Research on the Factors Impact on the Cohesion in Higher Education Training between Universities and Enterprises: Case Study in Danang

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Abstract: Higher education plays critical role in providing human resources to society in all areas. Universities are thriving to carry out the test of training citizens to meet social needs; exploring science and technology, bringing scientific achievements into practice to serve the industrialization and modernization of the countries. However, our higher institutions have not accomplished all of these goals; we are preferring to focus on training generations of graduates with excellent results only in their academic performance, despite the increasing demands of enterprises in reality. This research studied the factors that influence the cohesion between universities and enterprises, thereby, suggesting further feasible solutions and policies strengthening this critical relationship, shifting universities education closer to practical needs, generating high-quality employees for society, producing breakthroughs in scientific research, therefore, delivering benefits to among universities, enterprises, and society to improve linkage in geo-training in Da Nang city in particular and Central Vietnam in general.

Keywords: Universities and enterprises, influencing factors, higher education training.

1. Introduction

Enhancing of training quality meets demand of employability adaptation of enterprises. This issue is an important mission that to decide universities' existence, success and competition in Vietnam in particular and around the world in general. In order to exist in globalization era, the universities have to approach information of job market, demand of domestic and foreign enterprises. According to research of Nadiri, Nadiri, H., Kandampully, J&Husain, K. (2009)

that education managers need to apply principles and strategy of marketing that they are used by manufacture and business enterprises, Therefore, the universities has recognized that a role of universities are service division, their responsibility is satisfaction of expectation and demand of student: Student and enterprises (Elliott &Shin, 2002). Haves (1992) given factors of educational service quality such as libraries, laboratories equipment, training programs, and etc. The universities have to seek impact factors on training relationship between universities and enterprises. Gronroos (1989) said that marketing policy to be forward to development of stable relationship with

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"consumers" becausethey are resource and invaluable potential consumers for universities.

In order to resolving problems to mention above that the journal paper helps Duytan University in particular and universities in Middle of Vietnam in general to identify impact factors on a relation between universities and enterprises. The impact factors support Duytan University setting up training strategy to match on demand of enterprises.

2. Research objective

Research objective identify impact factors on relationship between universities and enterprises.

3. Research methodology

The research is implemented by quantitative method. Research data is collected from universities and 300 enterprises around Danang and Danang's neighborhood by questionnaire sheet. Modeling theory to scales design is Hang model (2012) in which the scales are ad justified to meet with research situation. The model defines as below:

Questionnaire sheet includes 3 parts, such as part 1: General information of enterprise and university, part 2: impact factors on relation of training, and part 3: information of training relation between university and enterprise is check by Likert scales (point 1: strongly disagree, point 2: disagree, point 3: wonder, point 4: agree, point 5: strongly agree).
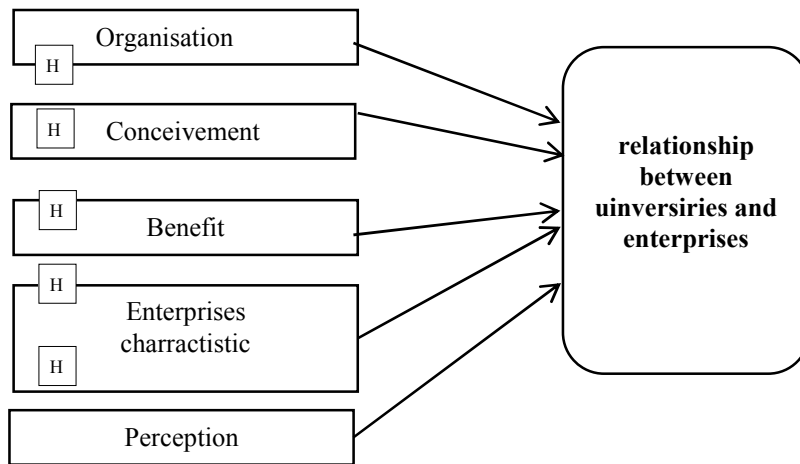
Graph 1. Research model of impact factors on relationship between universities and enterprises.

