

# Research on the Operation Mode of Mask Vending Machine under the Background of Campus Epidemic Prevention

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## Abstract

Since the outbreak of covid-19, the respirator has become a necessity in people's daily life. Because of the dense flow of people on university campuses and the wide geographical distribution of students, epidemic prevention and control is also very important. Through a questionnaire survey, college students' opinions on the use of self-service mask vending machines are investigated, the advantages and disadvantages of putting mask vending machines on campus are discussed, and the E-commerce operation mode and strategy of export mask vending machines are given, so as to contribute to epidemic prevention and control and college students' entrepreneurship.

## Keywords

Campus Epidemic Prevention; Vending Machine; Anti Epidemic Mask; Electronic Commerce.

## 1. Research Background

### 1.1. Current Situation of Domestic Campus Vending Machine Market

With the rapid development of modern society, ordinary sales methods can not meet people's needs, so vending machines came into being. We can find vending machines in schools, shopping malls, stations and other public places. At the same time, with the development of China's economy and the upgrading of mobile payment technology, people's living standards have been greatly improved, people's consumption concept has been changed, and the concept of "unmanned supermarket" under the sharing economy is well known. As a small "unmanned supermarket", self-service vending machines have broad prospects for development. Compared with the popularity of vending machines in the United States, Japan and other developed countries, the development of various use modes and scope of vending machines in China is not comprehensive. The main structure of vending machines dominated by automatic beverage vending machines is relatively single. Therefore, the domestic market of vending machines is very considerable, and with the increasingly mature production and R & D technology of vending machines, The functions of vending machines are becoming more and more perfect. Vending machines can no longer sell only drinks and snacks as before, but also begin to have various commodities, such as fresh vegetables, freshly picked flowers, doll blind boxes and so on. In some public places with large passenger flow, the existence of vending machines is very common, and the development and popularization of vending machines on campus has become inevitable.

The number of college students is large and relatively stable, the change of passenger flow is small, and the overall quality of students is high, the consumption ability is high, and they are easier to accept new things. The high intensity and high pressure of modern society makes people pay more attention to the fast and timely purchase of goods, and the emergence of campus vending machines just meets the requirements of teachers and students for the improvement of living standards. The advantage that the vending machine is not limited by

time and space enables it to operate 24 hours a day, saving labor costs and facilitating the consumption of school teachers and students. Although the vending machine has the characteristics of low operation cost, small floor area, flexibility and mobility, which makes it have great market potential in the campus, the common problems of campus vending machine, such as single type of goods, untimely supply, unreasonable price and so on, are difficult to meet the needs of students.

## **1.2. Domestic Campus Epidemic Prevention Forms**

The epidemic of COVID-19 pneumonia has prompted us to think deeply about how to do a good job in public health and epidemic prevention. Although China's epidemic prevention and control situation is better, New Coronavirus has a fast transmission rate and a high infection rate. Life is more important than Mount Tai. Command is the responsibility of epidemic prevention and control. At present, it is still necessary to enhance national epidemic prevention awareness, do a good job in personal safety protection, wear masks, wash hands frequently, ventilate frequently and gather less, so as to contribute to social epidemic prevention while self epidemic prevention. The campus is densely populated, so strict epidemic prevention and control should be carried out. According to the survey, most campuses in China have realized "closed" management. The form of epidemic prevention is mainly aimed at the control of all teachers and students, staff and other outsiders in the school and strengthening the rectification of campus environmental sanitation. Wearing masks, washing hands frequently and regular nucleic acid testing are also crucial parts in campus epidemic prevention and control.

## **2. Advantages and Disadvantages of Campus Mask Vending Machine**

### **2.1. Advantages**

**24-hour service:** it is difficult for traditional physical stores to ensure that they are open 24 hours a day. Campus mask vending machines can avoid this problem, realize full-time sales, ensure that students can buy masks 24 hours a day, and help students deal with emergencies when necessary.

**Low operation cost:** vending machines save manpower and low rental cost. Compared with ordinary vending machines, mask vending machines are cheaper, less investment cost and lower operation risk. With the continuous innovation of modern science and technology, the vending machine has become quite intelligent. Each transaction can be directly used as data for the analysis of subsequent purchase and sales links, so that relevant staff can understand the sales situation of the sold goods. In addition, the background can monitor the sales of different types of masks at any time, replenish according to the obtained sales data, and adjust the product composition in time. At present, the operation guarantee ability of vending machine enterprises has been greatly improved, and the operation efficiency of vending machines has been continuously improved.

**Small floor area:** due to the small volume of disposable masks, mask vending machines are also smaller than similar self-service vending machines such as beverage machines, with small floor area, many places to place, flexible and easy to move.

**Convenient payment method:** with the rapid development of mobile payment in China, the payment methods that people can use are more advanced and convenient. Depending on the current domestic payment situation, the payment types of masks self-service vending machines have become more diverse. WeChat, Alipay, cloud flash payment and other mobile terminal scan code payment or the related face entry system's face payment, but also can be purchased by means of paper money or coins.

