

Study on The Form of Reservation of Food Orders in Campus Canteens in The Post-epidemic Era

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Abstract: In order to reduce the pressure of dining in the school canteens and to facilitate the purchase of meals for students, the use of information technology to achieve the reservation of meals and delivery services in the school canteens has become a key issue. Based on this situation, we designed a canteen ordering system using HTML, CSS and JavaScript, combined with a MySQL database and a WeChat applet as the basic platform. The system combines the offline campus cafeteria with the mobile Internet terminal, thus realising the basic function of ordering food in the canteen. The system mainly contains a user ordering module and a merchant management module. Users can view dishes, order and evaluate them; merchants can.

Keywords: WeChat mini-programs, Ordering systems, M-commerce systems.

1. Research Background

As the number of students on campus continues to increase, the canteens are overcrowded during normal meal times, i.e. at meal times. At the same time the immense pressure of academics, the compression of lunch break time has already reached its extreme, the inconvenience of purchasing meals and dining, the long queues and the inability to compress meal times will shorten the lunch break time once again. The relationship between cafeteria dining and academic performance [1] [2] is such that in order to ensure that students can study in the afternoon and have a guaranteed lunch break, the problem of slow food shopping at meal times must be solved. This project focuses on solving the problem of crowded campus dining, and in the face of this problem we are determined to develop a campus ordering software, in the ordering software set reservations, packaged meals, back orders, etc., in order to shorten the queuing time for students to eat and improve the dining environment in the canteen. It also brings convenience to students and teachers, optimises the canteen management structure, reduces the workload of the canteen staff and facilitates canteen sales statistics. This software will make it easier for students to eat and for canteen

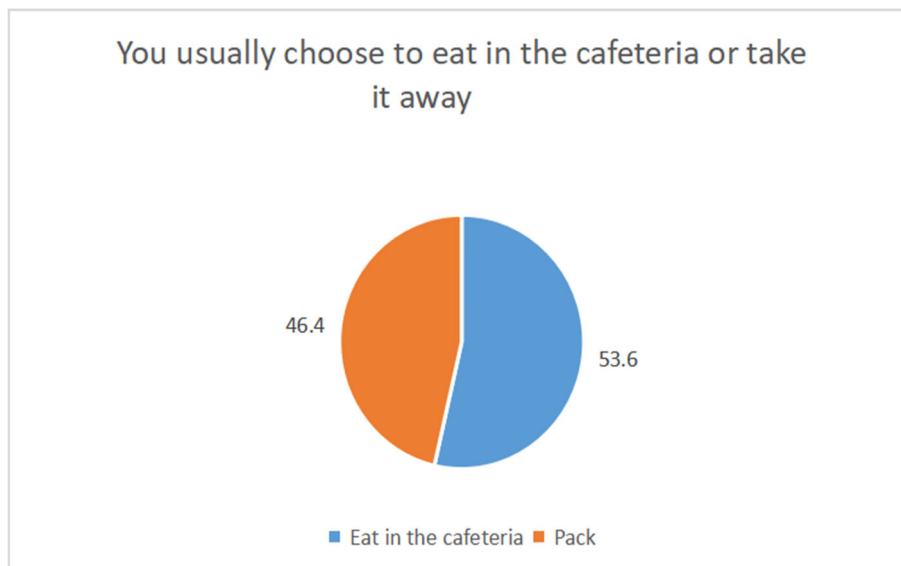
management.

