

# Interest Conflict Study on Modern Apprenticeship Pilot Work in China: Python-based Analysis from Key and Supporting Level

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**To cite this article:**

Xiang Chengjun. Interest Conflict Study on Modern Apprenticeship Pilot Work in China: Python-based Analysis from Key and Supporting Level. *Higher Education Research*. Vol. 6, No. 6, 2021, pp. 172-177. doi: 10.11648/j.her.20210606.14

**Received:** October 7, 2021; **Accepted:** October 29, 2021; **Published:** November 27, 2021

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**Abstract:** The modern apprenticeship pilot work in China is a complex system, for it involves multiple stakeholders not only on numbers, but also in categories, with complicated relationship between them. The stakeholders have different interest appeals, resulting in different interest conflicts between them. By dividing the stakeholders into 3 categories of core, key and supporting levels, and ignoring the internal conflicts for the stakeholders in the same category, this paper is trying to find some guiding principles in dealing with the interest conflicts in the key and supporting levels for the stakeholders. Based on python analysis, the paper finds out that the stakeholders need to follow the guiding principle of “conforming to the government”, that is, the industry organizations shall conform to the government departments, so as to solve the conflicts of interest between the 2 at key levels; and also they should follow the guiding principle of “adapting to parents”, namely, the media and foreign researchers shall adapt to the parents, so as to solve the conflicts of the attitude and social benefits between the 3 at the supporting level. Only in this way may all the stakeholders at the key and supporting level take joint efforts in promoting modern apprentices’ training and cultivation.

**Keywords:** Modern Apprenticeship, Interest Conflicts, Guiding Principles, Python Analysis

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## 1. Introduction

If China’s modern apprenticeship pilot work is regarded as a system, it is undoubtedly a complex one. Firstly, it involves multiple stakeholders (or subjects, the same below) in it. As for stakeholders, some related scholars both at home and abroad like Stanford Research Institute, Babak Ziyae, Edward

Freeman, and Xiaolei Yang are worth mentioning. For example, Stanford Research Institute thinks the stakeholders may include Shareholders, employees, customers, suppliers, debtees and organizations. Similar stakeholders put forward by other scholars will be listed in Table 1 below.

*Table 1. Some related stakeholders listed.*

Researcher	Stakeholders
Stanford Research Institute [1]	Shareholders, employees, customers, suppliers, debtees organizations
Babak Ziyae [2]	Regulators, managers, board of directors, shareholders, creditors, auditors, and other stakeholders
Edward Freeman [3]	Trade partners (shareholders, debtees, employees customers, suppliers), pressure groups (governments, local residents, local communities, media, Environmentalists), affected bodies (surroundings, off-springs)
Xiang Chengjun	Governments, enterprises, schools, students, parents, organizations, media, foreign researchers
Xiaolei Yang [4]	The government (prefecture level city), industry system, enterprises and vocational colleges

Secondly, it involves several categories if stakeholders according to different but related scholars, see Table 2 below.

Table 2. Stakeholder categories.

Researcher	Stakeholder categories
Edward Freeman [3]	Ownership stakeholders (stockholders like board members, managers) economic dependent (staff, employees, customers, suppliers, competitors, local communities), social stakeholders (governments, media, special groups)
William Frederick [5]	Direct stakeholders (stockholders, employees, suppliers, retailers, customers, competitors), indirect stakeholders (governments, organizations, media, the public)
Jonathan Charkham [6]	Contract stakeholders (stockholders, employees, customers, suppliers, distributors), public stakeholders (consumers, supervises, governments, pressure groups, media)
Chen Honghui [7]	Core stakeholders, hidden stakeholders, marginal stakeholders
Xiang Chengjun	Core, key and supporting level stakeholders

Thirdly, the relationship among stakeholders is complicated, like economic relationship (which is the main type), social relationship, power relationship, and so on, see Table 3 below.

Table 3. Stakeholder relationship.