Reduce exposure and make epidemic prevention and control more reassuring: there are many people on campus, and the disposable use of medical masks will also increase people's demand for masks. The self-service mask vending machine can avoid personal contact during the epidemic and make it more convenient and reassuring to use.

Save queuing time, and the price of goods is relatively low: Nowadays, the pace of life is fast. Vending machines are convenient, fast and time-saving. Moreover, the cost of vending machines is low, which saves store and labor costs, and the price of goods is lower than that of physical stores.

## 2.2. Defects

Single product: in order to meet the public's demand for different masks, there are different kinds of masks on the market. However, the capacity of mask vending machine is limited, and a choice needs to be made between the types of masks that can be provided and the number of masks that can be accommodated. If we want to supplement more masks in the case of rich types of masks, we need to increase the capacity of the vending machine. It is difficult for everyone to adjust. Only by maintaining the capacity of the original vending machine and increasing sales can we reduce costs and maximize the benefits of the mask vending machine.

Machines are vulnerable to damage: vending machines on campus are located in public places, and vending machines are unsupervised most of the time except for supplementary goods. However, due to the large flow of people on campus, vending machines are frequently used, which are very easy to wear out and even suffer man-made malicious damage. Without protective measures, vending machines are small in size and may even be damaged by thieves. In view of this situation, we need to maintain and clean the vending machine when replenishing goods. At the same time, we need to monitor whether it is man-made or natural destruction in the background, and manage and repair it in time.

Inconvenient return and exchange service: students will inevitably read the wrong size and choose the wrong style when buying masks. However, at present, the vending machine cannot provide return and exchange service, which is relatively inconvenient.

High maintenance cost in the later stage: in the later use of the vending machine, try to select the vending machine with better quality in the early stage in time, which will also have the problems of high platform operation cost, high maintenance cost and weak sense of service experience.

Unstable operating income: during school holidays, the flow of people is reduced, the use frequency of mask self-service vending machines is reduced, while the cost of vending machines remains unchanged, and the supply and marketing are unbalanced, resulting in reduced income.

Fault error card mask: when the mask vending machine fails due to improper use or other conditions, it may happen that the mask is not exported, the corresponding mask is not displayed according to the instructions, or the mask is not stopped.

## 3. E-commerce Operation Mode of Campus Mask Vending Machine

### 3.1. Market Research

The covid-19 pneumonia was the first in 2020. Covid-19, however, with the correct leadership of the state and the joint efforts of the whole nation, China has achieved great strategic results in the prevention and control of the new crown pneumonia. However, this does not mean that we can let down lightly. Schools are crowded places, and prevention should be more stringent. With the continuous growth of the material needs of college students, the original public facilities of the school can not meet the growing consumer needs of teachers and students. Nowadays, there are few vending machines on campus. The machine seats are only fixed under the dormitory building, and can only sell drinks. According to the survey, college students

purchase epidemic prevention materials mainly through offline physical stores and online shopping. Under the prevention and control of COVID-19, some schools have implemented a comprehensive closed management in order to safeguard students' life safety. In the case of school closure, fewer physical stores for college students to buy masks offline. It takes a long time to buy masks online, which can not solve the urgent need for masks. With the development of campus epidemic prevention activities, vending machines, as a convenient and fast mobile commerce tool, usher in new development opportunities. Combined with the current situation of epidemic prevention and control and their demand for masks in daily life, a series of investigations were carried out to explore the feasibility of putting mask self-service vending machines on campus.

Our main research content is the market status, market positioning and main types of campus commodity vending machines put into use in schools. The delivery of vending machines on campus will reduce the negative impact of forgetting to carry epidemic prevention materials on the daily life of teachers and students, and can help teachers and students buy epidemic prevention materials conveniently and quickly. With the improvement of living standards, the development of economy and the increase of work intensity and pressure, people pay more and more attention to the fast and timely purchase of goods. In the arrangement of epidemic prevention work on university campuses, self-service epidemic prevention material vending machines not only avoid personnel contact during the epidemic, but also effectively make up for the current large demand for mask selling, The corresponding emergency purchase channels have fewer such gaps. The emergence of the automatic masks vending machine on campus is just in line with the demands of the teachers and students in their own epidemic prevention in the background of COVID-19.

In the form of questionnaire, we conducted a survey on the campus automatic mask vending machine, mask use habits and needs of college students in Suzhou University. 80% of the students said that they often forgot to wear masks and were unable to take public transportation or go in and out of public places, which caused great inconvenience to their daily life, Therefore, they all hope and support the establishment of self-service mask vending machines on campus, and they agree that mask vending machines need to be installed, and the places can be set up at the school gate, dormitory building, teaching building, canteen and other places. The survey results show that although students have different needs for mask styles, However, the preference for disposable medical surgical masks with simple styles of independent packaging is significantly higher, and the price acceptance range is mostly within 5 yuan. However, in order to enjoy more convenient and fast services when purchasing goods, the price is relatively higher than that of other stores on campus. The above information provides basic data support for the entrepreneurial model and basic situation of mask self-service vending machine.

