

# Research on Current Situation and Countermeasures of "Last Kilometer" Delivery of Military School Campus Express

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## Abstract

With the development and popularization of logistics in colleges and universities, the e-commerce market of college students in China has been developing rapidly, and logistics distribution is one of its important parts. The terminal distribution of campus logistics is disjointed, and the operating core such as four links and one reach cannot meet the complicated and changeable distribution requirements of the student market. Based on military academy as an example, this paper analysis the current military academy campus express that exist in the "last mile" distribution point express business point set is not reasonable, school since low service, satisfaction, delivery efficiency is low, and put forward the reasonable countermeasures to solve these problems, in order to express "the last kilometer" for the military school campus distribution for reference.

## Keywords

**Military Academy Express; The Last Mile; Distribution Countermeasures; The End of the Distribution.**

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## 1. Background Analysis

In recent years, domestic e-commerce platforms such as Taobao, JD.com and Pinduoduo have risen rapidly, making online shopping one of the main channels for people to shop. According to data from iiMedia Research, in the first half of 2019, China's online retail sales reached 19.520.97 billion yuan, accounting for 24.7% of the total retail sales of consumer goods [1]. The rapid development of e-commerce has also driven the rapid growth of the express industry. According to the Statistics of the State Post Bureau, in 2019, China completed 63.5 billion pieces of express business, with a year-on-year growth of 25.3%, with an average daily processing capacity of 180 million pieces, and an average per capita usage of 45 pieces [2]. China's annual express delivery volume has tripled in three years from 31.2 billion in 2016.

In the context of economic development entering the new normal, e-commerce has maintained rapid development for many years. College students of military academies are an important part of online shopping group, and the problem of "the last mile" of campus express delivery of online shopping service students needs to be paid attention to. In our country the Last kilometer, but often called Last mile in Britain or the United States, originally refers to the completion of the Last mile of a long journey and is extended to refer to the Last but critical step in accomplishing a task [3]. The "last mile" problem exists widely in various fields, such as e-commerce terminal distribution, humanitarian logistics terminal distribution, agricultural informatization construction, rural information service, communication service, urban public transportation network, etc[4]. At present, there are still many problems in express service, especially the problem of delivery at the end of express has become the focus of contradiction. It is mainly manifested in the problems such as manpower consumption, low efficiency, inflexible distribution schedule and inability to guarantee user information security. In

addition, college students are the main force of online shopping, accounting for 26.9% of the online shopping crowd, which also gives rise to a huge demand for campus express services.

This article to express the present situation of the "last mile" distribution products are studied, suggested that schools increase campus Courier charge dealerships, optimizing the layout of delivery point, and introduce an intelligent unmanned express car, implement efficiently to complete the delivery to the end user distribution process, at any time delivery Courier service for the user, breakthrough the traditional way of human express delivery. And put forward the perfect management mechanism, grasp the hidden trouble prevention measures.

## **2. Analysis of the Present Situation of "The Last Mile" Distribution of Campus Express Delivery in Military Academies**

This paper mainly focuses on the demand degree, satisfaction degree and convenience of campus express for the military academy teachers and students by using the field survey method to visit and random interview research. After investigation, it is found that the delivery mode of express terminal is single, and the Courier at the school gate calls to pick up the goods. This temporary delivery mode still has many disadvantages.

Through my observation of a period of time, because they can not often go shopping, military cadets use express frequency is very high, with a large market scale, but most students because of the terminal distribution there are still many problems, the current campus express satisfaction is not high.

### **2.1 The Establishment of Express Business Points in the Military Academy is Unreasonable**

Military campus in security policy is different from general civil community, has a relatively strict regulations on express access, are not allowed to express vehicles literally in and out of campus, there is the need of epidemic prevention, there is also a school policies considering the safety factors, so a lot of Courier company cannot be placed on campus PeiSongDian, for the teachers and students and staff in and out of the regulation, It is difficult for logistics companies to implement terminal distribution. Originally in the east gate school in the bungalow, now take in the east gate to set up express points. The school used to have a smart delivery cabinet, but it was removed. From the point of view of customers, compared with self-pickup stores with personnel on duty, self-pickup cabinets pick up goods through the delivery code, which is conducive to the protection of privacy and personal safety. From the operator's point of view, self-pick container replaces manual service with technology. In the long run, if the use of self-pick container can reach a certain scale in the region, it will greatly reduce the labor cost of terminal distribution. However, due to the limited types and sizes of packages, delayed delivery by customers and high maintenance costs, the self-picking container mode still has certain limitations and cannot completely replace manual delivery in the short term.