Researcher	Stakeholder relations
David Wheeler & Maria Sillanp [8]	Main and social, minor and social, main and non-social, minor and non-social
Ronald Mitchell, Bradley Agle and Donna Wood [9]	Defined stakeholders (have 3 of legitimacy, rights and urgency at the same time), prospectus stakeholders (have 2 of 3), potential stakeholders (have 1 of 3)
Xiang Chengjun	Social interests, economic ones, and both

Thus based on above-said reason, the stakeholders in apprenticeship pilot work can only be listed incomprehensively. Besides, many interest conflicts do exist due to different interest appeals, and the effective solutions are still lacking.

In the paper *On Interest Conflicts for Higher Vocational Colleges' Modern Apprenticeship Pilot Work from the Perspective of Stakeholders*, the author listed the 8 categories of stakeholders in the modern apprenticeship pilot work, i.e. government departments, schools, industry organizations, enterprises, students, the society and other people, and

divided them into three levels: the core level, the key level, and the supporting level [10]. The author studied the interest conflicts among the three stakeholders at the core level, and put forward three guiding principles—honor belonging to schools, interest to industries, and success to students—to coordinate and solve the interest conflicts. For the purpose of focusing, the author only took the core level as an example, and excluded the interest conflicts between the two stakeholders at the key level and among the three stakeholders at the supporting level, bringing about a demand for a further study in this paper.

## 2. Analysis of Appeals of and Conflicts Among the Stakeholders at the 2 Levels

Table 4. Framework of stakeholders in modern apprenticeship pilot work.

Level	Stakeholder	Rights	Obligations	Interest appeals
Core level	Enterprises	1. Select schools, programs, and apprentices, and training them as needed	1. Participate in the whole process 2. Arrange employment 3. Provide funds	1. Economic benefits
	Schools	1. Select enterprises	1. Provide funds 2. Participate in the whole process	1. Social benefits 2. School honors
	Students (apprentices)	1. Select schools and programs 2. Select enterprises 3. Participate in the whole process 4. Select employer 5. Obtain certain remuneration	1. Accept management by schools and enterprises	1. Current remuneration 2. Long-term development
Key level	Government departments	1. Formulate relevant policies 2. Evaluate and give feedback	1. Provide sufficient funds 2. Define directions	1. Social benefits
	Industry organizations	1. Guide enterprises 2. Some rights to evaluate	1. Formulate corresponding standards 2. Partial obligation of training	1. Economic benefits 2. Social benefits
Supporting level	Parents	1. Support or object	1. Provide certain funds	1. Attitudinal appeals 2. Economic appeals
	Media	1. Guide and evaluate	Publicity	Certain social benefits
	Foreign researchers			1. Reference

The complexity of modern apprenticeship pilot programs is mainly manifested in the diversity of stakeholders and multi-directions of interest conflicts. Regarding the diversity of stakeholders, although the author conducted an incomprehensive categorization and made a framework of

“three levels and eight categories” (see Table 4 [10]), the framework was based on the assumption that “the stakeholders in the same category can be treated as an independent subject without internal conflicts” [11]. As for the multi-directions of interest conflicts, the author only

analyzed the interest conflicts between different stakeholders at the same level and ignored the interest conflicts between stakeholders at different levels. The simplification was based on the requirements of complexity thinking. Compared with the three stakeholders at the core level, the stakeholders at the key level and the supporting level are a little further apart, but they are also worth studying as components of a complex system. For convenience, the author still adheres to the above-mentioned assumption and perspective when conducting analysis at the key and supporting level.

### 2.1. Analysis of Appeals of and Conflicts Between Stakeholders at the Key Level

Stakeholders at the key level include government departments and industry organizations. It should be noted that government departments and industry organizations are just a generalization, and they are not sub-divided. Take government departments as an example. By level they may include central, provincial and municipal, and county and district government departments respectively; by responsibility range they may

include administrative, educational and other departments. The author will only analyze the interest appeals of the two stakeholders in general and the possible interest conflicts between them in this section.