In public places with closed management and dense personnel, such as schools, there are few shops and windows for the purchase of disposable medical masks. There is a large demand for disposable medical masks. There are also many emergencies in urgent need of disposable medical masks when entering or leaving the campus or entering crowded public places. Therefore, the installation of automatic mask vending machines in schools can provide convenient and affordable epidemic prevention services for students and teachers, and realize the same growth of economic and social benefits.

### **3.2. Location of Vending Machine**

According to the rules of daily use of masks and vending machines and combined with the data of the survey questionnaire, mask vending machines should be mainly put in places with large traffic, high repurchase rate and long stay time. According to the survey, vending machines can be mainly installed in dormitories, teaching buildings, libraries, canteens, school gates and

other places with large flow of people, and try to be close to the daily life of students and teachers to meet their needs, so that buyers can buy masks and other epidemic prevention items within the shortest distance from the demand range.

### 3.3. Determination of Supply Mode

In view of the policy problems of colleges and universities and the specific procedures requirements for entering the campus market, we can negotiate with the school, sign contracts, letters of commitment and other measures to strive for a favorable place for the placement of mask vending machines, and further formulate the sales plan of self-help mask vending machines on the premise of meeting the requirements of the school;

After determining the types of masks sold in the vending machine, design the export mask in combination with the brand concept, and then contact the qualified mask manufacturer to determine the product price and the exclusive ownership of the product design, sign the supply contract with the manufacturer in advance, clarify the responsible party for the shortage of detailed supply, negotiate the purchase price and make a plan. In case of shortage of supply, Contact other manufacturers in time;

After the vending machine is put into use, the background monitors the product sales data to judge the specific sales situation, and fills or updates the self-service mask vending machine from time to time according to the sales speed and profit of different styles and combinations of masks;

After the vending machine is officially put into use, it is still necessary to conduct regular Market Research on the mask vending machine, timely adjust the size and placement of the vending machine according to the actual situation of the campus, and select the best sales point.

### 3.4. Publicity and Promotion of Vending Machinesetermination of Supply Mode

Offline: through establishing cooperative relations with campus radio stations, campus radio stations, canteen television broadcast media, etc., the publicity of mask self-service vending machines can be increased in the form of campus advertising. In the early stage, the promotion can also be carried out by organizing activities in offline venues where the target users are concentrated, winning small games and getting gifts;

Online: college students are highly dependent on the Internet, and online promotion has great advantages. Use the campus publicity wall, today's campus, to dream space, learning pass, easy class and other college students' practical software for cover publicity to let more students know about the project.

### 3.5. Operation and Maintenance of Vending Machine

The mask vending machine has small volume and simple operation and maintenance. Through real-time intelligent monitoring of mechanical failure and shortage information, repair the machine and complete replenishment in time, analyze the sales of masks according to the background big data, and adjust the types and quantity of masks in time. Clean and disinfect the vending machine every day to provide students with a clean, comfortable and safe purchase experience. For the school holiday arrangement, you can choose to stop the vending machines in some places during the holiday, and clean and place the suspended vending machines uniformly. Conduct regular market intention survey to understand the progress of the project and make a long-term development plan.

## 4. Epilogue

Vending machine is a new mobile commerce tool in modern society. With the advent of the Internet of things, vending machine is becoming more and more popular in people's life. As a living tool, vending machine has become another fast magic weapon after 24-hour convenience

store. It provides unparalleled convenience for people's life. It is not limited to serving customers who buy goods, so it plays a more and more extensive role in society. China's economic development prospects are bright, and people's living standards have been greatly improved. With the impact of the outbreak of the epidemic, people's awareness of epidemic prevention has improved, and the concept of implementing normalized epidemic prevention and control measures has been deeply rooted in the hearts of the people. Driven by unmanned retail, the development and popularization of vending machines has become inevitable. All these provide good conditions for the delivery of mask vending machines. Wear masks, wash hands frequently and gather less. Personal protection for everyone is the top priority. The launching of campus mask vending machines is not only to meet the needs of college students for daily epidemic prevention supplies, but also to contribute to winning the protracted war of epidemic prevention and control. According to the survey, many college students hold the attitude of hope and support for the campus automatic mask vending machine. Students have more demand for disposable medical masks, of which the most concerned is the characteristics of disposable medical masks, such as easy to carry, strong functionality and high cost performance. With the development and innovation of vending machines, mask vending machines are not only selling a single mask product. We will also invest in disposable disinfectants, small packaged hand sanitizers or alcohol wipes and other products to continuously improve relevant supporting epidemic prevention services, so as to better cooperate with campus epidemic prevention and control with safe, thoughtful, efficient and comprehensive services. At present, in some developed cities, mask vending machines have been installed in some public places with large flow of people to provide people with convenient and fast epidemic prevention services. To combat the epidemic, we should start with ourselves and around us, consciously abide by the policies and regulations on epidemic prevention and control, and develop good health habits. Good personal safety protection, frequent hand washing, frequent ventilation and less aggregation can not only effectively block the spread of COVID-19, but also prevent epidemic diseases such as tuberculosis, viral hepatitis and other infectious diseases that endanger people's health and life, and contribute to the establishment of a healthy community for human health.

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