

# The Role of Local Government Play in Deepening the Integration of Industry and Education in Liaoning Vocational University of Technology Based on the Triple Helix Theory\*

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## Abstract

The purposes of this research were 1) to investigate the current role that the local government plays in deepening the integration of industry and education at Liaoning Vocational University of Technology; 2) to analyze the way the triple helix creates the role of government, 3) to suggest the role that the Liaoning Provincial Government should play in deepening the integration of industry and education in Liaoning Vocational University of Technology. Liaoning Province will be the site of this study. It adopts a quantitative design, for data collection, a questionnaire is the main source and reinforcement focus groups. Also, descriptive statistics is a data analysis. Moreover, the Triple Helix Theory as the main theory. In addition, Customer Orientation in New Public Management, Limited Government Theory, and New Public Governance as the supporting theories.

### The results revealed that:

1. In more than 50%, the Liaoning Provincial Government plays a multifaceted role in deepening the integration of industry and education.
2. The triple helix theory creates the role played by the government in the following ways: (1) 78.1% of school respondents, and 61.21% of enterprises respondents positive attitude that it plays an important role in mediating the relationship between educational institutions. (2) The positive attitude of enterprise respondents was more than 60.1%, and that of school respondents was even more than 83.9%, they think that

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ensure its policies are responsive to the needs of educational institutions. (3) More than 70% of the school respondents and more than 60% of the enterprises respondents had a positive attitude, they think that the function of government extends to creating an environment conducive to the integration of industry and education.

3. 83.1% School respondents and 69% enterprise respondents think that the most crucial role that the Liaoning government should play is that of a service provider, also some respondents who believe that the role of supervisor and co-ordinator is also important. Finally, this research suggests that the role of service provider, regulator, and coordinator, and add or reshape roles.

**Keywords:** Deepening the Integration of Industry and Education; Triple Helix Theory; Liaoning Vocational University of Technology; Liaoning Government

## 1. Introduction

In the current new situation, the integration of industry and education is an essential requirement and the necessary way for the development of vocational education, and the optimization of the path of integration of industry and education in vocational education is of great significance to the development of vocational education. At the macro level, "integration of industry and education" refers to the integration of industry and education, mainly involving the coordination of industrial development and educational development; at the micro level, "integration of industry and education" refers to the integration of production and teaching, mainly involving the interface between the production

process and the teaching process. In the process of developing the integration of industry and education, both vocational schools and enterprises expect the role of the local government.

The General Office of the Liaoning Provincial Government published the document "Implementation Opinions of the General Office of the Liaoning Provincial Government on Deepening the Integration of Industry and Education" in August 2018, proposing the following construction goals: "Deepening the integration of industry and education, coalescing development synergies, collaborating with schools and enterprises to educate people, and stimulating innovative vitality. Presently, how does the Liaoning provincial government



promote the development of the integration of industry and education, and school-enterprise cooperation in the province, and what mechanism is used to guarantee the smooth operation of the cooperation, what roles do the three parties involved, namely the government, enterprises, and schools, assume respectively, especially in the integration of industry and education, schools and enterprises often do not have a clear understanding of the role played by local governments. These are the main issues to be explored in the research and are of great concern to the provincial higher education institutions.

In this study, the main problem is that the role played by the Liaoning Provincial Government in the integration of industry and education in Liaoning Polytechnic Vocational University is not clear and comprehensive enough, and the main question is to suggest the role that the Liaoning Provincial Government should play in the integration of industry and education in this school.

In summary, in the process of developing the integration of industry and education in China's vocational education, the role played by the local government is crucial for schools and enterprises, and

it is an issue that cannot be ignored to promote the deepening of the current integration of industry and education.

## 2. Research Objectives

1. To investigate the current role that the local government played in deepening the integration of industry and education in Liaoning Vocational University of Technology;

2. To analyze the way the triple helix creates the role of government.

3. To suggest the role that the Liaoning Provincial Government should play in deepening the integration of industry and education in Liaoning Vocational University of Technology.