4. Result of analysis and discussion

4.1. Analysis of reliability of the scale

Reliability of the scale is accredited by Cronback's Alpha and Item - Total Correlation (see Table 1). Cronback's Alpha is used to evaluation if any observation items belong to research items.

A commonly acceptedrule for describing internal consistency using Cronbach's alpha is as follows:

Cronbach's alpha	Internal consistency
$\alpha \geq 0.9$	Excellent (High-Stakes testing)
$0.7 \leq \alpha < 0.9$	Good (Low-Stakes testing)
$0.6 \leq \alpha < 0.7$	Acceptable
$0.5 \leq \alpha < 0.6$	Poor
$\alpha < 0.5$	Unacceptable

An item-total correlation test is performed to check if any item in the set of tests is inconsistent with the averaged behavior of the others, and thus can be discarded. The analysis is performed to purify the measure by eliminating 'garbage' items prior to determining the factors that represent the construct; that is, the meaning of the averaged measureitem correlation has to > 0.3

Table 1. Result of Cronback's Alpha accreditation U

Items	Scale mean if to skip item	Scale variance if to skip item	Item – total correction	Cronbach's Alpha if to skip item
Alpha of benefit factor = 0.739				
Not realizing the obvious benefits of relation	5.55	2.818	.556	.664
Relation takes time and affects the work of both parties	6.12	2.564	.646	.555
Without fund for relation	5.72	2.818	.496	.735
Alpha of conceivement factor = 0.802				
Define clear goals of the forms of association (such as attracting students, consultants develop, coordinate scientific research)	8.00	6.818	.542	.788
Leverage reputation/reputation of partners	7.97	5.669	.588	.767
Establish a close relationship (available or new) to promote the image of both sides of the enterprise and university	8.08	5.119	.721	.695
Awareness of ability / capability, potential of partner in association to promote and develop	7.84	5.748	.630	.745
Alpha of organisation factor = 0.840				
Signing to the commitment / agreement between two parties	6.44	4.590	.692	.792
The ability to negotiate, communicate, coordinate implementation of the two parties	6.40	5.925	.750	.790
Professional level in relation implementation (with dedicated link department)	6.17	3.755	.759	.743
Alpha of perception factor = 0.811				

Items	Scale mean if to skip item	Scale variance if to skip item	Item – total correction	Cronbach's Alpha if to skip item
Enterprise argues that university research is too theoretical and does not fit the needs of the enterprise.	12.08	8.073	.584	.779
Enterprises do not know much about the school's activities because the information about university's activities and training is not widely advertised.	12.04	7.998	.621	.767
The company believes that the knowledge of the students or the training program of auniversity does not fit the needs of enterprises.	12.07	7.745	.652	.757
Laboratories, research equipment of the school are backward, not suitable to the needs of enterprises	12.07	7.927	.673	.751
The process of relation could reveal the secrets of the company	12.28	9.250	.463	.810
Alpha of enterprise characteristic = 0.941				
Enterprises interest in using cheaper human resources than high quality human resources	23.48	58.616	.670	.938
Enterprises keen on cheap competition on labor markets, rather than relying on technology and investing in new technologies	23.29	53.959	.837	.930
Enterprises do not have long-term strategy on technology and human development due to the difficulties facing their immediate business.	23.34	58.408	.608	.941
Companies do not produce the final product, does not design the product but usually produces the input material, mediates the production.	23.61	57.014	.740	.935
Enterprises do not have enough facilities for students to internship and practice at the request of universities	23.52	55.866	.661	.939
Companies do not have leading experts involved in teaching at a university	23.66	53.726	.795	.933

