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Comprehensive Value Creation University Model

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Abstract. Today, higher education experts consider value creation as a term different from entrepreneurship. Because in the era of the development of advanced technologies and knowledge-based industries in the global, regional, national and even local economies only through the strengthening of university-industry interaction can cope with current widespread crises. The purpose of this study was to design a model of value creating University with emphasis on indicators of higher education system. The paper is a short communication recording the results of designing a new proposed model. The paper highlighted the context of the study area, mainly Iranian Higher education. Detailed information is provided with regard to the frame of reference wherein the proposed Model is based on several studies in this topic. In this model, the value-creating university links economic development as a new academic practice to education and research. The selected model through the deployment of two instruments supported the in-depth investigation of the issue under study and maximized its credibility. According to the study of indices at a value creation university and the study of research done inside and outside the Iran, the researcher aims to measure indices and characteristics of value creation university (Third Generation University).

Keywords. Value Creation University, Evolution Indicators, Higher Education System, Ali Abad Katoul, Iran

1. Introduction

Today, different societies are seeking the improvement solutions of value creation revolution and a community of value creation (Romromartz et al., 2010). These communities have planned a special place in the value creation concept and process, fulfillment of idea to wealth (value) chains and comprehensive support for value creators and owners of new ideas (Kuratko&Hoodgates, 2005). According to recent studies in this field, collaboration between the three sectors of industry, academia and government is needed to promote the national and local value creation system (Philippat et al., 2011). Of these three factors, universities have a more prominent role than the other three sectors because of their mission to provide the latest knowledge and techniques. Accordingly, the mission of universities has evolved during the time, in line with global developments and in order to meet the expedient needs of societies, and is moving towards participation in the value creation paradigm (Etzkowitz&Leedsdorf,

2000). Universities can, based on the corresponding executive approaches and structures, be described with one of three characteristics: first generation (education-based), second generation (research-oriented), and third or advanced generation (Value Creation University, Value Creation and Innovator). The systematic transformation of the academic institution from the first generation to the higher generations has been a spiraling process and the research and production of knowledge is now a key pillar of the realization of the third generation or value creation university (Rezaei& Mansouri, 2012).

Value Creation University is referred to as a university in which scientific value-creation can create the force for economic growth and compete in global markets (Grevro&Erbno, 2010). Creating innovative activities through the creation of value creation universities is necessary. Because without such universities, the results of scientific research have no destiny other than storing them in academic repositories and libraries, which rarely become innovative activities, products and services (Behzadi et al., 2014). Individuals such as Clark and Roepke have focused on the value creation characteristics of the university (Grevro&Erbno, 2010). Willey Roepke (1998) considers the factors as the value-creation characteristics in a value creation university: having value creation management practices, value creation members, and value creation exchanges in the environment. Etzkowitz (2001, 2000) considers the close relationships between industry, government and university as key elements and factors in the value creation university, having the linking structure, knowledge and modernization (Yadollahi Farsi et al., 2012). Collaboration between academia and industry is becoming an important issue because it can have mutual benefits for all partners involved and the total community (Maskio, 2010). Interaction can take various forms, both direct and indirect mechanisms (Gender&Wagner, 2008), which more recently called "academic interaction" (Parkman et al., 2013).

Today, if universities like value creation universities do not become agents of innovation, they will disrupt national and regional development as well as international competition. Over the past ten years, universities have been struggling with a variety of issues, such as globalization and internationalization of higher education, student population growth, financial constraints, and recent financial and economic crises (Samadi Miarkalei, 2016). In deed, creation value is a process that requires planning in the education and research system and expands its programs from the family and school to universities and organizations. Additionally it empowers individuals with the expertise and power of creativity, opportunities and abilities (Dota&Croissant, 2005). Therefore, in this study, a model for designing Value Creation University performed based on the indicators of higher education system development in Iran. Indicators of higher education system is based on comparative studies of 8 countries selected such as educational and research system indicators, international interaction, members of faculty, administrative and educational force, economic and financial force, graduates and other indicators. Furthermore, the indicators of the higher education system, according to the Cultural Revolution Council, are in the area of macro and micro evaluation including general, educational, research, student and cultural sections and credentials and facilities in quantitative and qualitative terms.