## 3. Methods

This research has been conducted in Liaoning. It adopts a quantitative design, for data collection questionnaire is a main source and reinforcement focus groups. In this study, two focus groups consisting of representatives from schools and enterprises, and each group meeting lasted 45 minutes, using a semi-structured guided tour, audio recordings were analyzed and used to support the questionnaire design and to identify the three dimensions of the



discussion of the questionnaire design around the role-playing of the government of Liaoning province. The questionnaire is structured, multiple choice questions and Likert scales will be used, Taro Yamane

method will be used to calculate the sample size and the data analysis will be done by summarizing the sample data using SPSS and analyzing the data using descriptive statistics.

**Table 1** School sample calculations

Item	Value
Total population (N)	573
standard error (e)	0.05
sample size (n)	240

**Table 2** Enterprises sample calculations

Item	Value
Total population (N)	92
standard error (e)	0.05
sample size (n)	80

#### 4. Results

Based on the findings of this study, the following conclusions were drawn:

1. At present, investigate that the Liaoning Provincial Government plays a multifaceted role in deepening the integration of industry and education.

**Table 3** Descriptive analysis Scale 1 from school

Definition	Mean	S.D.	Opinion
1. The industry education integration policy issued by the Liaoning Provincial Government meets the needs of the school.	4.47	0.74	Strongly agree



Definition	Mean	S.D.	Opinion
2. Local policies or measures in Liaoning Province can effectively promote the school to deepen the integration of industry and education.	4.41	0.79	Strongly agree
3. The political, economic and technological environment for deepening the integration of industry and education in Liaoning Province is relatively stable.	4.36	0.82	Strongly agree
4. The Liaoning provincial government adopts relevant policies or measures to guide schools and enterprises to carry out collaborative innovation in the integration of industry and education.	4.38	0.81	Strongly agree

**Table 4** Descriptive analysis Scale 1 from enterprise

Definition	Mean	S.D.	Opinion
1. The industry education integration policy issued by the Liaoning Provincial Government meets the needs of the school.	3.87	1.17	Agree
2. Local policies or measures in Liaoning Province can effectively promote industrial development.	3.87	1.15	Agree
3. The political, economic and technological environment for deepening the integration of industry and education in Liaoning Province is relatively stable.	3.94	1.06	Agree
4. The Liaoning provincial government adopts relevant policies or measures to guide schools and enterprises to carry out collaborative innovation in the integration of industry and education.	3.92	1.06	Strongly agree

As can be seen from the two tables above, the School and enterprise respondents

were positive about this view. They agreed that the main roles played by the Liaoning



Provincial Government at this stage are multifaceted. In particular, in the response data from school respondents, the mean value of the answers to most questions exceeded 4.00, indicating an overall positive attitude. The data from the enterprises respondents show that the mean values for most of the relevant questions are below 4.00. The overall values are below the median 4 and the plurality 5, suggesting that there is a proportion of negative attitudes amongst the enterprises respondents, but overall positive attitude. Furthermore, in the focus group discussion, in addition, in the focus group discussions, in the view of the majority

of respondents from schools and businesses, the government plays not just a single role, but multiple roles. As mentioned by Ms. Tang and Mr. Su, (Interviewed 25, November, 2023) roles such as policy regulation and platform coordination.

2. Analyze the triple helix theory creates the role played by the government in the following ways: (1) Local governments are act as facilitators of linkages between education and industry, it plays an important role in mediating the relationship between educational institutions and industrial stations, while at the same time being willing to create frameworks that are conducive to interaction.

**Table 5** The Liaoning provincial government can provide funds to build a platform for the integration and interaction of industry and education

Level	Frequency	Percent
Strongly disagree	1	0.4
Disagree	3	1.2
Neutral	52	20.4
Agree	70	27.5
Strongly agree	129	50.6
<b>Total</b>	<b>255</b>	<b>100%</b>

The data shows strong confidence in the government's funding capabilities, with 50.6% strongly agreeing and 27.5% agreeing.