#### 2.1.1. Interest Appeals

As for the roles of government departments and industry organizations in the apprenticeship pilot work in China, especially those expected by schools and enterprises in action, the data in a survey show the result. In Oct. of 2020, the author did a survey (Survey 1), 79 subjects (35 Business leaders and 44 school teachers) were invited to answer the question on the roles of government departments and industry organizations, the data show that most of the subjects are eager to see greater and more positive roles played by the two stakeholders, see Figure 1 below. Since the 2 figures in column A and B take a high percentage, and the figures in column C and D are not more than a half, the author will take into consideration column A and B. This correlates with table 4.

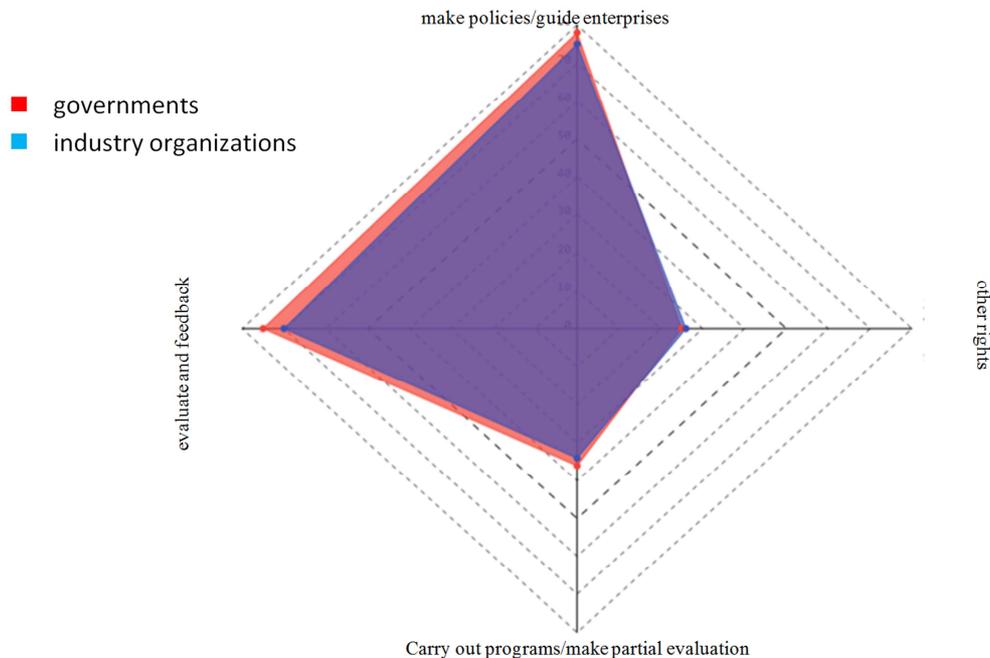


Figure 1. The roles governments /industry organizations play.

According to the paper *On Interest Conflicts for Higher Vocational Colleges' Modern Apprenticeship Pilot Work from the Perspective of Stakeholders*, the two stakeholders at the key level have different interest appeals. Government departments have two rights: formulating relevant policies to influence the implementation of modern apprenticeship and evaluating and giving feedback on it to play a "monitor" role. They also have two obligations: providing funds to schools (mainly public schools) and defining the development directions of modern apprenticeship. Industry organizations have two rights: guiding the implementation of modern apprenticeship in enterprises and conducting partial evaluation and feedback on the implementation. They also

have two obligations: formulating standards for modern apprenticeship and participating in apprentice training. The rights and obligations of the two stakeholders seem to be in a balance from the quantitative perspective, but they are obviously imbalanced from the qualitative perspective, that is, government departments are dominant, and industry organizations are supplementary. Firstly, *policies* refers to "rules of action formulated by a state or political party to achieve the goal in a certain period" [12]. It is the most direct means for a political party or government to manage the society with an authoritative and normative nature that requires the object to comply without room for negotiation. On the other hand, *guiding* means giving advices and leading,

