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DESIGNING AN ENTREPRENEURIAL UNIVERSITY MODEL WITH THE ORGANIZATIONAL ENTREPRENEURSHIP APPROACH IN PAYAM-E- NOOR UNIVERSITY

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ABSTRACT

The purpose of the present study is to design a model of an entrepreneurial university with the organizational entrepreneurship approach in Payam-e Noor University. The present study follows applied objectives through the descriptive and correlational nature and a mixed methodology (qualitative and quantitative). Regarding the qualitative part, the researchers collected the opinions of 15 scholars in Payam-e Noor University (based on snowball sampling) by means of in-depth interviews with open-ended questions. Regarding the quantitative part, 96 scholars among the instructors and professors of PNU were selected according to the sampling formula for infinite population, based on the purposive sampling and the required data was collected through questionnaires. The following aspects were considered as features of an entrepreneurial university: 1. the quality of graduates; 2. Scientific publications; 3. Observing resources for research activities; 4. Providing consultation services; 5. providing industrial training courses; 6. research contracts; 7. Protecting intellectual properties by obtaining patents and licenses; 8. Creating spin-off companies; 9. Creating technology parks; while features of an organizational entrepreneurship were examined through these aspects: 1. Innovation; 2. Renovation and 3. Introducing new business. The reliability and validity of the instruments were confirmed by seven university scholars in the related field of studies. Furthermore, convergent and divergent validity of research structures were examined and confirmed by means of PLS approach and their reliability were also highly reported with the Cronbach's alpha coefficients higher than 0.6. The qualitative data were analyzed by open and axial coding. Research model was also analyzed through structural equation modeling approach by means of PLS software. The results showed that research contracts, financial resources, structure and patent certificate with path coefficients of 0.06, 0.03, 0.09 and 0.07 respectively have direct, yet weak relation with entrepreneurial university. However, this relation was not confirmed regarding the t-value less than 1.96 and at the significance level of 95%. On the other side, the variables such as courses' content, organizational culture, graduates, macro management, spin-off companies, characteristics of students, science and technology parks, instructors' characteristics and publications were in direct relation with entrepreneurial university as the t-value was higher than 1.96 and the relation was confirmed at the significant level of 95%.

INTRODUCTION

Universities are among the most ancient and fundamental institutes in the history and they need a more recent and comprehensive evaluation [1]. Today's knowledge based societies are requiring universities with a much closer and interwoven relation with innovation than the industrial societies [2]. Universities' role and activities and research systems have been changed under the shadow of global competition' new quality and international competition and national prosperity would not be possible if these evolutions are not in line with innovational approaches and establishing entrepreneurial universities [1]. Therefore, universities ought to have entrepreneurship approach in order to commercialize their findings and apply them in knowledge-based businesses [3]. Clark believes that four factors are influential in transforming traditional universities into entrepreneurial universities, namely, increasing the number of students, experts' demands for proposing trainings skills in universities, demands for less payment and better achievements and finally incredible expansion of knowledge [4]. Another proposed reason for the emergence of entrepreneurial universities is the increasing rate of research and technical progress in industries [5]. According to the Triple Helix of university-industry-government relationships, the concept of commercialization as one of the main activities of universities has revolutionized the universities and shaped entrepreneurial universities [6].

Globalization and internationalization have a great role in social and economic processes and evolutions and new responsibilities toward the changing society, national economy, social progress, reduction of public financial resources and educational market have changed the role of the universities [7].The primitive role of universities to educate the students (the first generation of universities) and later to research (the second generation) have evolved to the third generation known as entrepreneurial universities. Guerrero and Urbano are describing entrepreneurial university as a university which can meet the current requirements of the society through developing its organizational potentials, innovation, creating and identifying opportunities, team work, risk taking [8].

Iranian universities are usually the second generation and do not have many commercial activities regarding their research's findings and entrepreneur training.Commercial activities of domestic universities is normally restricted to the science and technology parks without any significant output to the business market. Thus, creating innovative activities through entrepreneurial universities is a necessity.

