

The Importance of Foodservice in Higher Education: A Business Anthropological Case Study in China

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ABSTRACT This research employed business anthropological methods (participant observation and in-depth interviews) in addition to a quantitative survey in order to investigate the quality of food service operations at a Chinese university. Food service quality's impacts on student satisfaction, student learning, and student health were explored. In addition, the research uncovered defects in food service operations, and suggestions were made for improvement. Finally, this paper recommended that food service quality should be included in the Chinese government's performance evaluation of universities, which would greatly encourage improvements of university food service.

INTRODUCTION

It is perhaps quite surprising how much impact a well run university foodservice operation can have, both on the students and on the university. In this section of the paper the researchers will list the many impacts that are possible, after which the researchers will examine the impact of university foodservice operations on the students, and finally, the researchers will look at the impact such operations can potentially have on the university, both examinations being done in the context of non-western, Chinese universities. The researchers conclude this section with reference to the research methods that have heretofore been chiefly employed in doing research in China into Chinese university foodservice operations (Tian et al. 2014).

Research into the impact of university foodservices on student satisfaction in Western universities indicates that several factors related to university dining services impacts student sat-

isfaction, and that student satisfaction in turn affects the retention of students by Western universities. For example, Trutna (2010) states that "Several retention factors and social benefits related to the cafeteria surfaced. By providing a place for students to study, eat, socialize, and acclimatize to college life, the college cafeteria proved to be an integral part of a student's development and college education." Trutna lists nine research works which are directly or indirectly related to the impact of foodservice quality on student retention. In addition, the well-know United States higher education consulting firm Noel Levitz conducts a "Student Satisfaction Inventory" which contains an item relating to food service, which asks the student to judge this proposition: "There is an adequate selection of food available in the cafeteria" (Noel Levitz 2010). One study of factors affecting university retention discovered that one of the five major negative forces pushing students away from the institution studied was the poor quality of the food service (Leone and Tian 2009). Another study of a college food service operation discovered that students' view of their experiences with the dining hall affected their view of the college. Another key finding of this paper was that although food service was not the most important factor in the selection of a college,

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nevertheless, it was a factor that affected students' decisions on where to enroll. In addition, it was discovered that students' felt that poor food service negatively affected the college's reputation (Tian et al. 2008). Some research indicates that factors related to foodservice does affect student satisfaction, for example food quality, food variety, dining hall ambience, staff quality, and price (Raman and Subhaseni 2011), all of which factors are explored in depth in this case study.

Research in Chinese on University Foodservice Operations

Research in China indicates that the impacts of foodservice operations on students' education are vital. Providing healthy, tasty, and high quality food is said to be so important that it is an important guarantee of both teaching and learning (Xiao 2008). Chinese researchers have concluded that a student's nutritional level affects his physical and mental health and his learning ability (Ye et al. 2006). Positive campus dining experiences can contribute to student retention (Hossler and Bean 1990). A high-quality dining hall is said to be related to the effectiveness of Chinese educational programs, as well as the Chinese college or university's stability and development (Li et al. 2008). Research has found that foodservice at Chinese universities is related directly with students' health, mood, completion of the students' studies, and even the stability of the campus, and as such, foodservice quality was one of the most important issues in school logistics management (Pan 2009). Student satisfaction with food in the dining hall has a direct impact on dining frequency and expenditure, thus affecting foodservice profits, as well as the long-term development of the university (Lu 2009).

One of the key variables studied in this research is student satisfaction with foodservices, and therefore it is of interest to see what Chinese research has to say about student satisfaction with university dining halls. It is clear that as time has gone on in modern China, the demands of university students have increased greatly, and as a result, Chinese university foodservice operations are put in more and more of a strain in order to satisfy their students. With the rapid improvement of Chinese living standards, Chinese students no longer merely desire just to

eat, they want to eat comfortably in a pleasing environment (Li 2008). Factors which favorably impress students and increase their satisfaction now include such things as dining environment and atmosphere, meal price, service attitude, food taste, hygiene, and coordination with campus culture (Ma 2009). Stating the issue differently, one Chinese researcher sets forth the proposition that there are four main factors affecting student satisfaction; namely, dining environment, perception of the dining hall's food products, service quality perception, and eating conditions, all of which factors affect student satisfaction differently (Gao 2009).

There are particular institutional factors inherent in university foodservice operations that render it difficult for universities to satisfy students. One such factor is the typical lowly financial status of a university student. This requires foodservice operations to offer inexpensive food, and inexpensive food is difficult to make attractive (Li 2008). Another factor is the fact that a university student is often a captive consumer – it is often difficult for students to find alternatives to the university dining hall. This means that a student is often forced to eat three meals a day at the university dining hall. This regular monotony is inherently liable to compel a student's dissatisfaction (Chen 2006).