and the object can make a choice after weighing the pros and cons. Therefore, the policy-making right of government departments has far deeper and broader influence on the implementation of modern apprenticeship than the guiding right of industry organizations. Secondly, the right of evaluating and providing feedback of government departments is greater than the evaluating right of industry organizations. This is because industry organizations only have partial evaluating right, which is obtained through authorization by government departments and become authoritative through endorsement by government departments. By purchasing services, government departments entrust industry organizations to conduct evaluation activities within the authorization scope of government departments. If schools, enterprises, and students were compared to athletes, then the industry organizations and government departments would be the deputy referees and the chief referee, respectively. Thirdly, the standards set by industry organizations are to serve the needs of government departments to promote the development of apprenticeship.

**2.1.2. Analysis of Interest Conflicts**

The public welfare nature of government departments determines that their interest appeals lie in social benefits rather than economic ones. Industry organizations are semi-profit social organizations. Their three main functions of “decision-making consultation, management, and service” determine that their interest appeals lie in both economic and social benefits. In this way, the interest appeals of the two stakeholders have a certain degree of coupling and conflict. In terms of coupling, both the two pursue social benefits. Although industry organizations obtain certain economic

benefits by serving government departments, their actions and the consequent results such as apprentice training and the formulation of industry apprenticeship standards do have a positive effect on regulating social order and increasing social wealth. Regarding conflict, the two have different original intentions in promoting social benefits. Industry organizations have not completely stood apart from the role assumption of “economic man,” and their “participation in vocational education is mainly derived from interest appeals, especially economic interest appeals.” [13] Therefore, in the process of promoting social development, they may neglect social benefits due to consideration of economic interests, or even distort government policies to obtain pure economic benefits.

**2.2. Analysis of Appeals of and Conflicts Between Stakeholders at the Supporting Level**

Stakeholders at the supporting level include parents, media, and foreign researchers. It should be noted that these three stakeholders are also just a generalization, and they are not sub-divided. The author will analyze the interest appeals of the three stakeholders and the possible interest conflicts among them in general in this section.

**2.2.1. Interest Appeals**

As for the roles of parents, media and foreign researchers, the data in Survey 1 show that most of subjects (150 students, 35 Business leaders and 44 school teachers) think parents have the rights to support it or object to it, while the media enjoy the rights to guide and evaluate, but few people take the stand that the parents and media have other rights, and foreign researchers have similar rights or other rights, see Figure 2.