Major deficiency of the proposed entrepreneurial universities' models is that they are merely a list these universities' characteristics or suggesting the connections between entrepreneurial elements in the university. Another problem is studying entrepreneurial universities without considering their organizational structure and proposing a solution in order to strengthen the entrepreneurial characteristics inside their organizational structure. Therefore, the present study aims in providing an entrepreneurial university's model, considering entrepreneurship activities within the organizational structure and propose this question: what is the entrepreneurial university's model with focus on organizational entrepreneurship characteristics?

MATERIALS AND METHODS

The present study follows applied objectives through the descriptive and correlational nature and a mixed methodology (qualitative and quantitative). Regarding the qualitative part, the researchers collected the opinions of 15 scholars in Payam-e Noor University (based on snowball sampling) by means of in-depth interviews with open-ended questions. Regarding the quantitative part, 96 scholars among the instructors and professors of PNU were selected from an infinite population and according to the sampling formula for infinite population, based on the purposive sampling:

$$n=(Z^2 p(q))/d^2 = (\llbracket(1.96)\rrbracket^2.0.5(0.5))/\blacksquare(0.1@)^2$$

Finally, 96 PNU scholars were selected as the statistical population. As it has been mentioned, the sampling method was purposive, that is the selected participants for filling the questionnaires has higher knowledge of management and entrepreneurship concepts while being knowledgeable about the academic activities.

In the qualitative part, the snowball technique continued to achieve theoretical saturation. In fact, the interview would be stopped if conducting more interviews would not add any new concepts to the previous knowledge. In the present study, the researcher continued interviewing until the fifteenth interview. The qualitative data was collected through in-depth interviews with open ended questions while the questionnaires were utilized to collect the quantitative data. The mentioned questionnaire has been developed based on the discussed concepts in the literature review and results of the qualitative part. The total number 110 questionnaires were distributed and 103 questionnaires were returned and 100 of them were usable.

The following aspects were considered as features of an entrepreneurial university: 1. the quality of graduates; 2. Scientific publications; 3. Observing resources for research activities; 4. Providing consultation services; 5. providing industrial training courses; 6. research contracts; 7. Protecting intellectual properties by obtaining patents and licenses; 8. Creating spin-off companies; 9. Creating technology parks [9]; while features of an organizational entrepreneurship were examined through these aspects: 1. Innovation; 2. Renovation and 3. Introducing new business. The content validity of the questionnaire is confirmed by the scholars of this field; content and face validity of

the instruments were also confirmed by seven university scholars in the related field of studies. Furthermore, convergent and divergent validity of research structures were examined and confirmed by means of PLS approach and their reliability were also highly reported with the Cronbach's alpha coefficients higher than 0.6 using SPSS. The qualitative data were analyzed by open and axial coding. Research model was also analyzed through structural equation modeling approach by means of PLS software.

RESULTS

Coding the qualitative data

The qualitative data were analyzed by open coding method and later by axial coding. The axial coding is represented in **table.1** according to open coding and the identified variables:

Table.1. Summary of the open coding and axial coding results

No.	Open coding	Code Symbol	Axial coding	frequency
1	The general level of graduates' business skills	I1	Graduates	8
2	The ability of recruiting graduates	I2		5
3	The level of graduates and students entrepreneurial activities	I3		6
4	Graduates' Theoretical skills	I4		5
5	Matching graduates' skills with the requirements of the business market	I5		6
6	Academic publication expansion	P1	Publications	6
7	Academic publication variety	P2		2
8	Academic publication functionality	P3		5
9	Academic publication probability for the university	P4		6
10	absorbing governmental aids	Grnt1	Financial resources	4
11	Financial aids for research dissertations and thesis	Grnt2		5
12	Financial support from independent institutes	Grnt3		1
13	Financial support from large companies	Grnt4		4
14	the capacity of absorbing funds from foreign resources	Grnt5		5
15	The number of university sponsors	Grnt6		5
16	Signing general research contracts	Cres1	Research Contracts	6
17	Research contracts with businesses	Cres2		4
18	Variety and expansion of research contracts	Cres3		3
19	Research contracts with government	Cres4		4
20	Pursuing academic innovations and turning them into certificates	Patnt1	Patent certificate	2
21	Number of patents	Patnt2		3
22	Supporting students' innovations	Patnt3		10
23	Incomes from selling certificates	Patnt4		6
24	The number of spinoff business	Spnf1	Spinoff Business	8
25	Faculty members tendency to establish spinoff businesses	Spnf2		5
26	spinoff businesses as the results of academic innovations	Spnf3		7
27	Students tendency to establish spinoff businesses	Spnf4		4
28	Park businesses satisfaction	Tchprk1	Science and Technology Park	6
29	Technologic development of parks	Tchprk2		5
30	The level of interaction among the companies in the park	Tchprk3		4

