Research on the Legitimacy Acquisition of Reverse Logistics for Pharmaceutical Enterprises

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Abstract. How to deal with the recycling of waste drugs, reduce the waste of social resources and environmental pollution, and promote the sustainable development of society and ecology, has become a social concern. But so far, due to the lack of the legitimacy of reverse logistics of waste drugs, pharmaceutical enterprises are faced with many obstacles to realize the business. Based on legitimacy theory, this study adopts panel discussion to identify three types of legitimacy: cognitive, pragmatic and moral, and their importance in the implementation of reverse logistics. We further analyze how pharmaceutical enterprises acquire these legitimacies. The study found that moral legitimacy is the most important and should be acquired first, and then cognitive and pragmatic legitimacy.

1. Introduction

Reverse logistics is an economic flow process of planning, implementation and controlling of goods from consumers to productors in order to achieve the purpose of proper disposal and value recovery of reverse logistics goods. It includes three parts: the return of sold items, the partial recycling of used items, and the disposal of wastes [1]. With the development of economy, the shortage of social resources and the need for China to enter the international market, people’s awareness of environmental protection has been strengthened, so that reverse logistics has been concerned and studied. The need to reduce waste is also driving the transform from a one-way economy model to a "sustainable economic model". James Stoke, a senior expert of the American Logistics Management Association, believes that how to reduce the occurrence of problematic drugs and deal with returns have become new competitive strategy for pharmaceutical enterprises and are becoming a new field for improving efficiency [2]. With the continuous improvement of laws and regulations and people's environmental awareness, the reverse logistics management of waste drugs has been adopted by some pharmaceutical enterprises and has even became an important competitive strategy. In addition, the effective recycling of the waste drugs can optimize the distribution of drug resources and protect the environment, conductive to establish a better corporate image, and to a certain extent, promote the sales of enterprises. Therefore, many pharmaceutical enterprises are trying to build the reverse logistics systems as a strategy to improve their competitiveness.

However, for reverse logistics of waste drugs, pharmaceutical enterprises have encountered many difficulties. On the one hand, the recycling cost is high. Fifteen pharmaceutical enterprises under the Guangzhou Pharmaceutical Group have established a waste medicine recycling mechanism [3]. The
cost of recycling waste drugs has accounted for 3%-5% of sales. It is not profitable for pharmaceutical enterprises to do it at present. On the other hand, there is no support from laws and regulations. Currently, there are no provisions in national laws for pharmaceutical enterprises to take the responsibility of recycling expired drugs, nor is there any authorization to manage the recycling expired drugs in China. In addition, consumers have low awareness of recycling waste medicines [4]. Jiang [5] showed that 78.6% of residents store medicines at home, more than 80% of households do not clean the medicine boxes regularly in China. Moreover, up to 15,000 tons of waste medicines are caused due to expiration of validity each year. Establishing a green cycle of economic development model is an important issue for the sustainable development of pharmaceutical companies. But the existence of the above problems has showed that the pharmaceutical enterprises lack the corresponding legitimacy when they carry out reverse logistics of the waste drugs, which make it difficult to implement the reverse logistics of waste drugs.

In order to promote the development of waste drug reverse logistics, pharmaceutical enterprise must acquire their legitimacy. Xiang [6] found that the legitimacy of enterprises has a good impact. As a resource, legitimacy helps enterprises to obtain stakeholder support and other resources in the process of production and operation. Legitimacy leads to persistence because stakeholders are most likely to supply resources to organizations that appear to be desirable, proper, or appropriate. Legitimacy enhances both the stability and the comprehensibility of organizational activities [7]. Legitimacy is an import element of an organization’s success [8]. Therefore, it is valuable to study how to acquire the legitimacy for reverse logistics of waste drugs to promote the implementation of waste drugs reverse logistics. Moreover, most of research on legitimacy acquisition focused on new ventures[9], private enterprises[10], and Internet enterprises [11], while the research on pharmaceutical enterprises are relatively lacking.