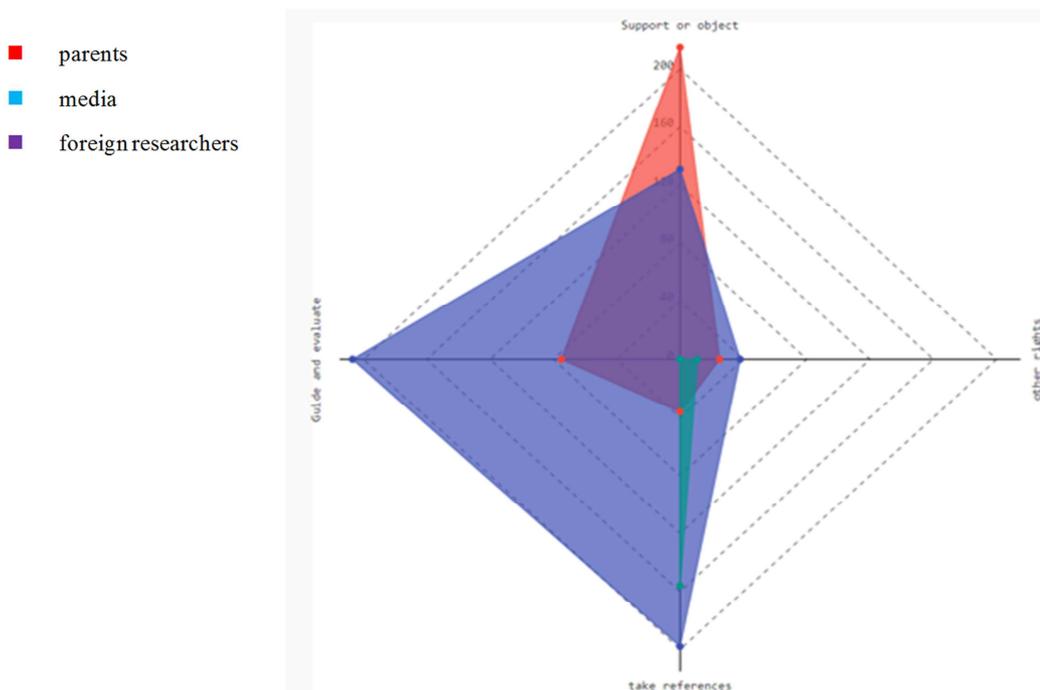


Figure 2. The roles parents, media and foreign researchers play.

The three stakeholders at the supporting level have different interest appeals. Parents have the right to support or object and the obligation to provide certain funds. The media has the right to guide and evaluate and the obligation of publicity. Foreign researchers, however, have no corresponding right nor obligation. From the quantitative perspective, parents and the media seem to be in a balanced state with equal rights and obligations. Meanwhile, their importance is higher than that of foreign researchers which have neither rights nor obligations. From the qualitative perspective, the importance of the three stakeholders decreases progressively. Compared with the media, parents have less broad influence on the apprentice group, but have far deeper influence on individual apprentices (their children). Parents' support or opposition has much more influence on apprentices' decisions than media's guidance and evaluation. In extreme cases, parents may even directly make decisions instead of their children; in a similar way, the influence of parents' obligation to provide funds is much higher than the effect of publicity and can even play the decisive role. In addition, the importance of media over foreign researchers has already been indicated in quantity, so it will not be repeated here.

### 2.2.2. Analysis of Interest Conflicts

With respect to the interest relationship among parents, the media, and foreign researchers, is there any coupling and conflict in their interest appeals? The author analyzes this with three pairs of relationship.

Firstly, let us look at whether there is any interest conflict between parents and media. Since parents' appeal for their children's participation in modern apprenticeship "has an economic aspect", and media's appeal is "a certain degree of social benefits" [1], the interest appeals of the two stakeholders are highly coupled without any conflict. In addition, parents' appeal for their children's participation in modern apprenticeship "has an attitudinal aspect" [1]. When parents' attitudes are consistent with social benefits, the interest appeals of the two stakeholders are coupled without any conflict. But when they are inconsistent, the interest appeals of the two stakeholders conflict. To sum up, there is a certain degree of conflict in the interest appeals between parents and the media, especially when parents' attitudes are inconsistent with social benefits.

Then, let us look at whether there is any interest conflict between the media and foreign researchers. The media pursues a certain degree of social benefits, while foreign researchers "only provide reference for the implementation of modern apprenticeship in China" [10]. Therefore, foreign researchers may somewhat influence the evaluation of modern apprenticeship by media in China, but as an external cause, it cannot fundamentally influence or dominate the pursuit of a certain degree of social benefits by media in China. From this perspective, there is no interest conflict between the media and foreign researchers.

Finally, let us look at the relationship between parents and

foreign researchers. Parents' interest appeals are attitudinal and economical. The reference role of foreign researchers may somewhat influence parents' attitudinal appeals but cannot have fundamental influence on their economic appeals. From this perspective, there is no interest conflict between parents and foreign researchers as well.