31	Science and Technology Park activities	Tchprk 4		6
32	Science and Technology Park expansion	Tchprk 5		7
33	The culture of supporting innovations	Cul1	Organizational culture	3
34	The culture of accepting new ideas	Cul2		6
35	The culture of involvement	Cul3		6
36	The stimulating reward system of entrepreneurship	Cul4		7
37	Organic structure	Str1	Organizational Structure	3
38	Flexible structure	Str2		2
39	Instructors' approach toward entrepreneurship	Teac1	Instructors	4
40	Entrepreneurship knowledge of Instructors	Teac2		4
41	Entrepreneurship experience of Instructors	Teac3		10
42	University chairman support	Man1	Macro Management	5
43	University chairman approach toward entrepreneurship	Man2		3
44	Management entrepreneurship strategies	Man3		10
45	Course content regarding entrepreneurship	Cour1	Course content	5
46	Holding workshops	Cour2		6
47	Associative and teamwork nature of course content	Cour3		5
48	Entrepreneurship intentions of students	Stu1	Students	3
49	Students' entrepreneurial consciousness	Stu2		7
50	Having a startup business	Stu3		8
51	Innovation	INNV	Innovation	11
52	Renovation	RNW	Renovation	6
53	Introducing new businesses	NEWBIZ	Introducing new businesses	5

The dimensions of the model have been extracted according to the results of **table.1**.

Table.2. Model dimensions

variable	Variable's type	Indices
Graduates	Independent	5
Publications	Independent	4
Financial resources	Independent	6
Research contracts	Independent	4
Patents' certificates	Independent	4
Spinoff Businesses	Independent	4
Science and Technology parks	Independent	5
Organizational culture	Independent	4
Structure	Independent	2
Macro management	Independent	3
Instructors	Independent	3
Students' traits	Independent	3
Course content	Independent	3
Innovation	Dependent	4
Renovation	Dependent	4
Introducing new businesses	Dependent	4

According to the qualitative data analysis, the entrepreneurial university variables are divided into thirteen aspects: 1. the quality of graduates; 2. Academic findings publications; 3. Absorbing resources for research activities; 4. Research contracts; 5. Protecting intellectual properties by obtaining patents and license; 6. Establishing spinoff companies; 7. Establishing science and technology parks; 8. Organizational culture; 9. Structure;10 Macro management; 11.Instructors; 12. Students' traits; 13. Course content. The identified variables were quantitatively analyzed in order to achieve the final model.

Quantitative part
The technical features of the model are primarily measured in order to examine the Structural Equation Modeling (SEM).

Composite reliability and convergent validity

Table3. Reliability and convergent validity of instruments

	AVE	Composite reliability	Cronbachs Alpha
Course content	0.5007	0.7513	0.7054
Research contract	0.538	0.8229	0.8078
Organizational culture	0.5651	0.7608	0.7024
Financial resource	0.4997	0.7466	0.8358
graduates	0.485	0.6604	0.8834
Macro management	0.5798	0.6434	0.7999
Spinoff companies	0.3089	0.6369	0.746
Structure	0.7392	0.85	0.8807
Students' traits	0.5831	0.6332	0.7377
Science and technology parks	0.7053	0.9051	0.9546
Instructors	0.7159	0.8824	0.8685
Innovation	0.4882	0.7161	0.7976
Introducing new businesses	0.6112	0.8618	0.9053
publication	0.5397	0.8134	0.8619
Patents	0.2575	0.7703	0.7352
Renovation	0.4976	0.664	0.8516

According to the results of **table 3,** the variables have high validity in the model, the Composite reliability of the variables is higher than 0.7 and Cronbachs Alpha coefficient is also higher than 0.7 with the exception of some of the variables which are less than 0.6 but they are also relatively acceptable. In terms of convergent validity all of the variables have high validity, expect the patent variable and spinoff variable, which means the observed variables are representing the latent variable.