To fill the gaps, this study draws on the legitimacy theory and adopts the method of panel discussion to identify firstly different legitimacies (i.e., cognitive, pragmatic and moral legitimacies) and their importance in reverse logistics of waste drugs, and then explore what measures should be taken by pharmaceutical enterprises to acquire these legitimacies in order to benefit the development and implementation of reverse logistics of waste drugs.

2. Literature review

2.1. Reverse Logistics of Waste drugs

Over the past year, with the development of economy, the reverse logistics of waste drugs has attracted more and more attention from pharmaceutical industry, and has become an important part of pharmaceutical market management [2]. Existing research on waste drugs reverse logistics mainly focuses on the following three perspectives: First is from the perspective of hospital. For example, Deng [12] discussed the preventive measures and the reasons for the expiration of hospital drugs and Yi [13] studied the expiry management of hospital stock medicines and the classification of expired medicines. Second is from the perspective of residents. Wang and Huang [14] proposed that enterprises should encourage residents to participate in the recycling of waste drugs through subsidies and incentives, and the government should also give enterprise corresponding incentives. They also constructed an optimization model of reverse logistics network for expired drugs based on bi-level programming. Wang and Li [15] constructed a "Internet + Social Work" recycling model based on the strength of social work. It included the recycling process of social worker filing, resident release, social worker packing, contact transportation, transportation warehouse storage, and safe destruction. It also included full-process QR code tracking and online supervision. Third is from the perspective of government. Xiao [3] used the system dynamics analysis method to establish the drug recovery system model in China, and analyzed the role of the government in the system. Wang, et al. [16] discussed the recycling strategy of waste drugs between the government and pharmaceutical retail enterprises. Hua, et al. [17] studied the incentive mechanism of the reverse supply chain of expired drugs under the effect of government subsidies.
However, few studies have explored the acquisition of legitimacy about reverse logistics of waste drugs from the perspective of pharmaceutical enterprises. Currently, reverse logistics of waste drugs is still at the initial stage in China. Pharmaceutical enterprises are facing many difficulties in implementing reverse logistics of waste drugs. On the one hand, pharmaceutical enterprises need advanced technology to establish a reverse logistics information system to track drugs. On the other hand, waste drugs are restricted by laws and regulations. Moreover, most people do not understand the reverse logistics of waste drugs. Acquiring legitimacy maybe an important method to solve these problems. Its importance lies in the fact that the acceptance and desirability of the activities of an organization, due to its environment and social groups, will allow it to access the resources required to survive and grow [9]. Therefore, pharmaceutical enterprises need to obtain more legal resources to support their survival and long-term development.

2.2. Enterprises Legitimacy

Legitimacy refers to the perception or assumption of organizational stakeholders on whether the organization and its behavior meet expectations, legitimacy and appropriateness with the social norms, values and beliefs of the existing system as the evaluation criteria [7]. Legitimacy reflects the cognition and evaluation of the organization's stakeholders on the organization and its behaviors [18].

Scholars have given different definitions and classification of legitimacy (see Table 1). Within the existing literature, three types of legitimacy, namely pragmatic legitimacy, moral legitimacy, cognitive legitimacy, have been widely recognized [7]. Pragmatic legitimacy rests on the self-interest of the direct stakeholders of the enterprises. It involves direct exchanges between organizations and stakeholders. Moral legitimacy reflects the normative evaluation of enterprises and their activities [19]. Unlike pragmatic legitimacy, the standard of moral legitimacy is not based on the organization and whether it is beneficial to the evaluator, but on whether the organization’s behavior is "right". Cognitive legitimacy stems from the spread of knowledge about specific things or activities. When an activity is considered to be "taken for granted", it has acquired cognitive legitimacy [20].