Items	Scale mean if to skip item	Scale variance if to skip item	Item – total correction	Cronbach's Alpha if to skip item
Enterprises have no need for scientific research or development consultancy from universities	23.44	53.976	.752	.935
Enterprises can not afford commercialization of their research products	23.42	54.677	.835	.931
There is no coherence, no coordination between associations to promote cohesion	23.30	54.100	.834	.931
There is no support policy of the authorities, local authorities to promote cohesion	23.35	53.525	.857	.929
Alpha of training relation = 0.902				
Acceptance for students to practice at enterprise	16.57	34.907	.741	.884
Organizing seminars to introduce new technologies at the enterprise by the school	16.25	35.279	.737	.884
Company leaders participate in visiting or exchanging issues related to production activities of enterprises for students	16.22	35.176	.755	.882
Enterprises supply scholarships for students	16.31	39.082	.576	.901
Universities transfer knowledge through training programs for enterprises	16.49	34.753	.792	.878
Enterprises donates machines and equipment to universities	16.09	37.833	.621	.897
Enterprises receive practical training for students	15.85	32.853	.757	.883

With 31 observation items need Cronback's Alpha accreditation; therefore, the items be used for exploratory factor analysis (EFA).

4.1. Exploratory factor analysis (EFA)

The result of factors analysis show out KMO (Kaiser-Meyer-Olkin) coefficient that it is a creteria to use factor analysis. The result of analysis indicates KMO coefficient = 0.776 and the result of Barlett's accreditation with statistic

significant = 0 (<0.05); therefore, H_0 hypothesis withobservation items – correlation equal 0 in the construct that H_0 will be rejected (See Table 2), meaning that the observation items have correlate in the construct. The sesult of showing factors analysis is appropriately.

Result of exploratory factor analysis (EFA), show in Table 3, suggests that the relationship between universitie and enterprises fits with this survey. 6 of 31 items have the factor loading smaller than 0.4, the others ranges from

above 0.653 to 0.901, extraction sums squared loadings = 67.65%. The factor loading is an indicator to ensuring practical significance for EFA. According to Hair and his coworkers, the factor loading greater than 0.3 reach minimum level; greater than 0.4 is acceptable; and greater than 0.5 is considered having practical value.

However, the authors assume that if the chosen factor loading is 0.3, the sample quantitative must be at least 350. In different cases, the factor loading must be larger than 0.55 with the quantitative of 100; and 0.75 with $p \leq 0.01$ for the quantitative of about 50 (*Hair et al., 1998*).

Table 2. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.776
Bartlett's Test of Sphericity	Approx. Chi-Square	1451.343
	df	300
	Sig.	.000

Table 3. Result of EFA

Item	Loading*				
	1	2	3	4	5
LI1	.785				
LI2	.748				
LI3	.722				
TC3		.901			
TC2		.891			
TC1		.850			
NT3			.858		
NT4			.797		
NT2			.737		
NT1			.720		
CN4				.800	
CN3				.787	
CN2				.733	
CN1				.706	
CN5				.666	
DD3					.889
DD8					.885
DD9					.883
DD10					.882
DD6					.810
DD4					.797
DD7					.789
DD2					.759
DD5					.688
DD1					.653

* Factors to extract: Principal axis Factoring
Rotation method: Promax with Kaiser: Normalization

Correlation analysis (See Table 4): Implementing to create new items that they represent for item groups and their value are average value of observation items:

NT (Representative for conceivement factor)

LI (Representative for benefit factor)

CN (Representative for perception factor)

DD (Representative for enterprise characteristic factor)
TC (Representative for organization factor)
LK (Representative for training relation factor).

Table 4. Correlation among factors

		NT	TC	DD	CN	LI	LK
NT	Pearson's correlation value	1	0.205**	0.369**	0.218**	0.162**	0.108**
	Sig.	.	0.000	0.000	0.000	0.008	0.002
TC	Pearson's correlation value	0.205**	1	0.136**	0.105**	0.018**	0.136**
	Sig.	0.000	.	0.005	0.002	0.007	0.004
DD	Pearson's correlation value	0.369**	0.136**	1	0.174**	0.370**	0.419**
	Sig.	0.000	0.005	.	0.004	0.000	0.000
CN	Pearson's correlation value	0.218**	0.105**	0.174**	1	0.227**	0.286**
	Sig.	.000	.002	.004	.	.003	0.007
LI	Pearson's correlation value	0.162**	0.018**	0.370**	0.227**	1	0.239**
	Sig.	0.008	0.007	0.000	0.003	.	0.004
LK	Pearson's correlation value	0.108**	0.136**	0.419**	0.286**	0.239**	1
	Sig.	0.002	0.004	0.000	0.007	0.004	.