Divergent validity
Table 4 shows the numbers along the diagonal of the square root of the average variance extracted or AVE and the rest of the figures are absolute values of correlation coefficients.

Table 4. divergent validity															
	Course content	Research contract	Organizational culture	Financial resource	graduates	Macro management	Spinoff companies	Structure	Students' traits	Science and technology parks	Instructors	Innovation	Introducing new businesses	publication	Patents	Renovation
Course content	**0.707602**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Research contract	0.4846	**0.733485**	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Organizational culture	0.426	0.2677	**0.751731**	0	0	0	0	0	0	0	0	0	0	0	0	0
Financial resource	0.3201	0.1237	0.3063	**0.706895**	0	0	0	0	0	0	0	0	0	0	0	0
graduates	0.1016	0.0269	0.4368	0.0311-	**0.696419**	0	0	0	0	0	0	0	0	0	0	0
Macro management	0.6171	0.4932	0.295	0.2274	0.1052	**0.761446**	0	0	0	0	0	0	0	0	0	0
Spinoff companies	0.0192	0.0518	0.2095	0.3097	0.3209	0.0879	**0.555788**	0	0	0	0	0	0	0	0	0
Structure	0.1016	0.2448-	0.3026	0.081	0.0683	0.0421-	0.3805	**0.859767**	0	0	0	0	0	0	0	0
Students' traits	0.3378	0.4964	0.0844	0.0074	0.2036	0.3318	0.2174	0.0211-	**0.76361**	0	0	0	0	0	0	0
Science and technology parks	0.1518	0.123	0.1226-	0.0793-	0.1236-	0.5289	0.2805	0.0855	0.0677-	**0.839821**	0	0	0	0	0	0
Instructors	0.1449	0.0428-	0.1209	0.2653	0.1374	0.2337	0.3631	0.3226	0.0696	0.2386	**0.846109**	0	0	0	0	0
Innovation	0.5185	0.2131	0.2957	0.2287	0.5473	0.678	0.4018	0.1136	0.2359	0.4466	0.5097	**0.698713**	0	0	0	0
Introducing new businesses	0.2573	0.006	0.2022-	0.0145-	0.0732-	0.4127	0.3076	0.0495-	0.2683	0.4571	0.0669	0.3296	**0.781793**	0	0	0
publication	0.0404	0.1358	0.5108	0.0256	0.6539	0.1282	0.5038	0.0843	0.0639	0.1546	0.1668	0.3789	0.0161	**0.734643**	0	0
Patents	**0.0974**	0.0782	0.2617	0.1802	0.4962	0.2825	0.4665	0.3096	0.2826	0.3599	0.1542	0.5083	0.1437	0.404	**0.507445**	0
Renovation	0.3787	0.1956	0.4266	0.0409	0.6337	0.4864	0.3742	0.1534	0.2975	0.365	0.2608	0.7199	0.2706	0.4716	0.5465	0.705408

The results of **table 4** reveals that the square root of the variables' average variance extracted is larger than their correlation with other variables showing the divergent validity of the variables.

Factor Analysis

The nest step after checking the validity and reliability of the research instruments is check the validity of the variables' classification through factor analysis. The results of **table 5** reveals that all of the indices for the related variables is confirmed by factor analysis and can explain their design.

Variables' significance and factor loading (measurement)

Table 5 shows the results of the variables' significance by means of significant number (sig.).