Table 1. The types of legitimacy

| Reference                  | Dimension                                      |
|----------------------------|-----------------------------------------------|
| Scott [22]                 | Regulatory legitimacy, normative legitimacy,  |
|                            | cognitive legitimacy                           |
| Suchman [7]                | Pragmatic legitimacy, moral legitimacy,       |
|                            | cognitive legitimacy                           |
| Singh, et al. [23]         | Internal legitimacy, external legitimacy      |
| Dacin, et al. [24]         | Market legitimacy, investment legitimacy,     |
|                            | relationship legitimacy, social legitimacy,   |
|                            | alliance legitimacy                            |
| Ruef and Scott [25]        | Technical legitimacy and management legitimacy|
| Gibbs [26]                 | Media legitimacy                               |
| Tornikoski and Newbert [27]| Conforming legitimacy and strategic legitimacy|

Suchman [7] pointed out that the current research on legitimacy is mainly carried out from the perspective of strategy and institution. Early research on legitimacy mainly focused on the perspective of strategy to explain how enterprises obtain legitimacy. It emphasized the initiative of enterprises [19], the influence and transformation of the enterprises on the external environment, so that the enterprises could gradually get rid of the shackles of the environment [28]. From this perspective, legitimacy is often viewed as a controllable resource, and organizations could use this competitive resource to accomplish their goals [21]. Ma [29] divided two stages of acquiring legitimacy for social
organizations, namely, preparation and development stage. In the preparation stage, it is mainly to obtain regulatory legitimacy, while in the development stage, the main task are to acquire regulatory, normative, and cognitive legitimacy. Xiang [6] took Internet enterprises as the research object and combined with the stakeholder theory to study the acquisition mechanism of organizational legitimacy in initial, growth and mature stage, respectively. They found that complete internet enterprises need to acquire normative legitimacy in the initial and growth stages, and regulative legitimacy in the mature stage, while the three stages for an expanding Internet enterprises correspond to “cognitive legitimacy – regulatory legitimacy – normative legitimacy” respectively. Zen, Zhu and Li [21] believed that enterprises can proactively gain legitimacy by formulating effective strategies.

Contrary to strategic theory, institutional theory doesn’t consider legitimacy to be a controllable resource, and suggests that legitimacy depend on whether it is trusted and recognized by stakeholders [30]. Zimmerman and Zeitz [31] put forward the legalization process model of "legitimate strategy - source of legitimacy - type of legitimacy - resource acquisition - survival". Lv, et al. [32] proposed a development process of business incubators, namely, "lack of initial legitimacy - limited improvement of legitimacy - significant improvement of legitimacy". Taking Didi Chuxing as a case, Peng and Wu [33] suggested that platform enterprises can acquire all kinds of legitimacy by relying on the path of "embedded institutions - compliant institutions - constructed institutions".

Strategic perspective is "looking out" from organization managers, while institutional perspective is "looking inward" from the entire society. The former focuses on the subjective initiative of the enterprise to obtain legitimacy, while the latter is somewhat passive [21]. Compared with the institutional perspective, the strategic perspective is more operable in practice, and more easily accepted and adopted by enterprises. Therefore, this paper chose the strategic perspective to identify the three types of legitimacy, namely cognitive, pragmatic and moral legitimacies, and their importance in implementing of waste drugs reverse logistics.

2.3. Legitimacy acquisition mechanism

Factors, such as the degree of consistency between the institutional environment and organizational goals, the intensity of the enforcement of rules and regulations and the uncertainty of the environment, have brought both challenges and opportunities for enterprises to acquire legitimacy. For example, Didi Chuxing broke through the multiple institutional pressures of the government, industry and social cognition and became the first platform enterprises to obtain the regulative legitimacy of government in China [32] However, Nokia’s hesitation to gain legitimacy in the face of environmental uncertainty and first-mover risks ultimately led to its gradual decline in the era of smartphones [33]. Zimmerman and Zeitz [30] pointed out that enterprises can take two ways to obtain legitimacy: one is to change the enterprise itself to obtain the maximum degree of recognition of the environment it is in; the second is to change the environment, which involves changing the attitudes of other stakeholders in the environment and getting their approval and acceptance through various measures. From the perspective of environment, Suchman [7] proposed three strategies for obtaining legitimacy, namely, adapting to the environment, choosing the environment, and coping with the environment The interaction between the three strategies and the three types of legitimacy provide some specific ways to acquire different legitimacy (see Table 2) [19, 29].