## 3. Guiding Principles for Solving Interest Conflicts

In view of the interest conflicts between the two stakeholders at the key level and the three stakeholders at the supporting level, the author puts forward the two guiding principles of "conforming to the government and adapting to parents" to coordinate interests and solve interest conflicts. *Principles* refers to "rules or standards for speaking or acting" [3]; *guiding* refers to "instructing, teaching and leading" [3]. "Guiding principles" here refers to the guiding and suggestive standards for acting, as opposed to mandatory principles.

### 3.1. Conforming to the Government

Regarding the interest conflicts between government departments and industry organizations at the key level, the author puts forward the guiding principle of "conforming to the government," i.e., industry organizations should conform to government departments. Currently in China, the role of government departments and industry organizations in modern apprenticeship is imbalanced, i.e., the government is dominant, and the industry is supplementary. The policies formulated by the government have far greater influence on the implementation of modern apprenticeship than the guiding role of industry organizations, so industry organizations must conform to government departments and rely on government departments to play their guiding role. *Conforming* refers to "complying and adapting" [3], and "adapting to a certain trend", and "conforming to things means simplicity" [14]. "Conforming" also involves "the process of biological adaptation of an organism to existing conditions when the environment changes or when the organism moves into a new environment", and the process "in which the existing format appropriately changes to adapt to external stimuli due to the effects of new stimuli" [15]. To conform to the government, industry organizations are firstly required not to be contrary to the development direction of modern apprenticeship established by the government. In China, the government represents public interests, with openness, impartiality, and fairness being the basic requirements. The guiding objectives of industry organizations must not go against the interests of enterprises, parents, and apprentices, and the guiding methods must not violate the requirements of openness, impartiality, and fairness. Secondly, industry organizations are also required to consciously adjust their positioning, and incorporate their economic pursuits in the overall social benefits, so as to

avoid discrepancies between the economic benefits they pursue as an economic man and social benefits.

### 3.2. Adapting to Parents

For parents, the media and foreign researchers at the supporting level, there is a certain degree of interest conflicts only between parents and the media, and there is no interest conflict between the media and foreign researchers and between parents and foreign researchers. Therefore, the guiding principle of “adapting to parents”, i.e., the media and foreign researchers should adapt to parents, is only limited to solving interest conflicts between parents and media, especially when parents’ attitudes are inconsistent with social benefits pursued by the media. *Adapting* refers to “fitting for (actual conditions or needs),” while *fitting* refers to “meeting (actual conditions or requirements)” [3]. To adapt to parents, media is first required to faithfully evaluate and report the actual situations of modern apprenticeship, including conditions, requirements, status quo, difficulties, advantages and disadvantages, and prospects of implementation, so as to provide reference and judgment basis for parents’ attitudinal appeals. Secondly, media is also required to properly guide parents’ attitudes, so as to make parents better understand the development of modern apprenticeship, thus reduce or somewhat change their conflicting attitudes.

## 4. Conclusion

The modern apprenticeship pilot work is a complex system that requires all stakeholders to share the same objective and coordinate for education to complete the task of cultivating talents with high-quality technical skills. During this process, only by giving play to the advantage of complexity thinking, regarding complexity as “a gospel” rather than “a scourge” [16], and reducing complexity to simplicity, can we do a good job in the modern apprenticeship pilot work. It is necessary to solve interest conflicts among schools, enterprises, and students at the core level (which has been discussed in another paper), between government departments and industry organizations at the key level, and among parents, the media and foreign researchers at the supporting level. Only in this way can we completely study the interest conflicts between stakeholders at the three levels of modern apprenticeship. These latter two are exactly the task of this paper.

## Acknowledgements

Fund project: This paper is one of the milestones of General Discipline Co-construction Project of Philosophy and Social Science Planning of Guangdong Province in 2018 titled “*Research on the Conflict of Interest in Experimental Units of Modern Apprenticeship system in Higher Vocational Colleges of Guangdong Province and Its Settlement Practice*” (GD18XJY20). Project director: XIANG Cheng-jun).

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