Because the campus of the military academy covers a large area, and the accommodation area is far away from the school gate, the rationality of the distance between the delivery of express parcels was not considered. Since the school gate, there is no real express delivery "the last mile" door-to-door distribution. Because the school campus area is large, it is very inconvenient for some people who live far away from the dormitory. Due to the unreasonable location of the express delivery, some students need to queue up at the express delivery point, and it takes about half an hour to get back and forth and queue up, which is a great waste of time and energy.

### **2.2 Poor Satisfaction of Self-Lift Service at the School Gate**

At present, the Courier at the school gate usually notify customers to pick up the express by phone or text message, and the Courier waiting time at the school gate has a great limit, generally at noon, and there are also some express companies at night. The cadets in addition to tolerance service class meeting is very much also, often not the right time to get the Courier problem, this not only adds to the cost of secondary distribution, cause the Courier delay, at the same time distribution not free and easy to cause the emotional problems of Courier, objectively affect the Courier service attitude, influence the customer experience. Express delivery scattered on the ground, stay in the open

environment, wind, frost, rain and snow bring a lot of inconvenience to pick up express, aggravating college students' dissatisfaction with express service.

### **2.3 The Imperfect Management Mechanism of Express Pickup and Delivery Forms Loopholes in Management and Control**

Through the field investigation of the express delivery point at the east gate of the campus, in addition, at present, the express delivery mode of "floor spread" is widely adopted, that is, the express is spread out on the ground for students to pick up by themselves, this way of delivery has certain security risks. In order to save time, couriers only confirm recipients by reporting their names and do not ask for the number of the express bill. The signing mechanism is not standardized, and it is easy to get wrong or falsely claimed. When it was not time to open the small side door at the east gate, students would take delivery through the fence. Although couriers classify all deliveries to facilitate students to find them quickly, the delivery points are inefficient, which leads to congestion. This is not only unsightly but also blocked the traffic at the gate of the camp, and there are certain management loopholes and security risks.

Students reported that their families had experienced lost or damaged packages. When students pick up express delivery, they can notice that the bar code of "verified" is obviously printed on the outer package of their parcels. Few of them know what "verified" stands for and what its meaning is. Examination, is refers to the Courier after received the parcel, will the parcel detailed inspection, test whether the outer packing of goods in good condition, to weighing, test whether items belong to the state prohibited substances, a process, the final chapter examination on the cover, ensure the safety of the goods to the recipient for the parcel. It is clearly stipulated in China's Express Market Management Measures that no organization or individual may use express service network to engage in activities that endanger national security, social public interests or other people's legitimate rights and interests. The goods prohibited by the State include: contraband, publications and printed matter harmful to national security and social and political stability; Dangerous goods such as weapons, ammunition, biochemical products, infectious, explosive, corrosive, radioactive and toxic articles; Or objects that interfere with public health; Various currencies in circulation; Other articles prohibited by laws, administrative regulations and state regulations. Express packages are marked "inspected", indicating that the packages meet national standards, are safe and will not harm themselves or others. In many express parcel Courier station in colleges and universities will be stamped with the "examination" bar code, but in fact Courier station inspection times is limited, express delivery parcel post to "examination" highly formalized, even didn't get the examination, the transport of goods to bring huge to a certain extent safety hidden trouble, also brings to the staff and the recipient. When a package is lost or found damaged after receiving the package, the merchant and several logistics companies pass the buck to each other and pass the buck to each other. After all, it is impossible to find out who is responsible for the package. College students have to pay a lot of time and opportunity cost at the same time, and even bear the loss of the damage of the package.