Table.5. measuring the model

Observed variable	Load factor	SD	t-value
Cour1 -> Cour	0.6963	0.0874	4.5341
Cour2 -> Cour	0.5873	0.1065	3.6365
Cour3 -> Cour	0.613	0.0588	10.4325
Cres1 -> Cres	0.7844	0.1506	5.2071
Cres2 -> Cres	0.7461	0.1445	5.1631
Cres3 -> Cres	0.5997	0.2633	2.1384
Cres4 -> Cres	0.716	0.1437	4.9842
Cul1 -> Cul	0.5348	0.0911	2.5766
Cul2 -> Cul	0.6535	0.102	3.4643
Cul3 -> Cul	0.6867	0.1708	2.6783
Cul4 -> Cul	0.6253	0.2492	2.7067
Grnt1 -> Grnt	0.6165	0.1868	3.3012
Grnt2 -> Grnt	0.5465	0.1788	3.0564
Grnt3 -> Grnt	0.4423	0.0953	2.4933
Grnt4 -> Grnt	0.6311	0.2062	3.0606
Grnt5 -> Grnt	0.4715	0.1039	2.6494
Grnt6 -> Grnt	0.4061	0.406	3.7539
I1 -> I	0.5194	0.1356	3.8302
I2 -> I	0.5623	0.109	5.1596
I3 -> I	0.4742	0.1255	2.1858
I4 -> I	0.4809	0.1036	3.676
I5 -> I	0.5678	0.0917	2.9212
Inv1 -> inv	0.6752	0.057	11.8486
Inv2 -> inv	0.64	0.0647	9.889
Inv3 -> inv	0.6271	0.0635	9.8792
Inv4 -> inv	0.5422	0.0783	6.929
Man1 -> Man	0.7205	0.0607	11.867
Man2 -> Man	0.5194	0.0668	7.7722
Man3 -> Man	0.4666	0.0872	4.2068
Nwbiz1 -> nwb	0.8792	0.2407	3.6527
Nwbiz2 -> nwb	0.6893	0.2484	2.7752
Nwbiz3 -> nwb	0.7345	0.2057	3.5704
Nwbiz4 -> nwb	0.8105	0.2273	3.566
P1 -> p	0.4723	0.145	2.5667

P2 -> p	0.7958	0.0656	12.1393
P3 -> p	0.8152	0.0708	11.513
P4 -> p	0.85	0.0699	12.1677
Patnt1 -> patent	0.6639	0.239	2.7778
Patnt2 -> patent	0.5056	0.1067	4.7371
Patnt3 -> patent	0.4278	0.1589	2.6918
Patnt4 -> patent	0.4454	0.1188	2.3825
Rnw1 -> rnw	0.6689	0.0463	14.451
Rnw2 -> rnw	0.7402	0.0407	18.173
Spnf1 -> Spn	0.4675	0.1985	2.3546
Spnf2 -> Spn	0.4855	0.2549	1.9649
Spnf3 -> Spn	0.6045	0.1097	5.5097
Spnf4 -> Spn	0.6449	0.1696	3.8016
Str1 -> Str	0.8762	0.4374	2.0034
Str2 -> Str	0.843	0.4246	1.9856
Stu1 -> Stu	0.7145	0.1583	4.5131
Stu2 -> Stu	0.7145	0.1583	4.5131
Stu3 -> Stu	0.4584	0.2741	2.3076
Tchprk1 -> Tchpar	0.877	0.1489	5.8882
Tchprk2 -> Tchpar	0.8145	0.1373	5.9303
Tchprk3 -> Tchpar	0.8937	0.1493	5.9858
Tchprk5 -> Tchpar	0.7681	0.1385	4.5341
Teac1 -> Teac	0.8664	0.2469	3.6365
Teac2 -> Teac	0.9164	0.2236	10.4325
Teac3 -> Teac	0.7464	0.1846	5.2071

The indices with load factors less than 0.4 and t-value less than 1.96 were excluded from the model and the final model was conducted again. Regarding the indices' results, load factors of indices is higher than 0.4 which means the considered indices for variables are representing the related factors. Diagram 1 shows the path coefficient of the research model in standard mode. Numerical comparison of the model coefficient is possible in standard mode.
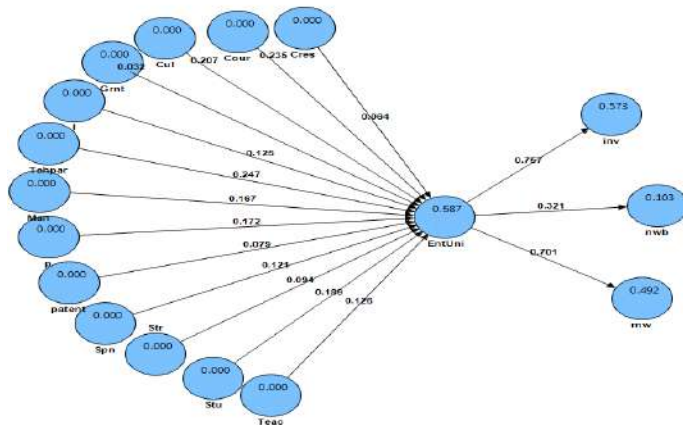

Fig: 1. Standardized coefficients of the model

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Significant variables and path coefficient (structural)

The analysis represented in diagram 1 show that the explained variance by research variables in terms of entrepreneurial university is 0.58. The following show the results of the relation between latent variables.