The 20.4% neutral response rate suggests some respondents are either undecided or lack sufficient information to form an opinion.



**Table 6** The Liaoning provincial government can provide funds to build a platform for the integration and interaction of industry and education

Level	Frequency	Percent
Strongly disagree	4	3.5
Disagree	5	4.4
Neutral	35	31.0
Agree	33	29.2
Strongly agree	36	31.9
<b>Total</b>	<b>113</b>	<b>100%</b>

A combined majority of 61.1% (agree and strongly agree) support the idea that the provincial government has the capacity to fund platforms facilitating the integration and interaction between industry and education. The neutral stance is notable, with 31.0% of respondents not committing to either side, which could suggest a need for more information or evidence of such funding capabilities. The combined disagreement rate of 7.9% is relatively modest, indicating that while there are some doubts about the government's financial commitment, they are not overwhelmingly

shared by most respondents.

According to the survey, 78.1% of school respondents, and 61.1% of enterprises respondents believe that local government can provide funds to build a platform for the integration and interaction of industry and education, this corresponds to the dimension of interaction between the subjects of the triple helix theory. (2) Ensure that its policies are responsive to the needs of educational institutions and enterprise, and the government has a financial base and is willing to provide some incentives.



**Table 7** The school can get financial support, tax incentives, government procurement and other policy support related to the integration of industry and education

Level	Frequency	Percent
Strongly disagree	1	0.4
Disagree	6	2.4
Neutral	47	18.4
Agree	72	28.2
Strongly agree	129	50.6
<b>Total</b>	<b>255</b>	<b>100%</b>

A combined 78.8% of respondents (50.6% strongly agree and 28.2% agree) perceive that the school receives adequate policy support in the form of financial aid, tax incentives, and government procurement.

**Table 8** Enterprises can get financial support, tax incentives, government procurement and other policy support related to the integration of industry and education

Level	Frequency	Percent
Strongly disagree	4	3.5
Disagree	4	3.5
Neutral	43	38.1
Agree	25	22.1
Strongly agree	37	32.7
<b>Total</b>	<b>113</b>	<b>100%</b>

There's a general agreement (54.8% combined agree and strongly agree) that local policies are effective in promoting development, but 38.1% neutral suggests that the effectiveness of these policies is not universally observed or acknowledged. Based on the above data, when schools and enterprises answered the question related to obtaining policy support, the positive attitude of enterprise respondents



was more than 50%, and that of school respondents was even more than 70%, which suggests that the Liaoning Provincial Government's support for the integration of industry and education in schools from the policy dimension is being applied to the practice

of the triple helix theory; (3) The function of government extends to creating an environment conducive to the integration of industry and education, and the government is actively investing in the infrastructure that fosters innovation and cooperation.

**Table 9** The industrial structure of Liaoning Province is reasonable

Level	Frequency	Percent
Strongly disagree	1	0.4
Disagree	4	1.6
Neutral	46	18.0
Agree	78	30.6
Strongly agree	126	49.4
<b>Total</b>	<b>255</b>	<b>100%</b>

Nearly 80% (49.4% strongly agree and 30.6% agree) of respondents view the industrial structure of Liaoning Province as reasonable, suggesting general satisfaction with the current industrial setup. Disagreement

is low (2%), and the neutral stance is taken by 18%, indicating that while most are content, some respondents may lack a definitive opinion on the structure's reasonableness.

**Table 10** The industrial structure of Liaoning Province is reasonable

Level	Frequency	Percent
Strongly disagree	4	3.5
Disagree	3	2.7
Neutral	39	34.5
Agree	31	27.4
Strongly agree	36	31.9
<b>Total</b>	<b>113</b>	<b>100%</b>



The data presents a positive view towards the reasonableness of Liaoning Province's industrial structure, with a majority of 59.3% (27.4% agree and 31.9% strongly agree) affirming its sensibility. Nevertheless, a significant proportion of respondents, 34.5%, are neutral, pointing to a potential ambivalence or lack of awareness about the structure's effectiveness.