## **3. Research on the "Last Mile" Distribution Strategy of Campus Express Delivery of Military Academy**

### **3.1 Increase the Campus Express Collection Agency, Optimize the Layout of Express Points**

The unreasonable layout of express delivery points leads to different satisfaction levels of students in different regions when receiving express delivery. Optimize the distribution of express delivery agencies to make students living in different areas as satisfied as possible. Express delivery agencies can be set up in both districts of the school or in the central location. Military Academy The military Academy express service total market demand is large and there is room for improvement.

To thoroughly solve the military school campus end express delivery "the last kilometer" problem, according to the characteristics of the military academy FengBiHua management and express company to realize the distribution cost minimization and maximize returns, adopt participatory receiving mode on the express delivery model, must fully integrate the existing resources express

company end point distribution and pattern, set up the third party Courier transceiver academy campus center. To establish a centralized, efficient and customer-oriented comprehensive express service center in front of the viewing stand of the military academy, in order to improve the delivery service quality of campus express "the last mile" and reduce the terminal delivery cost of express companies.

Campus supermarket express points can also be established, which is a cooperation agreement signed by supermarkets and various express companies, so as to send and receive express goods uniformly. In order to further facilitate the delivery of express, express supermarket by sorting area, reception desk, shelf area, standby area of four regions. Sorting area, separate storage based on the different express company, the convenience of storage is also for the convenience of the interval in the future; Shelf area, storage storage is based on the shelf division of the area, in order to facilitate the follow-up search on the corresponding shelf; At the reception desk, the customer receives the express at the reception desk by SMS, completing the process of picking up the package; In the standby area, solve problems of parcels, and manage logistics equipment and other resources to ensure the normal operation of the express supermarket. Compared with self-built and self-picked stores, this mode saves the construction cost of outlets, but it also has certain deficiencies. First of all, convenience stores have their main business. Compared with professional outlets dealing with express delivery collection, the collection and management of express delivery will not be particularly in place. Secondly, because customers can not pick up goods in time, convenience stores charge customers overtime fees, which is bound to affect customer satisfaction; Finally, the express company will pay some fees to the merchants in exchange for some space for the storage of express packages. In cooperation with convenient stores, it needs to pay some delivery fees to them, thus increasing the investment of express companies.

Cainiao express delivery tower can also be introduced, which can store 600-800 parcels to meet the needs of dense population and limited land use. It has 16 delivery ports, which is convenient for couriers to deliver in batches and improve efficiency. At the same time, consumers can scan their faces to pick up items, so that automatic devices like stereo garages will automatically deliver packages to the pick-up port in front of consumers, without having to worry about finding the delivery slot. At the same time, the express tower can also be connected to drones and unmanned cars.

The delivery address of students can be more detailed, and special personnel can send the delivery to the agency of each dormitory building closer to the students, saving the delivery time. In order to avoid the congestion caused by the peak of student pickup, the manager of the express delivery agency can stagger the peak of pickup as far as possible when sending a message to inform students to pick up the express delivery.

### **3.2 Express Unmanned Vehicles**

It is reported that cainiao Courier Station of Tianjin University Beiyangyuan Campus uses an unmanned delivery vehicle with license plate number G3-19108. Students and teachers need to search the "Cainiao Courier Station" mini program in Alipay or Taobao, enter the "Parcel Posting", select "Unmanned car to pick up the parcel", fill in their name, address and phone number, and the parcel Posting car will appear at the agreed time and place, greatly saving time and manpower [5].

Military academy can introduce intelligent unmanned express car, express car using the current "Internet + intelligent logistics" technology, can automatically drive on the road, sensing the road conditions, complete human-computer interaction with the user, and can independently express at any time, 24 hours for the user delivery express, low labor cost. Can ensure the user information security, etc., broke through the traditional human express delivery mode, broke through the traditional human express delivery mode, optimize and even change the traditional express delivery mode, thus leading a more efficient and convenient new future lifestyle. When the express car is delivering express for customers, users can check the real-time location of the express car through the mobile APP or web page. When the express car delivers the goods to the specified location, users

will receive the corresponding notification on the mobile phone or web page. Users then simply approach the delivery vehicle, unlock it with their mobile phone, and retrieve their packages.