Masumzadeh&Ansari (2009) have shown in their research that some of the requirements for transforming traditional university into Value Creation University are (1) overview of organizational structure (financing supply structure-administrative structure-supportive departments), (2) value creation culture, (3) laws and policies and (4) local economy development. Clarck (1998), after a longitudinal study of some European universities in the mid-1990s (this study is considered a turning point in the literature of value creation universities), identified 5 factors as indicators of value creation universities, which are (1)

strong command center, (2) extensive development, (3) diverse funding, (4) academic dynamic, and (5) a value creation culture. Various studies and researches have confirmed that universities are required to make the necessary changes in the structural, managerial and cultural dimensions of the universities and in the infrastructures required in all processes of transition to a value creation university. They themselves provide the basis for more recent works within the Entrepreneurship University framework. For example, Fisher et al. (2019) showed that developing countries have a particular dynamic for academic entrepreneurship. To promote academic entrepreneurship, universities are still going through specific strategies to become entrepreneur. Therefore, research activity is not higher levels of academic entrepreneurship.

Academic entrepreneurship is also shaped by the exogenous elements of the university. Dalmarco et al. (2018) also indicated that inventors are cited as important dimensions of entrepreneurship promotion, but the quality of entrepreneurship education, in addition to its close relevance to applied research, encourages academicians to pursue their career plans to startups. In this sense, the role of the manager and the type of university has a positive impact on the development of Entrepreneur University. Franco&Hass (2015) also showed in their study that collaboration of university and industry is promoted by (1) motivation of researchers (including financial resources, acquiring up-to-date knowledge and technology, practical application of research results, access to job opportunities) and (2) interactive channels (workshops, seminars and conferences, local authorities and specialized associations as mediator, teaching and research, contractual and collaborative research projects, professional and academic workplace.

Jameson&&Edonell (2015), Graham (2014), Walshuk et al. (2012) identified the components of an entrepreneur university and provided a model for it. The results of the study by Shabanpour&Badri (2019) showed that academic value creation results are both university benefit from industry and industry benefit from university scientific services and ultimately the creation of employment and economic growth in the country. The results of Mortezaie et al. (1397) showed that in the creation of knowledge-based economy, four components were identified in the organizational structure dimension. The results also showed the components of comprehensive attention to innovation in the university with the highest importance rate, the informal decision-making component with the least importance rate and the other components in the next ranks, respectively.

Khosravi Pour&Roshani (2017) claimed that the Role of Universities has transformed with respect to the new responsibilities against the changing society such as the national economy, social development, reduction of public finances and the Education Market. Obviously, universities and higher education system are more harmony with the indigenous, regional and international economic development process. These universities have shifted their traditional role into the knowledge production in the form of entrepreneurial universities and transformed them into action. Universities having technological innovation, transforming these technologies into business, and creating employment for graduates and society via these technologies have been named third-generation universities. Third-generation universities are entrepreneurship, value-creating, and wealth-creating. Kossari&Karimi (2017) showed that Iranian western universities are not desirable for entrepreneurship in terms of software and hardware conditions. Moreover, it was found that the move to entrepreneurial university requires fundamental changes in software and hard dimensions. The changes of course content, the use of entrepreneurship professors, and communication with industry are among the suggestions that lead to the transformation of any university into an entrepreneurial university. Abedi et al.(2017) in a data analysis showed that organizational relationships, teaching-learning, curriculum planning, and differences between one agricultural value creation

university, one natural resources value creation university and value creation university in the other fields' processes and activities are some of the components that make up an value creation university for the fields of agriculture and natural resources. There was a significant relationship between the two components of strategic and process. From the viewpoint of Pouratashi&Pizhizkar (2017), value creation competencies can be studied based on the constituents of value creation competences, predictors of value creation competences, and outcomes of value creation competences.

Based on the results, the graduates' value creation competencies are grouped into six groups: individual and cognitive competence, communication competence, leadership and teamwork competence, business establishment and management competence, economic and marketing competence, and research competence. The university mission was considered as a predictor of value creation in three categories: education, research, and support. Afterwards, value creation intentions emerged as the outcome of value competencies. Samadi Miarkalei et al. (2016) using the fuzzy inference test for research hypotheses investigated on the dimensions and indicators of the value creation university in the studied university (including vision and mission, university governance and administration, organizational structure and design, multidisciplinary, power of influence, management of stakeholder, graduates, knowledge transfer, growth and financing center, internationalization, value creation training). They resulted that none of the indicators were in good situation and all assumptions were poor to accept the hypothesis. Today the value creation university links economic development as a new academic practice to education and research.

According to the study of indices at a value creation university and the study of research done inside and outside the Iran, the researcher aims to measure indices and characteristics of value creation university (Third Generation University). These indices studied in this research are educational system, research, international interaction, faculty, administrative, educational and economic-financial force, and graduates as indicators of the country's higher education system for value creation universities across the country. Therefore, this study seeks to answer the question: what model can be designed and explained for the value creation university, emphasizing the evolving indicators of the higher education system?