Table 6.structural model

path	Path coefficient	SD	t-value
Cour <- EntUni	0.2349	0.0621	3.7825
Cres <- EntUni	0.0643	0.0578	1.1123
Cul <- EntUni	0.207	0.0903	2.2931
Grnt <- EntUni	0.0315	0.0423	0.7455
I <- EntUni	0.1246	0.0471	2.644
Man <- EntUni	0.1673	0.0502	3.3356
Spn <- EntUni	0.1206	0.0546	2.2077
Str <- EntUni	0.0938	0.0643	1.4586
Stu <- EntUni	0.1885	0.0598	3.1539
Tchpar <- EntUni	0.2472	0.0922	2.6821
Teac <- EntUni	0.1256	0.0469	2.6815
p <- EntUni	0.1724	0.0651	2.647
patent <- EntUni	0.0786	0.0519	1.5138
EntUni <- inv	0.7567	0.0652	11.6004
EntUni <- nwb	0.3206	0.1708	1.9771
EntUni <- rnw	0.7013	0.0803	8.7367

According to **table 6** , the relation between the influential aspects on the entrepreneurial university show that course content (Cour) with the path coefficient of 0.23 has direct relation with entrepreneurial university, this result is confirmed with the t-value of 3.78at the significant level of 95%. The variable of research contract (Cres) with the path coefficient of 0.06 has a direct, yet not significant relation with the entrepreneurial university, thus this relation is not confirmed with the t-value of 1.11 at the significant level of 95%. The variable of organizational culture (Cul) with the path coefficient of 0.2 h23 has direct relation with entrepreneurial university, this relation is confirmed with the t-value of 2.29 at the significant level of 95%. The variable of financial resources (Grnt) with the path coefficient of 0.03 has a direct, yet nit significant relation with the entrepreneurial university, thus this relation is not confirmed with the t-value of 1.11 at the significant level of 95%. The variable of graduates (1) with the path coefficient of 0.12 has direct relation with entrepreneurial university, this relation is confirmed with the t-value of 2.64 at the significant level of 95%. The variable of macro management (Man) with the path coefficient of 0.16 has direct relation with entrepreneurial university, this relation is confirmed with the t-value of 3.33 at the significant level of 95%. The variable of spinoff companies (Spn) with the path coefficient of 0.12 has direct relation with entrepreneurial university, this relation is confirmed with the t-value of 2.2 at the significant level of 95%. The variable of structure (Str) with the path coefficient of 0.09 has a weak relation with entrepreneurial university, this relation is not confirmed with the t-value of 1.45 at the significant level of 95%. The variable of students' traits (Stu) with the path coefficient of 0.18 has direct relation with entrepreneurial university, this relation is confirmed with the t-value of 3.15 at the significant level of 95%. The variable of science and technology park (Tchpar) with the path coefficient of 0.24 has direct relation with entrepreneurial university, this relation is confirmed with the t-value of 2.68 at the significant level of 95%. The variable of science and instructors' traits (Teac) with the path coefficient of 0.12 has direct relation with entrepreneurial university, this relation is confirmed with the t-value of 2.68 at the significant level of 95%. The variable of publications (P) with the path coefficient of 0.17 has direct relation with entrepreneurial university, this relation is confirmed with the t-value of 2.64 at the significant level of 95%. The variable of patent (Patnt) with the path coefficient of 0.07 has an insignificant relation with entrepreneurial university, this relation is not confirmed with