First, adapting environment strategy refers to efforts to conform to the dictates of preexisting audiences within the organization’s current environment. Based on adapting environment strategy, to achieve moral, cognitive and pragmatic legitimacy, an organization must conform to principle ideals, established models or standards, and either meet the stakeholders’ need or build a close relationship with other stakeholders, respectively.

Second, choosing the environment strategy is to efforts to select among multiple environments in pursuit of an audience that will support current practices. Moral legitimacy reflects more generalized cultural concerns, enterprises can more limited in their choice of moral criteria, such as responsiveness, confidentiality, accountability, and so on. For example, enterprises provide opportunities to increase employment, and help cultivate talents by cooperating with school and providing the latest technology.
Obtaining authoritative certification is an effective way for enterprises to obtain recognition. Selecting a favorable environment such as identifying and entering consumer-friendly market, is pragmatic.

Third, coping with the environment strategy means that enterprise should make efforts to manipulate environmental structure by creating new audiences and new legitimating beliefs. In this case, enterprises must go beyond simply selecting among existing cultural beliefs; they must actively promulgate new explanations of social reality [33]. Enterprises can show success to establish moral legitimacy, establish association to obtain cognitive legitimacy, and adopt advertising to persuade particular exchange partners to value particular offerings.

This study will be based on this framework to explore the specific ways to acquire legitimacy.

| Moral legitimacy | Choosing the environment | Coping with the environment |
|------------------|--------------------------|-----------------------------|
| Embedded into existing institutions | Choose areas supported by social norms and values | Change existing norms and values |
| · conforming to social norms and values | · increasing employment | · demonstrating success and changing public perceptions and attitudes |
| Cognitive legitimacy | Adapt to the original model | Publicizing existing models |
| · operation standardization | Choose areas that are conventionally acceptable | · advertising |
| · operation specialization | · obtaining authoritative certification | · establishing industry associations |
| Pragmatic legitimacy | Meet the needs of stakeholders | Change the perception of stakeholders |
| · meeting stakeholder expectations | Select market segments | · social charitable donations |
| · building close relationship | · entering consumer-friendly market | |

3. Methodology

We used group discussions and coded the meeting minutes to identify the importance of three legitimacy (i.e., cognitive legitimacy, moral legitimacy, and pragmatic legitimacy) based on the frequency of legitimacy mentioned, and then identify suggestions given by stakeholders on how to acquiring these legitimacies. We invited members in reverse logistics practices of waste drugs involved in the recycling of waste drugs and medication management, such as pharmaceutical enterprises, physicians, pharmacists, and water environment experts and professors, to attend the meeting.

The two group discussions were held in September 2018 and September 2019, respectively. In the first meeting, we introduced the reverse logistics project related to household waste drugs to participants and encouraged them to discuss the possible difficulties of the project. After the meeting, we summarized the results of the discussion and returned them to all participants. For the second meeting in 2019, we invited representatives from the same field, most of whom had attended the first meeting. At the beginning of the meeting, we reviewed the results of the first meeting and our research progress, identified opportunities for the implementation of the project, and still encouraged everyone to present their views and discuss them freely, which was recorded throughout and then transcribed and translated for further analysis.
Regarding the analysis of the meeting minutes, we first interpreted each participant's views and corresponded them to three legitimacy, namely, cognitive legitimacy, moral legitimacy, and pragmatic legitimacy. Then, on this basis, we counted the number of times each type of legitimacy was mentioned in the two discussions. High frequency indicates the importance of this kind of legitimacy. Finally, we extracted specific methods to acquiring these legitimacy from the discussions.