2. Research method

The research method in terms of purpose and implementation was applied and mixed (combination of exploratory and taxonomy development plan), respectively. The statistical population of the study consisted of two groups. In the first stage, in the qualitative part the first statistical sample was all academic experts including adjunct and full-time professors of Islamic Azad Universities in the Golestan province (15 individuals). In this part, sampling was done to the extent we got Theoretical Saturation. At second stage, second statistical sample was 140 employees in the Ali Abad Katoul University, which the number obtained by the Morgan's formula was 103. The sampling method was judgmental or purposive in the qualitative part and simple random in the quantitative part. In the qualitative method, data were analyzed by Grounded model (open-axis-selective coding) manually and in the quantitative part Smirnov-Kolmogorov test was used to assess the normality of the research data. Additionally, in the hypothesis testing part were used the SPSS and Amos software and structural equation method for modeling.

3. Research tools

The research tools in the qualitative and quantitative parts were semi-structured interview and questionnaire, respectively. The questionnaire consisted of 6 components

(strategies, outcomes, contexts, axial, causal, and intervener) and 63 items in a five-point Likert scale. The scoring method was very high (5), high (4), medium (3), low (2) and very low (1). Content validity and face validity of the questionnaire were approved by the supervisor and advisor professors. The reliability of the questionnaire was above 0.70 in all cases, indicating that the questionnaire had an appropriate reliability.

4. Findings

This study was conducted in the qualitative and quantitative parts and the results were analyzed in two parts. In the qualitative part, interviews were first conducted with experts in the universities of Golestan province. After data collection via interviews, data were coded and data analysis was performed in three stages (open-axis-selective coding).

Step one, namely, open coding is the first level of coding and involves several stages: extracting data from the interviews, coding, discovering categories. The analysis method of key points was used to extract data from interviews. In this method, instead of coding individual words, key points are identified and coded.

Category Discovery: At this point, the concepts themselves are categorized based on the relevance to similar topics, referred to as categorization. The topics we assign to categories are more abstract than the concepts that make up the set of these categories. Categories have high conceptual power because they can aggregate concepts on their own axis.

Step two, namely, axial coding is the second level of coding. This stage involves specifying patterns in the data and the level of categorization and requires permanent comparison of the data. In this study, the coded data and the extracted concepts in the previous step were compared and included in a table in the form of clusters and categories fitting together. To this end, each of the first level codes and concepts were compared with the other first level codes to ensure that the categories were distinct. New data is simultaneously compared to all data to find correlation between them. At this step, we bring together new data and examine the relationship between categories. During this step, the data is orientated and classified according to the nature of the categories and the relationship between them.

Axial coding components are central category, causal conditions, dominant context, intervening conditions, strategies and consequences. The relation of the other categories to the central category shapes by a paradigm pattern.

According to the concepts obtained from the previous step, in this step, by repeatedly review and study and the iterative process between concepts and categories, the relationship between concepts and categories in this study was expressed in a paradigmatic pattern in six categories (as shown in **Figure 1**).

Step three as selective coding step is the third step in the analysis of the contextual theory. The selective term is used at this stage because the analyst clearly chooses a central aspect of the data as the core category and focuses on it. Therefore, in selective coding, the same techniques used in axial and open ones will be used (but at a higher level of abstraction). Selective coding is not just a simple description of the data but also analytically centralizes to the data.

After conducting the qualitative studies, we proceeded to the quantitative analysis of the research model and the information obtained from the statistical sample of this study that was university staff. 37.9% of the respondents were female and 62.1% male. The mean age of the most of respondents was 57.2% in the age group of 30-40 years and 1% as the least of respondents in the age group over 50 years. Based on the level of education, the majority of those (68.9%) had a bachelor's degree and the minority (1%) with a PhD degree. The most

frequency in terms of work experience was 49.5% for individuals with 5-10 years of work experience and 1% for those over 20 years of work experience with the least frequency.

Structural equation method and Amos software were used to analyze the data. For this purpose, the analytical model designed by Amos software was measured in this section. While presenting the model output, we evaluate the utility criteria of this model based on the obtained data:

The following table shows the values GFI (Goodness Fit Index), NFI (Normed Fit Index), RFI(Relative Fit Index), IFI (Incremental Fit Index) and CFI (Comparative Fit Index) for the suggested model in **Figure 2**. According to **Table 1** the confirmatory factor analysis of the questionnaire constructs has a good fit and the questionnaire constructs appropriately represent the relevant variables.

