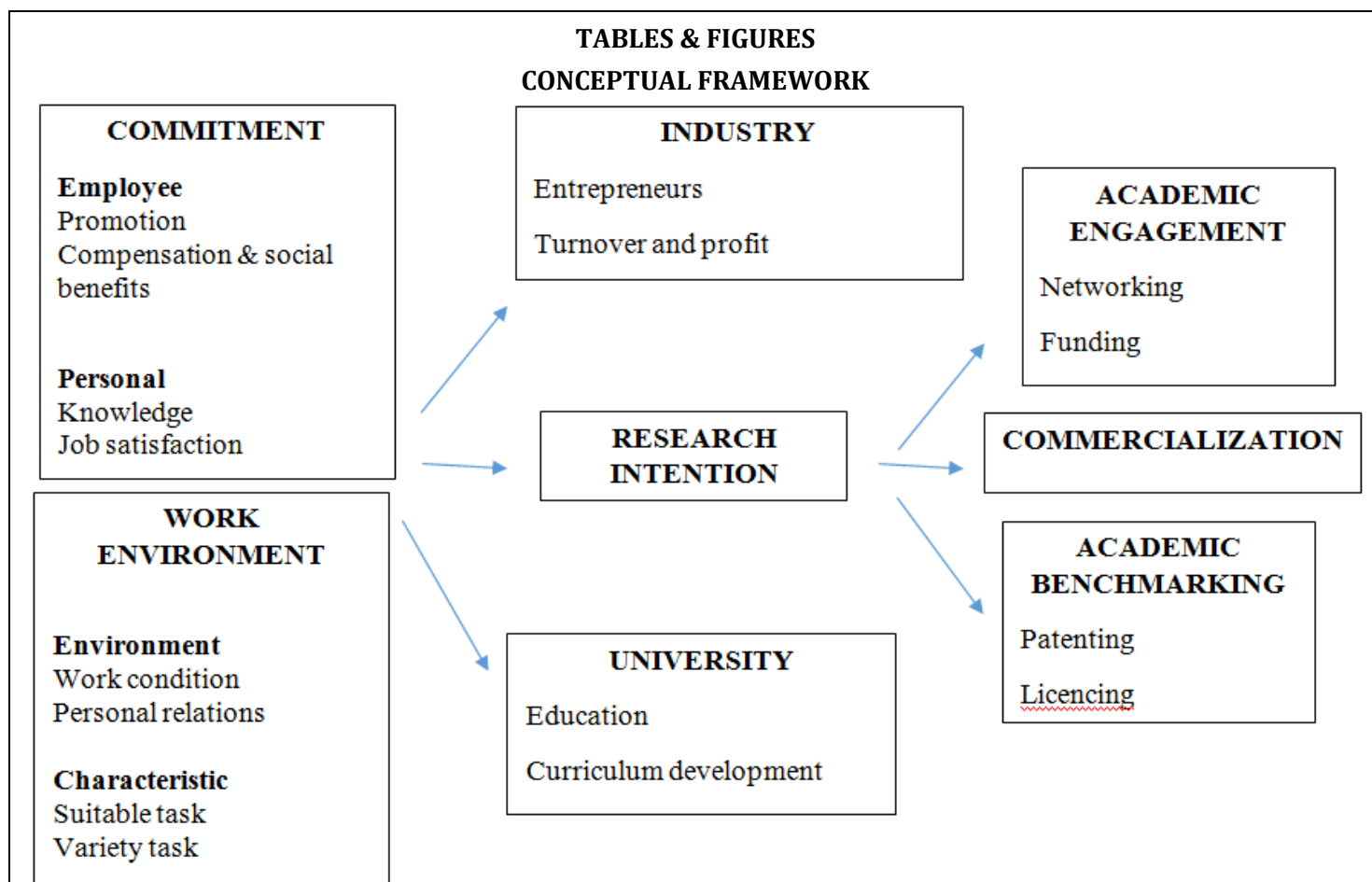
This study confirms that there is an influence of lecturer commitment on research achievement and commercialization. The achievement of high MyRa scores at the university is a contribution from the participation of lecturers in research and commercialization. The Ministry of Higher Education also plays an important role in internationalization and certification at the international level. The involvement of academic staff in research also provides an improvement to the industry.

Customers and competitors play an important role in contributing to the commercialization of research results. Universities need to regularly plan and conduct workshops or conferences in the field of scholarship and publication. Documentation of information in universities needs to be improved to meet scientific and technological needs.

Courses or training programs need to be more comprehensive in the field of commercialization to meet the challenges and opportunities. Intellectual property rights and patents in the scope of commercialization need to be more focused so that marketing is secure.

Competitors exist in research and technology activities, so it is recommended that rules and guidelines be established to curb negative activities. The implementation of Postgraduate programs by research can increase the ranking of universities.

Funds play an important role in supporting quality research. As a result, many innovations were created and gave positive input to the University. It is recommended that universities create more networks of collaboration within and outside the country virtually or exchange of ideas.



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