2. Research Significance

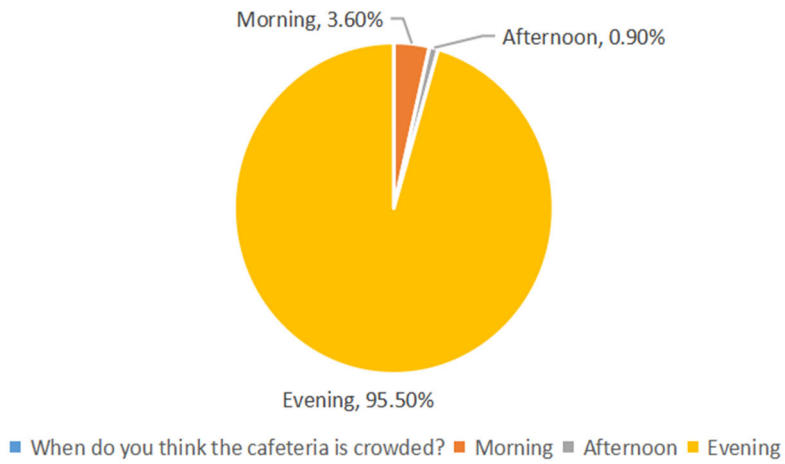
In recent years, due to the overwhelming number of students in the school, the constant influx of students at meal times has caused temporary overcrowding in the canteen as well as a lack of seats in the canteen, which has posed a great challenge to the canteen's business managers. At the same time, students complain about the efficiency of the canteen service because of the long queues and the fast-tracking of seats at meal times. Therefore, how to arrange the number of canteen windows open and the number of seats for students to eat in order to reduce the waiting time of students in queues has become a practical problem that we need to solve. This study uses our expertise to determine the optimal range of canteen window openings and seating arrangements, and then develops campus ordering software to solve these problems.

3. Survey

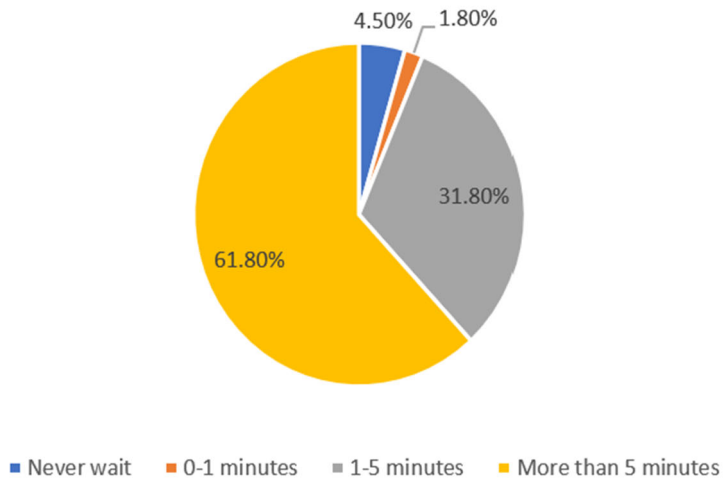
With the support of questionnaire technology, a regional university was used to reach out to schools and student groups to collect the most direct and effective information.



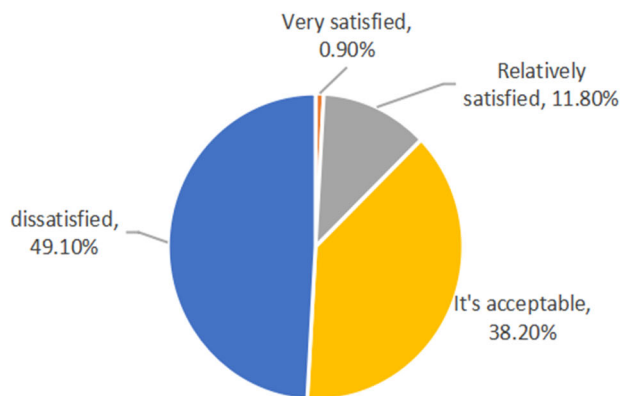
When do you think the cafeteria is crowded?



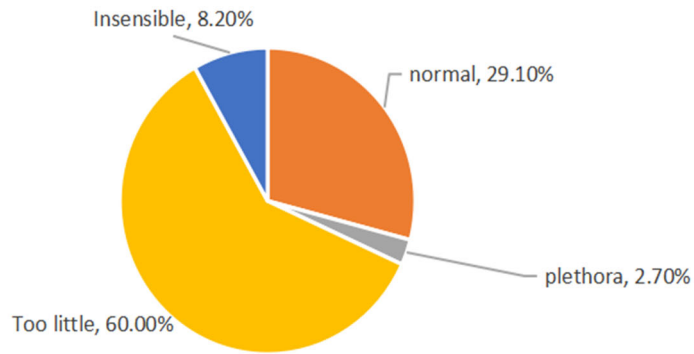
How long do you wait in the cafeteria?