the t-value of 1.51 at the significant level of 95%. Moreover, the relation among different aspects of the entrepreneurial university is as the following: innovation (Inv) with 0.75 and renovation (Rnw) with 0.7 and introducing new businesses (Nwb) with 0.32 are explaining the entrepreneurial university.
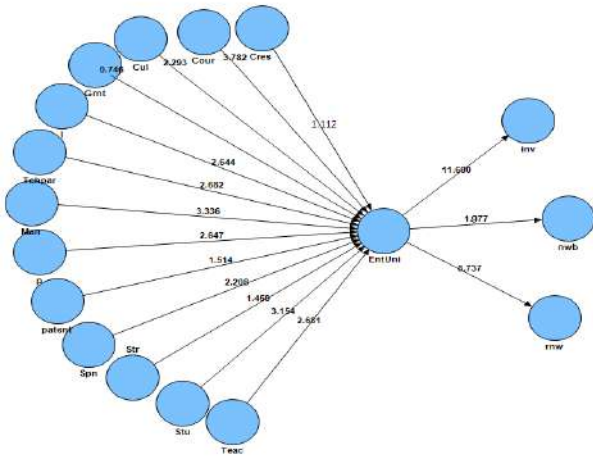

Fig: 2. T-value

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Ranking the identified factors

Research variables have been ranked based on standardized coefficients in the structural part of the model. The results are represented in **table 7**.

Table 7. Ranking Factors

variable	Path coefficient	Priority
Science and technology parks	0.2472	1
Course content	0.2349	2
Organizational culture	0.207	3
Students' traits	0.1885	4
Publication	0.1724	5
Macro management	0.1673	6
Instructors	0.1256	7
Graduates	0.1246	8
Spinoff companies	0.1206	9

General fitting of Path analysis model

According to tanhouse *et al.,* (2005), the following formula can be utilized to calculate the model fitness in PLS:

$$GOF = \sqrt{communality \times \overline{R^2}}$$

$$GOF = \sqrt{0.86 \times 0.43} = 0.61$$

As the minimal acceptable level to measure this index is equal to 0.36 and the result in this study is equal to 0.61 then we can conclude that the model is appropriately fit.

CONCLUSION

The following would be a summary of the findings:
According to the results, the variables such as research contract, financial resources, structure and patents respectively with the path coefficients of 0.06, 0.03, 0.09 and 0.07 have direct, yet not significant relation with the

entrepreneurial university and thus regarding the t-value of less than 1.96 the relation is not confirmed at the significant level of 95%.

The variable of course content has direct relation with entrepreneurial university with the path coefficient of 0.23 and t-value of 3.78, thus the relation is confirmed on the significant level of 95%. This result reveals that practical course content and holding courses in the form of workshops are necessary elements of an entrepreneurial university with highly positive impacts. Team work and association are another factors need to be considered in course content.

The variable of organizational culture has direct relation with entrepreneurial university with the path coefficient of 0.2 and t-value of 2.29, thus the relation is confirmed on the significant level of 95%.the culture of supporting new ideas and innovation and tolerating and accepting other opinions are influential factors in an entrepreneurial university. Although the culture of total involvement in the work is a new concept entering to the organizational discussing during the resent two decades, but it has great importance. Involved students and staff are energetic and productive with high tendency toward doing their best to accomplish their goals.

The variable of graduates has direct relation with entrepreneurial university with the path coefficient of 0.12 and t-value of 2.64, thus the relation is confirmed on the significant level of 95%. Many factors about the graduates should be considered such as their general business skill, the possibility of recruit, the entrepreneurship activities, matching their abilities with business market requirements and their theoretical skills.

The variable of macro management has direct relation with entrepreneurial university with the path coefficient of 0.16 and t-value of 3.33, thus the relation is confirmed on the significant level of 95%. Top management is one of the main aspect of an entrepreneurial university, in fact manager's support of entrepreneurship and allocating the necessary resources, motivating and encouraging students and staff and finally having entrepreneurial approach and strategies all would direct the university toward entrepreneurship.

The variable of spinoff companies has direct relation with entrepreneurial university with the path coefficient of 0.12 and t-value of 2.2, thus the relation is confirmed on the significant level of 95%. The number of spinoff business, faculty members' tendency toward establishing spinoff businesses, rising these spinoff companies from the innovative ideas within the universities and students interest in establishing such companies re all the result of considering this variable into account.