**. Sig. = 0.01

The data in Table 4 indicate sig. values < 0.05; therefore, the new items have correlation and statistic significant in the research model. Thus, 5 independent items are NT, LI, CN, DD, TC factor.

4.2. Regression analysis

The result of regression analysis (see Table 5, Table 6, and Table 7) shows modeling of linear relationship, in which,to describe the change of dependent item of Y (training relation) to follow independent items of X_i (Benefit, Conceivement, Enterprise characteristic, Organization, and Perception factors). The regression functions as below:

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 I + \beta_4 X_5$
Therein:
- *Y*: Dependent item

- X_i: Independent items
- β_0: is the coefficient of expression describing the initial pitch (blocking factor) of the overall regression line
- β_i : is the parameter describing the slope (principal factor) of the overall regression line
- The result of regression show that:

R^2adjustment = 0.548 = 54.8%, meaning that 5 independent items (expression items) explain 54.6% the change of dependent item of training relation of the enterprises and the universities. Durbin - Watson coefficient is used for correlence accreditation on first-order string. The result show out the model fits with multiple regression method because Durbin – Watson coefficient= 2.030 (0< the coefficient < 4). The hypothesis is accepted because there is no relationship of the first-order string in the

model. Thus, the regression model satisfies all conditions for withdraw the research result. The regression equation is not standardized as below:

$$Y = 0.015 + 0.027*X_1 + .0139*X_2 + 0.442*X_3 + 0.290*X_4 + 0.063*X_5$$

The regression equation is standardized as below:

$$LK = 0.21*NT + 0.147*TC + 0.369*DD + 0.206*CN + 0.05*LI$$

From the regression equation that the researcher group gives the comment, if Conceivement factor Enterprise characteristic (DD) factorincreases up to 1value and fixes other factors that level of training relation increases 0.369 value in accordingly; if Conceivement(NT) factorincreases up to 1value and fixes other factors that level of training relation increases 0.210 value in accordingly; if Organisation (TC) factorincreases up to 1value and fixes other factors that level of training relation increases 0.147 value in accordingly; if Perception (CN) factorincreases up to 1value and fixes other factors that level of training relation increases 0.206; if Benefit (LI) factorincreases up to 1value and fixes other factors that level of training relation increases 0.050 value in accordingly; value in accordingly.

Table 5. Summary of model

Model	R	R^2	R^2Adjust ion	Std. Error	Durbin-Watson
1	.698[a]	.548	.520	.58211	2.030
a. Estimate factors: (constant): LI, TC, NT, CN, DD					

Table 6. ANOVA

Model		Sum of square	Step of freedom	Average square	F	Sig.
1	Regression	21.272	5	6.254	35.468	.000[b]
	Redundant	64.583	295	.278		
	Total	85.855	300			
b.Estimate factors: (constant) LI, TC, NT, CN, DD						

Table 7. Number of coefficient

Model		Unstandardized coefficients		Standardized coefficients	t	Sig.	Multicollinear	
		B	Std. Error	Beta			Tolerance	VIF
1	Constant	.015	.624		3.024	.001		
	NT	.027	.124	.021	1.218	.002	.939	1.065
	TC	.139	.090	.147	1.546	.016	.997	1.003
	DD	.442	.124	.369	3.576	.001	.852	1.173
	CN	.290	.141	.206	2.057	.021	.907	1.103
	LI	.063	.133	.050	1.475	.004	.825	1.211