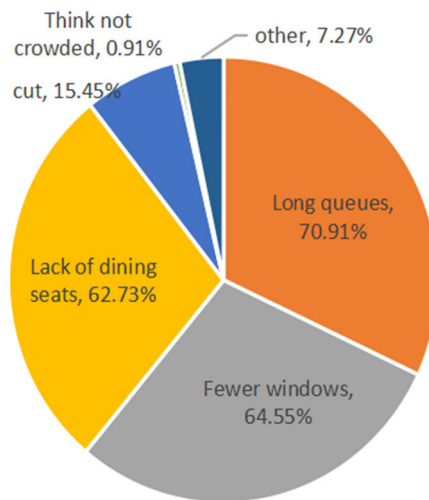
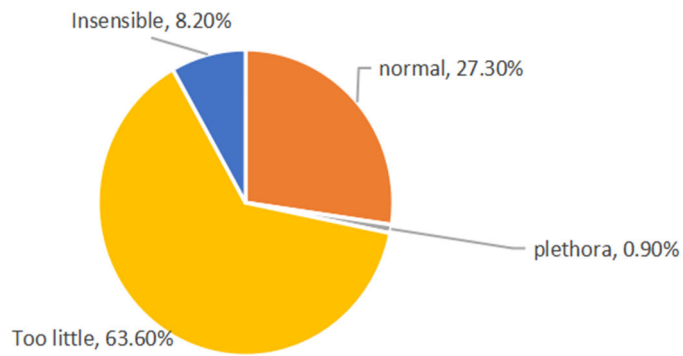
Are you satisfied with how crowded your school cafeteria is?



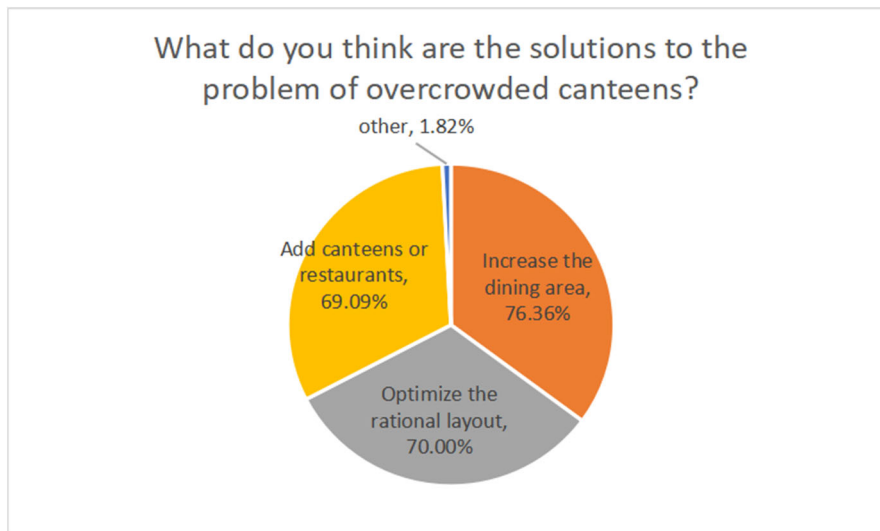
What do you think of the window size of the canteen?



What do you think of the seating capacity in the cafeteria?



What do you think are some ways to solve the problem of overcrowding in canteens?



(1) The survey used stratified sampling method. From the analysis of the survey results, 53.21% of the students dined in the canteen, 95.41% felt that it was extremely crowded at noon, and 61.47% of the students waited in line for their meals before finishing picking them up after 5 minutes. Students generally felt that more windows and seats should be provided in the canteen.

(2) Over 70% of the students' opinions were that the dining area should be increased and the layout should be optimised.

(3) In this project, our team talked to students from various departments of a university about the overcrowding situation in the canteen, and we planned to solve the problem of overcrowding in the canteen through ordering software.