5. Discussion and conclusion

The research results showed that the model designed in this study has a good fit and the questionnaire constructs can well explain and show the relevant variables. Regression coefficients also showed that the conditions of intervener, i.e. structural component, has a positive impact on the central category, namely the value creation university, based on the indicators of higher education system. Central category has a positive impact on the encouraging, financial and operative strategies and as such the strategies positively are influencing on the individual and social outcomes. Intera-organizational contexts have a positive impact on the central category and the causal category, namely value creation university indicators and the evolution of higher education system positively influences the central category.

The results obtained in this research are in line with the results of Fisher et al. (2019), Dalmarco et al. (2018), Franco&Hass (2015), Jameson&Edonel (2015), Graham (2014), Walshuk et al. (2012), Shabanpour&Badri (2019), Mortezaie al. (2018), Khosravi Pour&Roshani (2017), Sa'adi et al. (2017), Abedi et al. (2017), Pouratashi&Parhizkar (2017) and Samadi Miarkalei et al. (2016).

6. Research suggestions

According to the results obtained from the qualitative and quantitative parts of this study, it is suggested to be paid special attention to the following issues in university policies:

1. Making a profit at the university by producing science and sharing at the profit.
2. Approving student projects and plans that address community problems.
3. Enhancement of applied and profitable research projects.
4. Special attention to the realization of the University Outlook Document.
5. Developing the employment of academic graduates.
6. Stepping on the path to specialization of these graduates.
7. Considering academic patents.
8. Focus on research, productive, applied and skilful aspects in the courses offered at the university.
9. Allocation of sufficient fund to the academic plans and investment in the knowledge-based activities of university.
10. In order to create opportunities for university development, it is recommended that the chairperson of university maintain and strengthen its relationship with the provincial and state managers, elites and investors and invite national authorities to the university.
11. Establishing training workshops and scientific and practical courses at the university to enhance and transform the higher education system.
12. Paying attention to new ideas in order to create appropriate conditions for university growth and development.
13. Conferment of material rewards to the competent individuals (among staff, elites, entrepreneurs, etc.) and appropriate appreciation and encouragement of them at special events and festivals.

Intervener conditions

Structural component: 1. Appropriate flexibility in resource allocation, 2. Proper structuring of new ideas, 3. Strong management in resource allocation, 4. Participatory management, 5. Review of new people ideas, 6. Reflecting entrepreneurs' thoughts on educational and research institutes, and 7. Presenting innovative ideas to the growth centers

Consequences

Individual consequences:

1. Increase of the employment of graduates, and 2. finding new income resources

Social consequences:

1. improving the standing of university among the top universities, and 2. solving community problems

Encouraging strategy:

1. encouragement of innovative ideas, 2. establishing suggestion boxes and providing feedback for innovative ideas.

Financial strategy:

1. Investment in Entrepreneurial Plans

Pragmatic strategy:

1. Emphasis on applied disciplines, and 2. Forming participatory teams by students and staff.

Central category

Value-creating based on Indicators of higher education:

1. increase of research projects, 2. realization of perspective document, 3. being up to date, 4. purpose of education, 5. specialization, and 6. patents

Entrepreneur University Indicators:

1. idea-centered, 2. skill-centered 3. investor, 4. agile structure, 5. Providing solutions to various community problems, 6. approval of new scientific disciplines, and 7. specialized graduates

Indicators of higher education system:

1. research-centered, 2. quality improvement and 3. focus on new inter-disciplines

Platforms

Intra-enterprise platforms: 1. Appropriate flexibility in resource allocation, 2. Applicability and appropriateness of research projects, 3. Designing a reward system for innovative ideas 16. Thinking sessions on different occasions, 4. Managing and welcoming innovative ideas, 5. Providing certificates to entrepreneurs, 6. Holding meetings and paying attention to the opinions of entrepreneurs, 7. Developing core competence, 8. Bringing entrepreneurs to entrepreneurship and funding centers, 9. Holding meetings and discussing on issues, 10. Main recommendations system administration, 11. Communication to the provincial and state authorities, elites and investors, 12. Conferment of rewards in festivals and meetings, 13. Encouragement of staff in the sessions, space of organizations and clips, 14. Review and control of ideas, 15. Referral entrepreneurs to the Supervisor Board, 16. Holding counseling meetings in different ceremonies, 17. Holding informal meetings, 18. Forming different working groups, 19. Referral of research projects to the research unit, 20. Encouraging a problem-solving system, 21. Transferring new thoughts through updating faculty, 22. Admission of adjunct and full-time entrepreneurs, 23. Paying attention to the entrepreneurs in the employment times, 24. Participation in the weekly sessions of committee, and 25. Introducing entrepreneurial students to colleges