4.5. Analysis of factors to relate enterprises and universities management

4.5.1. Enterprise characteristic factor*:*

The result of the model indicates that the factor the strongest impact on the relation between the universities and the enterprises in Middle of Vietnam. The factor includes the observation items as below:

a. Enterprises do not have long-term strategy on technology and human development due to the difficulties facing their immediate business;

b. Enterprises interest in using cheaper human resources than high quality human resources;

c. Enterprises keen on cheap competition on labor markets, rather than relying on technology and investing in new technologies;

d. Companies do not produce the final product, does not design the product but usually produces the input material, mediates the production;

e. Enterprises do not have enough facilities for students to internship and practice at the request of universities;

f. Companies do not have leading experts involved in teaching at a university;

g. Enterprises have no need for scientific research or development consultancy from universities;

h. Enterprises can not afford commercialization of their research products;

i. There is no coherence, no coordination between associations to promote cohesion;

k. There is no support policy of the authorities, local authorities to promote cohesion.

The factor shows that the largest issues are Middle Vietnam enterprise's competence, strategy of development and demand of development to be clearly, in the moment. Therefore, the enterprises want to improve the issue that they have to set up the start – up policies, development tendency of enterprises that become largeenterprises with their long-term and stable strategy.

With the universities, the relation with enterprises that have to calculate to divide relation proportion (for instant: lecturers and facilities is a hub of relation) or to relate with others that they are large companies and beside Middle of Vietnam or outside of Vietnam. The relation helps to break-making in the training, improving practice skill of students.

4.5.2. Concievement factor:

The factor includes the observation items as below:

a. Define clear goals of the forms of association (such as attracting students, consultants development, coordination of scientific research);

b. Leverage reputation/reputation of partners;

c. Establish a close relationship (available or new) to promote the image of both sides of the enterprise and university;

d. Awareness of ability / capability, potential of partner in association to promotion and development.

The factor shows that the core issue of between enterprises and universities introduce competence and demand of each party. Moreover, if therelation between the parties relies on support and promotion policies from Vietnam authority, the relation is strongly stable. For example, the authority asks universities are alignment with enterprise to training practice for students. The alignment supports for training and matches with demand of labor marketing.

4.5.3. Perception factor:

The factor includes the observation items as below:

a. Enterprise argues that university research is too theoretical and does not fit the needs of the enterprise;

b. Enterprises do not know much about the school's activities because the information about university's activities and training is not widely advertised;

c. The company believes that the knowledge of the students or the training program of a university does not fit the needs of enterprises;

d. Laboratories, research equipment of the school are backward, not suitable to the needs of enterprises;

e. The process of relation could reveal the secrets of the company.

4.5.4. Organisation factor:

The factor includes the observation items as below:

a. Signing to the commitment / agreement between two parties;

b. The ability to negotiate, communicate, coordinate implementation of the two parties;

c. Professional level in relation implementation (with dedicated link department).

The factor shows that the impact of the factor on the relation has just relative level.It implication of professionisation in carry out the relationship such as setting up an office is charge of contract negotiation and signature,variouslynegotiable content. This is content that both of university and enterprise parties can be implementation.

4.5.5. Benefit factor:

The factor includes the observation items as below:

a. Not realizing the obvious benefits of relation;

b. Relation takes time and affects the work of both parties;

c. Without fund for relation.

The impact of the factor on cohesion between universities and enterprises parties point out problem of benefit brought, or fund or organizing implementation not being interested issue of the parties, at the moment. It is clear that finance is important force to promote the relation, but two the party just only interest in quality of training and enterprise development. Therefore, if improving the previous contents of 4 the factors that benefit factor will be improved in acridly.

5. Conclusion

The relation between enterprise and universities in training meeting career demand of market is crucial important problem. It decides existence, success and competitive capacity of universities in the moment. However, there are issues between Duytan University and enterprise impact the relation.

Therefore, the journal paper has researched and presented the impactfactors on between enterprises and universities, the factors consist of Benefit, Conceivement, Enterprise characteristic, Organization, and Perception factors. Through the factors that co-author of the journal paper set up the regression function as $LK = 0.21 * NT + 0.147 *TC + 0.369 *DD + 0.206 *CN + 0.05 * L,$ the function will help Duytan University to apply to setting up strategy of relation between Duytan University and enterprises in training human resource for Danang in particular and in Middle of Vietnam in general.

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