According to the above data, school and enterprise respondents gave a positive attitude towards the industrial environment in Liaoning Province, which indicates that the basic environment for carrying out the integration of industry and education is generally recognized.

**Table 11** The most important role that Liaoning Provincial Government should play in deepening the integration of industry and education is that of a service provide, rather than a guide, supervisor or manager

Level	Frequency	Percent
Strongly disagree	2	0.8
Disagree	5	2.0
Neutral	36	14.1
Agree	58	22.7
Strongly agree	154	60.4
<b>Total</b>	<b>255</b>	<b>100%</b>

It indicates that the majority of respondents (60.4%) strongly believe the

In the focus group discussion, most interviewees in the focus group discussions directly or indirectly suggested multiple ways in which the triple helix structure shapes the role of government. As discussed by Dr Chen (Interviewed 25, November, 2023) of the school, creating an environmental pathway versus building an online platform.

3. Suggest the most crucial role that the Liaoning government should play is that of a service provider, where some respondents hoped that the government should co-ordinate the relationship between that school and the enterprise.

Liaoning Provincial Government should act as a service provider in fostering the



integration of industry and education. 22.7% agree, while a small percentage (2.8%) disagree. 14.1% are neutral, suggesting some uncertainty about the government's role.

**Table 12** The most important role that Liaoning Provincial Government should play in deepening the integration of industry and education is that of a service provide, rather than a guide, supervisor or manager

Level	Frequency	Percent
Strongly disagree	3	2.7
Disagree	2	1.8
Neutral	30	26.5
Agree	38	33.6
Strongly agree	40	35.4
<b>Total</b>	<b>113</b>	<b>100%</b>

A majority (69% combined) believe the government should primarily be a service provider in the process of deepening integration, not a guide, supervisor, or manager. Few disagree (4.5%), and a notable portion are neutral, which could suggest some are open to a more varied role for the government or require more clarity on what being a service provider entails.

According to the data, more than 70% of the school respondents had a positive attitude towards issues related to the micro-environment of schools and enterprises, and the industrial environment in the Liaoning province region, which is an

overwhelming perception. Nearly 60% of the enterprises respondents also had a positive attitude towards issues related to the micro-environment of enterprises and the industrial environment. This indicates that the environmental dimension of each subject of the triple helix is also helping to shape the role of local governments.

In addition, discussions between school and business representatives in the focus groups reflected the importance of the government as a service provider rather than just a regulator, and as Dr. Chen (Interviewed 25, November, 2023) said, a supportive industry structure and environment



are necessary for schools to deepen their integration efforts.

## 5. Discussion

The triple helix theory in the context of the knowledge economy, linking universities, industries and government departments, treating the three parties as equally important organizations, breaking the organizational boundaries and boundaries of authority between each other, penetrating into each other, substituting and intermingling, and forming a spiraling trend of innovative activities. This theory is being applied to this study.

Jiang (2016, pp. 1-10) used the triple helix theory to study the transformation and development of local general undergraduate colleges. He believed that the government plays a third-party role as a mediator and a facilitator between the university and the market. In the same way with the research result that the Liaoning Provincial Government is playing a multifaceted role. Therefore, in my opinion, it is not entirely consistent with Ping Jiang's findings in that it encompasses intermediaries and facilitators, but also other roles such as regulators. This may be the multifaceted changes in the development of industry-education integration in China.

Chen (2014, pp. 64-69) applied the triple helix theory in his research on the university entrepreneurship education ecosystem. Through the study, it was found that the focus of university entrepreneurship education ecosystem construction should be placed on government policy guidance, industrial platform support, and university teaching resources in the innovation and entrepreneurship education ecosystem, to realize the benign interaction and spiral support of the trinity of the university, industry, and government, and to continuously promote the overall function. In this research result that the way in which the triple helix creates the role of the government are: to strengthen the policy guidance and support of industrial platforms, as well as to create a favourable environment for the integration of industry and education.