4. Results

4.1. Identifying legitimacy

According to the definition of legitimacy, we divided the views of participants into the three legitimacy. First of all, pragmatic legitimacy is based on the interests, so the views that involve the interests of stakeholders will be classified as pragmatic legitimacy, such as (1) reducing the operating costs or logistics costs of pharmacies; (2) improving the image of pharmaceutical enterprises; (3) Selling effective drugs to consumers at low prices, etc. Cognitive legitimacy means that the activities of pharmaceutical enterprises are accepted and understood by stakeholders, thus these views about (1) publicity and education; (2) drawing on successful cases; (3) establishing trading platforms and other viewpoints, are referred as cognitive legitimacy. Finally, moral legitimacy is about whether an activity is the right thing to do. If a view is about government regulations, permits, or social norms, we classify the view as moral legitimacy. Table 3 listed some views corresponding to different legitimacies.

| Legitimacy     | Representative representation                                                                 |
|----------------|---------------------------------------------------------------------------------------------|
| Moral legitimacy | “we could suggest what laws the government should enact. Or establish a platform as a part of the government agency.” “Government needs to establish an agency which can conduct drug transactions or a drug administration or a subordinate department to solve the drug problem.” “Pharmaceutical enterprises are unwilling to carry out reverse logistics of waste drugs without profit. This requires the government to enact laws that expired drugs in households cannot be littered, just like many strict regulations on garbage classification.” |
| Cognitive legitimacy | “Through publicity and education, let everyone know that waste drugs cannot be littered, and should be treated or recycled by safe and effective ways.” “The enterprises put the Green Dot Company's logo on the packaging material they produce and pays the Green Dot to dispose or recycle the material.” “Establishing a trading platform for waste drugs can connect waste drug recycling management, household drug management, and medication management.” |
| Pragmatic legitimacy | “It may be feasible to transfer the cost of waste drugs disposal or recycling to the drugstore.” “The most important thing for drug recycling or reuse is that all stakeholders provide relevant information and services derived by a common interest.” “In the short term, it will increase the operating costs and logistics costs of the enterprises. But in the long term, it can enhance the corporate image and strengthen the cooperation of the entire supply chain. At the same time, customer loyalty will also increase.” |

4.2. The frequency of the three legitimacy

After classifying all views into the three legitimacies, we counted the number of each legitimacy
mentioned in the two discussions. The larger the number, the more importance this legitimacy is.

Table 4 shows that in the first discussion, pragmatic, cognitive and moral legitimacies appear 5, 4 and 13 times, respectively, and 7, 9 and 10 times in the second discussion. Most participants believed that moral legitimacy is the most important. In the first discussion, most participants only concerned on the moral legitimacy and less mentioned cognitive and pragmatic legitimacies. But in the second discussion, participants’ views have been changing. Cognitive and pragmatic legitimacy have been recognized and the frequency of cognitive and pragmatic legitimacy increased to close to the frequency of moral legitimacy. After adding up the frequency correspondence of each legitimacy in the two discussions, it suggested that moral legitimacy is the most important, then cognitive legitimacy, and finally pragmatic legitimacy (See Table 4).

### Table 4. The frequency of three legitimacies

| Legitimacy         | First group discussion | Second group discussion | Sum  |
|--------------------|------------------------|-------------------------|------|
| Pragmatic legitimacy | 5                      | 7                       | 12   |
| Cognitive legitimacy | 4                      | 9                       | 13   |
| Moral legitimacy    | 13                     | 10                      | 23   |

#### 4.3 Methods of acquiring legitimacy

For each type of legitimacy, we classify suggestions provided from the participants corresponding to different legitimacies’ acquiring (see Table 5). Table 5 showed that there are two methods to acquire moral legitimacy. One is to conform to social norms and values. For example, Mr. Guo, the head of a drug manufacturer, and Mr Yao, a professor of water management suggested that the government should establish an agency or a related department or exact relative law. Another is about providing new technology. For example, pharmaceutical enterprises can get wide government support and recognition by providing new resources and new technologies through school-enterprise cooperation, and cultivating talents in pharmaceutical logistics.