4. Current Status of Domestic and International Research

4.1. Research related to ordering systems

The domestic status of online ordering systems With the rapid development of China's market economy in recent years, the per capita disposable income of China's households has become higher and higher, and people have moved from a single way of consumption where most of their income is used to buy food to a more diversified consumption demand. The development of our soft power has led to the development of related industries and new ways of consumption. In particular, the rapid development of the internet in recent years has created a smarter, more convenient takeaway market that combines the catering industry with the internet, providing consumers with better deals, more convenient and more innovative forms of ordering food. Catering is the basis on which people survive, and the development of the catering industry is even more important to provide a healthier lifestyle for our nationals. Catering enterprises want to be bigger and stronger, to pursue modernisation, industrialisation and branding. It is necessary to realize the information management from the most fundamental service items such as ordering, to provide healthier, better quality, more efficient and more humane services, to deeply improve their management efficiency and to establish the service concept of "everything for the guest", in the modern era, it is necessary to combine with the Internet, which has given birth to and developed the Online ordering systems. Compared to the traditional telephone ordering, online ordering not only allows you to learn about the business and see a wide range of dishes, but also allows you to understand the takeaway

process in real time. At present, China's existing online takeaway platform, according to the mode of operation to classify, can be divided into four main types, respectively, to McLeod send, HI Lo send, Ji food as the representative of the self-built self-operated online takeaway platform; to Meituan takeaway, hungry takeaway as the representative of the third party light platform; to live radius, to home food as the representative of the third party heavy platform; to hungry, Baidu takeaway as the representative of the third party light and heavy platform The combination. And in recent years, with the new lifestyle changes, college students account for a larger proportion of takeaway consumption. The number of university students is huge, and this has contributed to them becoming an important part of our economic development and consumption structure. University students are undoubtedly trendsetters and they drive the industry to a certain extent. If we can channel their consumption power, the industry will have huge room for development. However, if we want to occupy a stable and large market share in such a special consumer group, we must have a comprehensive understanding of their consumption behaviour and preferences. The combination of university students and university cafeterias will definitely become a new and healthy takeaway platform. As an emerging consumer force, university students have considerable scope for development, and their consumer philosophy has gradually taken shape. In university canteen takeaway consumption, students are the main force, and students like to order food online through ordering software.

With the development of e-commerce and people's increasing reliance on the internet, people's requirements for food and drink have also increased and takeaway software has emerged. People have special requirements for food, they like to eat various specialties, such as Sichuan and Cantonese cuisine; they like to eat green and healthy food; they like to eat fast food and convenience food; they like to communicate and interact while dining, etc.

For these reasons, there are many online ordering systems on the market. Most of them are online APPs or WeChat mini-programs developed by the merchants themselves, which are easy to use, but often have some problems.

For the online ordering system, on the one hand, for the merchant will increase a lot of workload and cost expenditure; on the other hand, if the customer can not meet the requirements in a timely manner or dissatisfied with the

service, the ordering system may also directly intercept the order down or directly refuse to provide services for customers. So these merchants are still more cautious to choose whether to build their own platform or to use a third-party platform. Merchants in the online ordering system development is mainly for its own and brand tailored to create a set of perfect management mode and efficient, convenient management mode; in addition, can also be combined with their own situation and the actual needs of customers for comprehensive consideration after the choice of third-party platform or self-built platform. With the popularity of the Internet and the rapid development and popularity of mobile devices, consumers are more inclined to use their mobile phones to order and pay for food in the dining process, which is not only conducive to promoting the development of the mobile market. However, there are currently problems in the online ordering system such as poor user experience, insufficient promotion of the business, and low user loyalty. These problems will cause great obstacles to the future development of online ordering systems.

4.2. Similar software research

In the face of the rapid development of the times and the progress of consumption patterns and concepts, if we do not follow the development trend, the inferior is bound to be eliminated by the times. The problem is highlighted by the current hot takeaway platforms, such as the "Meituan Takeaway" online ordering platform, which is well known to students and teachers in universities, with a transaction amount of 702.1 billion yuan and 14.4 billion transactions in 2021. Although such a platform still has many disadvantages compared to canteens, such as the freedom to mix and match, price, delivery time, and the slow change in students' consumption of food. However, there is no doubt that such online ordering platforms have taken market share from canteens, and reflect the inability of canteens to improve in line with the needs of the times. Therefore, if the canteen continues to adopt the traditional mode of operation without implementing strong improvement measures, one day its advantages will be exhausted and its competitiveness will be lost, eventually disappearing and remaining in history. So, in this case, can the software studied in this paper help to improve the canteen?