At the perception layer, the unmanned vehicle integrates lidar and visual real-time recognition technology to recognize the surrounding pedestrians, vehicles and obstacles, providing a basis for planning the optimal detour path. Currently, Suning is also developing a four-legged wulong One, which will not only ride elevators, but also climb stairs in the future, with more skills and intelligent services.

### **3.3 Improve the Management Mechanism, Grasp the Hidden Trouble Prevention Measures**

First, continue to standardize the contents of documents. By issuing the numbers of brigade (department) and team mailbox as the receiving (sending) address of online shopping, the name and information of the company can be prevented from being inadvertently leaked on the express bill, so as to normalize this system. Strengthen inspection and supervision, filling in documents is strictly prohibited from any information related to the army, personal accounts in the management process is strictly prohibited from revealing the identity of soldiers. Second, regular express delivery order. Outside the safe range of the camp, a unified mail room shall be established, which shall be managed by designated persons as the only channel for picking up and delivering express goods, so as to avoid direct contact between Courier and students picking up and delivering express goods. The mail room should be timely, fixed, complete the statistics. Timing is the timing of the opening period, to ensure that send (take) on the end of the walk. Do a good job in security check and registration of express delivery, and report illegal items in time.

## **4. Conclusion and Prospects**

As an important part of the army online shopping army, military students promote the development and progress of e-commerce. The "last mile" distribution is the last link to connect e-commerce and end consumers and ensure their experience satisfaction. The rationality of distribution operation directly affects the sustainable development of E-commerce in China. But at present, there is a big conflict between the demand of the military campus express delivery and the "last mile" delivery mode of the express company. At present, the military academy campus express delivery is still in the early stage of development, the optimization and upgrading of campus express delivery will effectively change the status quo of terminal express delivery. The "last mile" distribution problem of campus logistics is not only to send the products purchased by consumers to the destination, but also to provide consumers with high quality and personalized services. "The last mile" is also the only link between e-commerce and customers, and the most difficult one to control, which directly affects the image of e-commerce in the hearts of consumers, and the loss of customers may occur if there is little control in this link. In the face of the unsatisfied situation of campus "last mile" distribution, we can improve the service attitude of express pick-up points and change the way of picking up, so as to improve the satisfaction degree of college students on "last mile". This short distance distribution, although is the end of the whole logistics process, but significant.

Uavs and unmanned distribution stations can solve the distribution problem of the last 1 km in remote mountainous areas and rural areas. With the increasing maturity of unmanned driving technology, the logistics industry will enter a new field of high-tech automation composed of the Internet, artificial intelligence, big data and cloud computing, which will bring fundamental changes to the logistics management model. Big data technology not only promotes the booming development of e-commerce, but also brings great challenges to logistics industry. In the context of big data, e-commerce express terminal distribution service has five characteristics, including demand differentiation, information transparency, equipment science and technology, intelligent operation and diversified modes. The e-commerce express terminal distribution system based on big data will have the functions of intelligent monitoring, decision support, prediction and mining.

The management of express delivery on campus in colleges and universities is not only for the benefit of students or express companies, but also for the safety and order of the university itself. In the future,

the terminal distribution mode of campus will still be different according to the scale, geographical location, school philosophy and so on. But the same is, the school itself should be realized that the campus express has is closely related to the management of the campus itself, regardless of whether or not willing to, it is there, but will also continue to grow, so whether or not the school policy support or to participate in the campus express itself, the school should be in line with the service concept of campus students, specification, Bring campus express into the module of modern university construction.

Due to my limited research ability and time and energy, this study only finds out the problems and some countermeasures. The deficiency lies in the lack of automatic car distribution area and route planning, as well as the discussion on the location of the express tower based on the shortest delivery journey of each team. Campus logistics is complicated, and campus express is only an obvious module, which has not been comprehensively studied. Some aspects such as campus waste and recycling logistics need to be further studied.

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