The researchers turn now from a focus on the students affected by foodservice operations to the foodservice operations themselves. What does a review of Chinese literature uncover concerning the organizations who provide meals to university students? The first thing we find is that the operational model of such organizations has changed in recent years. Third-party contract management companies have replaced university-operated services on many Chinese campuses. These private entities are typically more efficient than university-operated ones, but they are also more risky from the university's point of view, because in outsourcing foodservice operations, the university loses the degree of control over foodservice operations that it had before (Zhuang 2009). The operating environment has also changed. More and more Chinese students are attending college, as such, more and more students and parents are paying attention to the university's foodservice delivery. These environmental changes are putting increased pressure on university foodservice operations to improve the quality of their service (Gao et al. 2010).

However, there are institutional factors that militate against improvement of university dining hall services. One is the fact that the dining hall services are a monopoly. The student's do not have the choice of eating at another dining hall service, because there is only one. As a result, students continue to go to university dining halls which they believe are providing them bad food, backward service, at a high price. Moreover, because they have no option to go elsewhere, the university dining service feels no competitive pressure to improve (Zhou 2009; Chen 2006). However, probably the most significant institutional factor hindering the improvement of university foodservice operations is the simple fact that dining hall quality is not included in the assessment criteria by which university management officials are judged. In China, government officials from the Ministry of Education (MOE) produce an annual university evaluation, which is an index closely tied to the college's reputation and future advancement. Ministry of Education officials do not include quality of foodservice as a factor of assessment; hence, there is no incentive for busy university officials to push for improvement (MOE 2004).

There have been many scholarly suggestions for the improvement of dining hall services (in general, not just in China). For example, some scholars have suggested that schools improve professional standards of dining hall workers, improve recipes, and strengthen regulations concerning food purchasing and preparation (Wechsler et al. 2001). Other suggestions include selecting better contractors, strengthening publicity and education about dining services, raising awareness of food safety, letting students participate in foodservice management, establishment of long-term price structures, and increasing variety on the menu (Wu 2011). Others have isolated other factors. For example, some academics have suggested that choosing managers with the proper philosophy as well as those who possess overall management capacity is important, as well as an improvement of the foodservice management system. As well, scholars have suggested that multi-level monitoring would be of benefit (Lan and Tian 2011).

Significance of this Study

From the research cited above, we may discern that university food service quality has

many repercussions. Student retention, student satisfaction, quality of teaching, quality of learning, the physical and mental health of students, students' learning ability, the effectiveness of educational institutions, university stability, and university development have all been cited in research as factors which the quality of food service may affect. These are issues which far transcend a narrow focus on the profit of dining service operations, although that, too, is of importance. Therefore, any research which enlarges and deepens knowledge of food service operations has a great potential to enhance the ability of university administrators to reform foodservice operations in ways that have a great impact upon the quality of the higher education provided by the university. This research was designed and planned in order to do just that in a Chinese higher education context with the purpose of finding out -opinions from stakeholders of the universities and discovering other ways to improve the effectiveness of food service management at universities by applying business anthropological research methods.

Background of the Current Study

This study was purposely designed in such a way that anthropological research methods might be employed in order to perform business research. It is true that business research has in the past tended to be quantitative. However, a whole new field of business has emerged, generally entitled "business anthropology", which aggressively seeks to employ traditional anthropological techniques in the domain of business research. A range of such techniques have been deployed in business research, including participant diaries, videotaping, rapid assessments, in-depth interviews, and participant observation. (Freeman and Spanjaard 2012; Elliot and Jankel-Elliot 2003) This research used two traditional anthropological research techniques, participant observation and in-depth interviews, triangulated with the typical questionnaire quantitative research method. These research methods were employed to gain deep insight into the foodservice operation of Shantou University.

Shantou University is located on the outskirts of the city of Shantou, in Guangdong, a southern province of China that neighbors Hong Kong. In 2012, the university enrolled 9398 full-time students, 75% of whom were from Guang-

dong province. The faculty and staff together formed a contingent of 5126 workers, and the full-time faculty comprised almost 1000 instructors and professors. The university is relatively young, having been founded just over 30 years previously. The institution is noted because of its special support by the Li Kashing Foundation, which has been greatly funded by one of Asia's wealthiest businessmen and philanthropists, Li Kashing.

Shantou University has three dining halls: the Second Dining Hall, the Third Dining Hall and the Fourth Dining Hall (there is no First Dining Hall). The three dining halls are equipped with four, six, and eight-seat tables, allowing 1500 students to sit at one time. Each dining hall provides a place to collect used tableware and leftovers at the exits and provides a hand washing basin. In addition, each dining hall also arranges to have a student on duty in order to serve any student who may need help. The hours of operation of these three dining halls are the same: breakfast from 7:00 to 9:00 am, lunch from 10:00 am to 2:00 pm, supper from 4:00 to 11:00 pm. The price of the set menu, which includes two meat dishes and one vegetable dish, is 2.5 yuan (\$0.38). The average price of a dish in the *à la carte* window and Sichuan window is 3 yuan (\$0.45). Soup is 2 yuan (\$0.30). The cereals window provides yam, corn, potatoes, etc. for about 1 yuan (\$0.15) each. The average price of pasta is 4 yuan (0.60). The price of dishes in the cook-to-order window and deli window is the most expensive, 5 yuan (\$0.75) on average. The teachers and students uniformly use a smart card to pay for their meals in the dining halls, although cash payment is also permitted.