At present, most of the reforms in China's university canteens are still limited to the improvement of the traditional model, and few schools have carried out fundamental reforms, for example, for the problem of "takeaway" raised by students, although universities have adopted the way of "unified distribution" to solve the problem, but this way cannot fundamentally solve the problems of low student satisfaction and poor service quality. For example, although universities have adopted the "unified delivery" method to solve the problem of "takeaway", this method cannot fundamentally solve the problems of low satisfaction and poor service quality of students' meals.

Therefore, this paper concludes from a comparative analysis of existing canteen reform measures that adopting an online ordering system based on Internet technology for canteen reform is a feasible solution.

The mobile e-commerce system is an emerging model that has significant advantages over the traditional canteen queuing model: firstly, it solves the "takeaway" problem. Students can order food and have it delivered to all school

buildings and dormitories through their mobile phone clients, and they can also order and have it delivered through the system if they cannot eat in the school canteen during meal times. Secondly, it provides more sales channels for school canteens. The m-commerce system not only brings direct economic benefits to the campus canteens, but also brings more additional economic and social benefits to the canteens.

4.3. Current status of application in university canteens

The construction of a university canteen reservation ordering software combined with third-party payment methods is in line with the development rules of the Internet market and e-commerce, and is in line with the development trend of the information age. The modernisation of the canteen system will greatly change the way of life of teachers and students in schools. Therefore, the construction of canteen reservation ordering software is bound to become a sign of progress in the Chinese university canteen service system, and is an important premise and foundation for advancing university culture, university life and university reform. The canteen reservation ordering software is designed to solve the problems that currently exist in university canteens and to promote the reform of the school management system in this way.

Canteen reservation software has its own characteristics compared with traditional university canteens: firstly, it is student-oriented; secondly, the service is more humane. Traditional university canteens have a series of systems to manage the canteen, but the service is not user-friendly enough. Now some schools have started to establish a humane system and service system, the purpose is to let students have better satisfaction with their own school; third, more scientific and efficient management, college students from all over the country, management will also have a lot of difficulties. Nowadays, many universities have started to use intelligent terminals for management, and many departments, including canteens, are using intelligent terminals for management. The smart terminal is a small box, which is different from an ordinary box in that it has an intelligent terminal in addition to the internet and other data. The smart terminal is a device that is supported by "Internet+" technology. Using big data to profile students' consumption [3], the smart terminal allows users to see how each person rates the dishes and to use this data for scientific meal preparation. This approach has completely changed the traditional canteen management model, which is based on management alone. In the past, schools always operated their canteens with management in mind, with little consideration for the students. The new cafeteria reservation software will solve this problem. The launch of the cafeteria reservation software has largely reduced the pressure on college canteens in terms of operations and has enabled consumers to enjoy a better dining experience and dining environment.

The cafeteria reservation software uses Internet technology and is supported by "Internet+" technology, which is a new management mode for college cafeterias. The system adopts advanced biometric technology and cloud service technology to realise "one-key ordering", "face payment" and "big data analysis" through intelligent mobile phones and computers. The software is designed to achieve information and intelligent management of university canteens. The canteen reservation software adopts the O2O mode, making full use

of the Internet information interaction platform and mobile payment technology to innovate the operation and management mode. In the existing management system of school canteens, the system can be used to monitor the distribution, consumption and inventory of meals in real time, effectively saving human resources and management costs; the existing meals in school can be updated in real time, so that students can replace them in time. The canteen reservation ordering software uses cloud service technology to enable the school to release restaurant information and news updates online. Consumers can place orders through the mobile APP and then view the dishes on their mobile devices and choose their favourite dishes to pay for them. The application of this "Internet+" model not only enhances the existing management system to a certain extent, but also effectively increases user stickiness. The integration and analysis of data through a big data analysis platform will help the school to make the right decisions, improve operational strategies and strengthen campus management. The cafeteria reservation software has established a multi-level and multi-channel feedback mechanism, including feedback from the student body and the university government on the cafeteria service, the overall evaluation of the school and the evaluation of the cafeteria. At the same time, schools can also improve the quality of service and canteen management through user feedback to achieve lean canteen management. [4] The use of "Internet+" technology to promote the reform of the canteen operation system is the key to the current reform of university canteens.