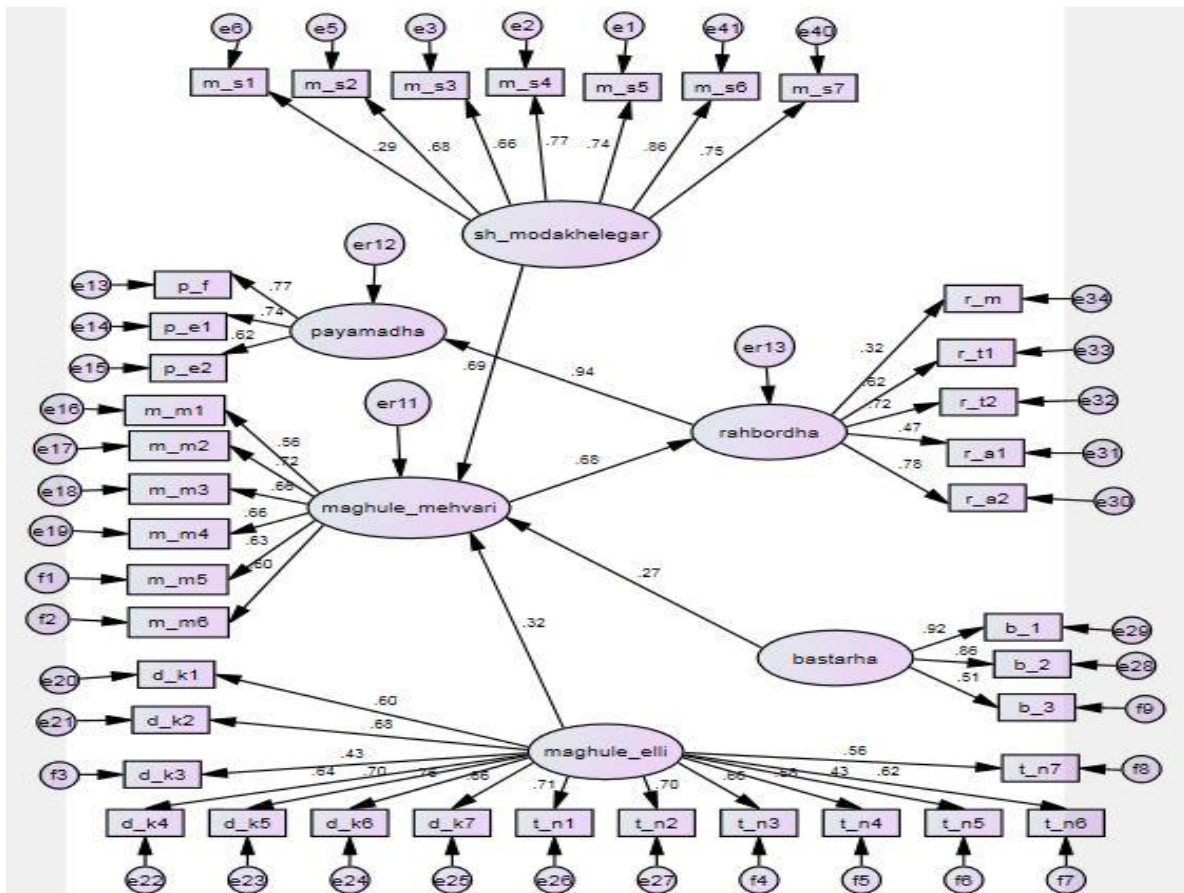


Figure 2- Standard coefficients of research variables in the measurement model

Table 1- Fitting indicators of the measurement model

Result	Obtained value	Effect type	Tolerance range	Title of index
Model Verification	0.92	positive	GFI>0.90	GFI
Model Verification	0.93	positive	NFI>0.90	NFI
Model Verification	0.92	positive	RFI>0.90	RFI
Model Verification	0.91	positive	IFI>0.90	IFI
Model Verification	0.91	positive	CFI>0.9	CFI

Table 2- Relationship between proposed model variables

Effect type	regression coefficient	Relationship between variables
positive	0.69	Intervener conditions influencing on central category
positive	0.94	Strategies influencing on outcomes
positive	0.68	Central category influencing on strategies
positive	0.27	Contexts influencing on central category
positive	0.32	Casual category influencing on central category

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