Therefore, in my opinion, this conclusion is broadly the same as that of the study by Chen, but it argues that the way the government plays its role is also through creating an environment that is not related to teaching resources, this depends on the subject of the study. The similarity of the findings precisely suggests that there is consistency in how the triple helix



creates the government's role in integrating industry and education.

Based on the “Triple Helix Model”, Yang (2014, pp. 8-10) studied the issue of government, school and enterprise cooperation in Shanxi Province, and he proposed that the government needs to improve its policies and legal system, which means that the government has to better assume the role of a regulator. In this research, in response to the third research question, it is concluded that the most crucial role that the Liaoning provincial government should play is that of a service provider. At the same time, the roles of a supervisor and coordinator are also important. Therefore, I do not fully agree with Yang viewpoint, and in my opinion, this dynamic role shift should be more in line with the current situation in Liaoning Province. This discrepancy is a reflection of the dynamic nature of the government's role in the integration of industry and education.

## 6. Suggestions

For the school, enterprise, and government, combined with the dimensions of environment, policy, and interactivity. They should provider, regulator, and

coordinator and take the initiative to extend government functions to create an environment conducive to the integration of industry and education. For example, they should take advantage of financial autonomy to provide schools and industries and interactive platform that combines online and offline. Also, increasing the role of innovators, develop an in-depth understanding of the province's industrial and educational needs. Finally, the role of the government must adjustments are made promptly as the integration of schools, enterprises industry, and education evolves.

This research mainly analyse the role of local government play in deepening the integration of industry and education in Liaoning vocational university of technology. For the next study can do the comparative analysis between Liaoning Vocational University of Technology and other public universities.

## 7. Knowledge Assets

In the current research, most scholars mainly focus on the interaction between the two subjects of schools and enterprises in the integration of industry and education, while this paper, with the help of the triple helix theory and the current situation of



the integration of industry and education in China's vocational education, focuses on the government role-playing, which provides a new perspective for the development of the integration of industry

and education in the multi-subjects. Therefore, the new knowledge adds multiple dimensions embodied in governmental functions, which is meaningful for practice.

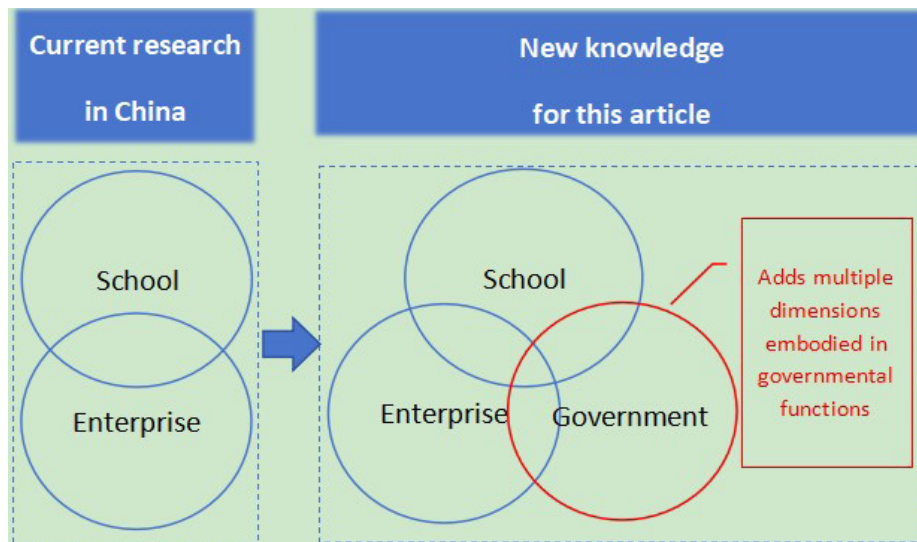


Figure 1 New knowledge

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