The canteen reservation ordering software breaks the original mode of standing in front of the window to order food, consumers only need to match their own set meal in advance on the terminal and complete the payment. The system will then send the progress of meal preparation and consumption verification code to the consumer, after which he/she only needs to go to the canteen window to collect according to the consumption verification code, which greatly saves time, manpower and resources. With students and teachers ordering and paying for their own meals on the software, the canteen no longer needs the manpower and windows associated with it, instead there are meal preparation staff and a small number of pick-up windows, making it fast, efficient and organised even at peak times. This has gone some way to meeting the diverse needs of university students and has reduced some of the pressure faced by canteen queues. Students in higher education come from all over the country, and students come from different places and have different tastes. Traditional canteens have a single taste that cannot meet the diverse needs of consumers. The canteen reservation ordering software, on the other hand, offers multiple dishes, allowing consumers to choose different dishes according to their preferences. Students have the right to choose on their own, which also greatly satisfies their needs for the dining environment. The cafeteria reservation software is also convenient and comfortable to use, as it is equipped with an intelligent terminal and a billing system. Consumers only need to operate the smart terminal to complete the checkout and order function, which greatly saves time and increases the efficiency of the service. Consumers can keep track of the status of the dishes and the overall ordering situation during the dining process. Through the intelligent terminal, various information about the restaurant, such as the restaurant address, contact telephone number and the price of the dishes, can be checked at any time. All these information can be

viewed on the smart terminal, making it easy for students to monitor and give feedback on the quality of catering services.

The canteen urgently needs software to provide real-time feedback on ordering data, which allows schools to get a clear picture of the student body's evaluation of the dishes and feedback on the catering industry. This helps the school to strengthen communication and interaction with students and to understand their needs and feedback in a timely manner so that corresponding adjustments can be made to optimise service quality. The software can also provide statistical analysis of food consumption data, analysis of the turnover of each restaurant and statistics on the number of diners, which can provide guidance for canteen operations and a basis for decision-making. The software also needs to provide a food review function, so that both teachers and students can give feedback on the food and the attitude of the service staff, urging the canteen to improve its service quality. When there is good feedback from consumers, the canteen operators can be given incentives to provide humanised service and feedback to customers.

The canteen reservation ordering software displays the dishes served in the canteen and their nutritional content visually on the smart terminal, and then the system can recommend or customise a set menu according to your own situation, making it a truly scientific and healthy diet. The canteen reservation ordering software makes students feel more at ease and makes the canteen service more humane. Food safety is one of the most important issues facing university canteens today. Therefore, canteen reservation software can solve the food safety problem from the source, through a series of data analysis to get the consumer's evaluation of the dishes, so as to guide the operation and management of the canteen, thus making the canteen more scientific and standardised.

5. Current Issues

Schools are places where students live, study, grow and other intensive activities, and students' meal times are fixed periods of time. The economic model of ordering and picking up meals on behalf of students is more practical than traditional takeaway software. The majority of universities recognise this aspect of the research, but have not invested much energy, manpower or material resources to support the initial promotion and ongoing management and maintenance. The downside is that it is limited to the more congregated environment of schools.

6. Missing Conditions

The Internet is constantly evolving and advancing, and nowadays Internet technology permeates all areas. As a team of mainly university students with only basic access to the Internet, it is not possible to use high-end or even more advanced technologies, because on the one hand the knowledge and skills acquired are limited, and on the other hand there are no specialised support organisations or government departments, and the pressure of follow-up funding is too great to facilitate such projects.

7. Summary

The rapid development of the Internet has led to the widespread use of the WeChat platform and the use of WeChat applets is becoming more and more common. This

paper develops this canteen reservation ordering platform system based on the WeChat applet. The system optimises the canteen ordering method in today's universities, facilitating the management of orders and improving the efficiency of canteen management as well as the convenience of teachers and students. The system is designed around the actual needs of students and teachers and is simple to operate and advanced. This new sales and operation model will be widely used in the future. The system does not currently encrypt the data in the network, and the data may be attacked or tampered with during transmission, so the security technology still needs to be improved.

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