The methods to acquiring cognitive legitimacy include: (1) operation standardization, such as building a testing organization to classify drugs, and (2) operation specialization, such as rigorous testing the recovered drugs or outsourcing to professional logistics enterprises, and (3) publicity and education, such as adopting various publicity tools and methods to acquire public recognition.

For acquiring pragmatic legitimacy, we could adopt the following four methods. One is to meet stakeholder expectations, such as dealing with near-effective drugs at low prices. Second is to build close relationship, such as finding a mutual value chain that connects stakeholders and establishes a connection. Third is to select market segments, such as reprocessing the waste medicines and using them in other places, and Forth is about social charitable donations, such as aiding to disaster areas or donate to poor areas.

### Table 5. Legitimacy acquisition methods

| Legitimacy | Strategy implementation | Representative representation |
|------------|-------------------------|-----------------------------|
| Moral legitimacy | Conform to social norms and values | “The government establishes an agency or a related department under the China Drug Administration to specifically supervise transactions in this area. This ensures that reverse logistics is trustworthy.” |
|            | Provide new technology  | “Pharmaceutical enterprises can get wide government support and recognition by providing new resources and new technologies through school-enterprise cooperation, and cultivating talents in pharmaceutical logistics in a targeted manner.” |
Cognitive legitimacy

Operation standardization

"Pharmaceutical enterprises could build a testing organization to classify drugs, that is, which drugs can be recycled, and which drugs are directly disposed."
"CFDA has a tracking system, which can trace drugs from the manufacturer to the storage area to the hospital."

Operation specialization

"There has no way to judge whether the patients have stored the medicine correctly or the pharmacology has changed, which requires a series of supervision tests."
"Outsourcing to professional logistics enterprises can greatly reduce the risks of reverse logistics, and can also ensure the specialization of operations."

Advertising

"Through publicity and education, let everyone know that waste drugs cannot be littered, and should be treated or recycled.
"With the help of mass media, such as TV, mobile phones, advertisements, etc. we can promote the necessity and role of reverse logistics of waste medicines to the public.

Pragmatic legitimacy

Meet stakeholder expectations

"Pharmaceutical enterprises are willing to reduce drugs with near expiry date, because drugs with near expiry date can still be used. But for expired drugs, pharmaceutical enterprises are unwilling to recycle them."
"Manufacturers or third-party enterprises are motivated to recycle higher-priced drugs"
"Gain the trust of consumers, whether it is dealing with near-expiring drugs or recycling."

Build close relationship

"One of our current concerns is how to find a mutual value chain that connects stakeholders and establishes a connection between drugs and ordinary consumers."

Select new market

"Looking for a new market segments (segment markets, medicine reuse). Reprocess the waste medicines and use them in other places, such as livestock, etc."

Social charitable donations

"Centralized collection and disposal of expired drugs will effectively reduce environmental pollution."
"Aid to disaster areas or donate to poor areas. Through related philanthropy, it helps to manifestation of social responsibility."

5. Discussion

Contextualized in the development of reverse logistics of waste drugs in China, the present study not only identify the importance of three legitimacies, but also provides specific methods given by participants to acquire these legitimacies. In previous research, enterprises actively embedded themselves into the existing environment, and adopted the strategy of acquiring cognitive legitimacy first, then normative legitimacy, and finally moral legitimacy through social construction, completing institutional changes and acquiring various legalized resources [32]. But we found that, for the reverse logistics of waste drugs, pharmaceutical enterprises should first pay more attention to moral legitimacy, then cognitive legitimacy and pragmatic legitimacy. Compared with the first discussion, the frequency of moral legitimacy has been decreased, while the frequency of cognitive and pragmatic legitimacy has been increased in second discussion. This shows that after realizing the importance of moral legitimacy, participants pay more attention to cognitive legitimacy and pragmatic legitimacy.