The variable of students' traits has direct relation with entrepreneurial university with the path coefficient of 0.18 and t-value of 3.15, thus the relation is confirmed on the significant level of 95%. Considering students entrepreneurial objectives, their entrepreneurial alertness, having plenty of experience in this field are among the main traits of an ideal entrepreneurship student.

The variable of science and technology parks has direct relation with entrepreneurial university with the path coefficient of 0.24 and t-value of 2.68, thus the relation is confirmed on the significant level of 95%. The satisfaction level of parks' businesses, their activation, the extent and utilized technology in science and technology parks are all among the main indices influencing the process of establishing an entrepreneurial university.

The variable of instructors' traits has direct relation with entrepreneurial university with the path coefficient of 0.12 and t-value of 2.68, thus the relation is confirmed on the significant level of 95%. Instructors and professors approach toward entrepreneurship is one of the key factors in the establishment an entrepreneurial university. Mere theoretical discussions I the classes is not a suitable method but rather applying practical and scientific methods are necessary. Instructors in such a university are required to possess a high level of entrepreneurial multi-aspect knowledge. It is important for them to have practical entrepreneurial experiences in order to own a realistic point of view about the existent issues.

Finally, the variable of academic publications has direct relation with entrepreneurial university with the path coefficient of 0.17 and t-value of 2.64, thus the relation is confirmed on the significant level of 95%. The expansion of academic publication about entrepreneurial theoretical and practical issues, the variety of such

publication, their practicality and their profitability are among the major factors in establishing the entrepreneurial university.

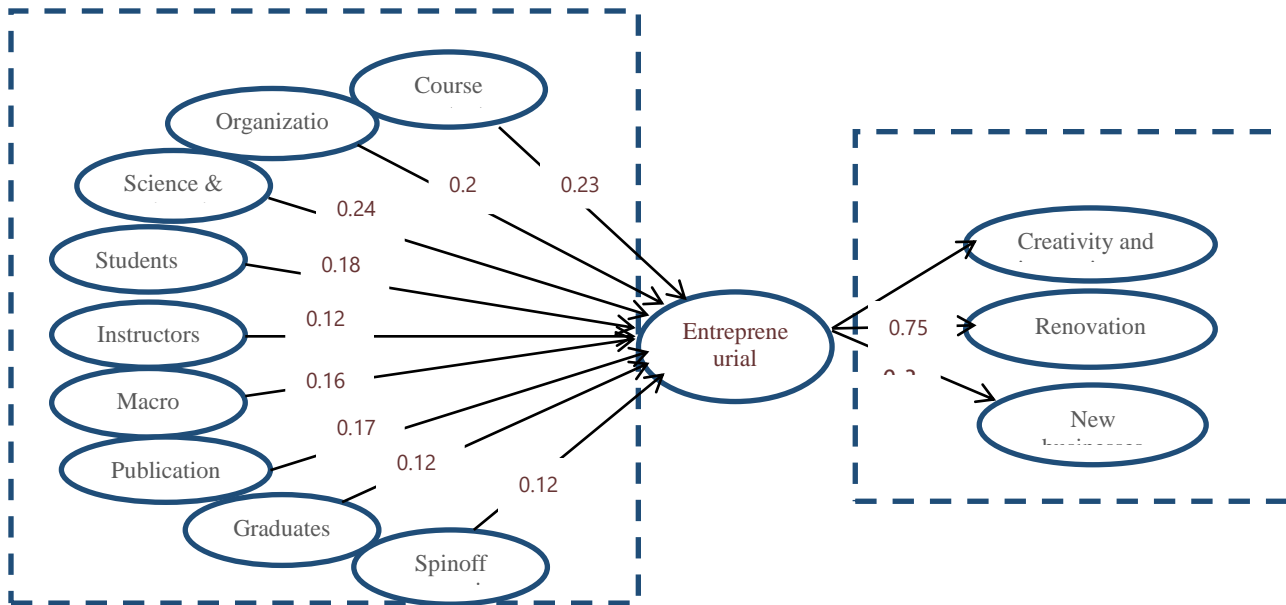The proposed research model is represented in figure 3.

Fig: 3. Entrepreneurial university model with an organizational entrepreneurship approach

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CONFLICT OF INTEREST
Authors declare no conflict of interest.

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