And then we identify specific methods to acquire these legitimacies. Pragmatic legitimacy rests on the self-interested intentions of the stakeholders. Therefore, it’s the basis for obtaining pragmatic
legitimacy from the perspective of stakeholders. The actions adopted include meeting the needs of stakeholders, choosing market segments, and changing the attitudes of stakeholders. Moral legitimacy reflects whether enterprise’s behavior conforms to values and social norms. Pharmaceutical enterprises can gain moral legitimacy by embedding into existing systems, choosing the areas supported by social norms and values, and changing existing norms and values. Cognitive legitimacy stems from the spread of knowledge about specific things or activities. Pharmaceutical enterprises can acquire cognitive legitimacy when reverse logistics of waste drugs is widely accepted by consumers. In addition, we believe other methods, such as showing achievements, building "authority", increasing employment rate, and establishing industry associations, are also crucial to the legitimacy acquisition of pharmaceutical enterprises.

Firstly, pharmaceutical enterprises can gain moral legitimacy by demonstrating their achievements and increasing the employment rate. According to statistics [35], Guangzhou Phar. Holdings pioneered the service mechanism of "Family Expired Drug Recycling" in 2005. So far, through cooperation with more than 3,000 pharmacies and community medical units across the country, more than 800 tons of drugs have been recovered, benefiting more than 500 million people. In the same year, Bai yunshan and Huangzhong Pharmaceutical Co. LTD also launched a free replacement activity for expired family drugs. The activity recovered and destroyed more than 1,000 tons of expired family medicines, benefiting more than 100 million people. Through displaying the achievements, the existing social norms and values would be changed to promote stakeholders’ intention to adopt the reverse logistics of waste drugs carried out by pharmaceutical enterprises.

What’s more, an enterprise can also acquire moral legitimacy through increasing the local employment rate [19]. When the company expands its employment capacity, it can allow some unemployed people to find jobs again, thereby stimulating people's enthusiasm for production and life, and also enabling the company to establish a good social image.

Secondly, enterprises can either obtain authority certification or establish industry association, or both, to acquire enterprises’ cognitive legitimacy [10]. Boiral [36] believed that the ISO9000 certification system is an important way for enterprises to avoid legal constraints and obtain legitimacy, and it is also beneficial to enterprises to enter the market and obtain the approval of stakeholders. Under the condition of information asymmetry, people often do not understand and know the new things introduced by enterprises, and they also lack the necessary knowledge and information to judge its value and reliability. Therefore, third-party certification not only enhances customers and other stakeholders' cognition of new things, but also provides them with a basis for judgment.

Establishing industry associations is an effective method to acquire cognitive legitimacy because it builds collective action. Reverse logistics of waste drugs implemented by pharmaceutical industry associations is more likely to be considered legal. Because these activities are be seen as "collective" rather than individual. To a certain extent, this "collectivity" can reduce the public's negative perception of a single pharmaceutical company and play an important role in establishing cognitive legitimacy. At present, several pharmaceutical enterprises and drug retail chain enterprises have jointly undertaken the recovery, classification, and inspection work in reverse logistics in Heilongjiang Province of China, and regularly destroyed waste drugs under the supervision of the Drug Administration.

Finally, in addition to the four ways mentioned above to acquire pragmatic legitimacy, advertising could also help enterprise acquire pragmatic legitimacy. Enterprises could take strategic communication to highlight (or exaggerate) the extent of constituent influence and to channel demands for stakeholders into non-disruptive arenas.

6. Conclusion
Based on the theory of legitimacy, this paper discusses the legitimacy acquirement of reverse logistics of waste drugs by pharmaceutical enterprises. Through analyzing the frequency of legitimacy in group discussions, we realized that the three legitimacies have different importance in the implementation of waste drugs reverse logistics, that is, moral legitimacy is the most important, which suggests that
moral legitimacy should be acquired first, and then cognitive and pragmatic legitimacy. On this basis, we further give suggestions and methods on how to acquire these legitimacies, which will be conducive to the success of pharmaceutical enterprises in implementing the reverse logistics of waste drugs, and further promote the competitiveness and sustainable development of enterprises. At the same time, it will be conducive to the harmonious and sustainable development of society, economy and environment.

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