METHODOLOGY

In the fall semester of 2011, one of the authors of this paper taught a maiden Business Anthropology course at Shantou University. The purpose of the course was to train undergraduate students in the use of anthropological research methods, especially ethnographic methods. Seventy students took the course as an elective. The 70 students were divided into 12 study groups of five or six students each. The 70 students, thoroughly trained by the professor, working individually, in their study groups, and together as a class, designed the research methodology. The design process was as follows. Each

individual student conducted a literature review. In addition, each individual student randomly observed students eating in the dining hall. The entire class then took these observations, and the results of the literature review, and then extracted from that specific research questions. The students then, in their individual study groups, designed their observation plans, their in-depth interviews, and their questionnaires. These preliminary plans were then taken before the whole class, and the entire class refined the plans. Then, each of the individual students took the observation plans, in-depth interview questions, and questionnaires into the field and collected data. They then brought the data back to the entire class for analysis. Throughout this whole process, at every stage, the professor was fully involved, making suggestions and corrections as needed.

From the process described above, the class developed several research questions. These questions were: 1) How did Shantou's foodservice affect student satisfaction? 2) How did Shantou's foodservice affect student learning? 3) How did Shantou's foodservice affect student health? 4) How might the foodservice operation at Shantou be enhanced? 5) Should foodservice quality be included in the government's performance evaluation of the university? In order to answer these questions, the researchers used three research methods: participant observation, in-depth interviews, and a questionnaire survey.

Participant Observation

Participant observation is the primary research method in doing business anthropology. From September to late December 2012, members of the Business Anthropology class observed diners at different Dining Halls for a period of about 14 weeks. They were covert participant observers, because the dining service personnel did not know of the research project, nor did the student diners. However, at the point that the field workers interviewed diners, they informed the diners of the project, and those diners may have told other diners. This effect was probably negligible, given the very large number of students who potentially ate at the dining halls (about 10,000). Therefore, we may describe the research method employed as partially covert participant observation.

The observations were made randomly at the three different dining halls at different times,

including breakfast, lunch, evening dinner, and late night snack time, on both weekdays and on weekends. The student field workers focused on two groups of people: student diners, and the foodservice workers. The field workers observed which foodservice window the students chose, with whom the student sat in order to eat, where the student diner sat and for how long, and any interactions with service staff. They also observed the attitudes of the service staff, their work patterns, did they wear a mouth mask, and when did they open their service windows. The field workers created about 300 observation records. The observation locations were the Second, Third, and Fourth Dining Halls. Subjects observed included undergraduate students, graduate students, teachers, and foodservice personnel.

In-depth Interview

A researcher using an in-depth interview asks open-ended questions that elicit deep knowledge from a relatively few people (as compared to surveys, which tend to be more quantitative and cover more subjects. The method is “discovery-oriented”, and deeply explores the subject’s feelings and perspectives. Initial interview questions draw forth rich background information, which can in turn be used to formulate further questions. The format is semi-structured. Although the key questions are pre-planned, the interview is also conversational, with un-preplanned questions logically following on previous questions. The interviewer actively listens to and interprets the answers he is receiving, and from his listening seeks clarity and understanding throughout the interview. In addition to content, the interviewer also records such things as non-verbal behaviors as they occur, as well as personal reflections about the interview (Sinkovics et al. 2008).

The student-researchers who administered the in-depth interview in this research asked eight questions of students from different geographical districts, grade levels, and genders. The field workers selected 112 interviewees from students who filled in questionnaires by asking them if they were willing to be interviewed. The questions aimed to discover student satisfaction, student learning outcomes, and student health. The first five questions asked, respectively, what effect the foodservice had on the student’s health,

his learning, his mental outlook, his pleasure, and his satisfaction with the school. The interviewers also asked respondents with the sixth question whether they thought that foodservice performance should be a part of the university’s evaluation. The seventh question asked what measures the students would take, if they had the power, to improve the food and beverage service. The eighth and final question asked the respondent about any other relevant matters they had noticed about the foodservice.

Questionnaire

The survey method is typically used in business anthropology for quantifiable data. In this study the researchers designed a questionnaire to collect data that we would otherwise be unable to collect through participant observation or from in-depth interviews. The questionnaire asked specific questions regarding the influences of the school’s catering service on the students’ campus life. The first part asked for basic information concerning the respondent such as gender, grade, hometown, family incomes, etc., and in addition asked about the influence of the catering service on the student’s campus life, as well as the positive and negative aspects of the school’s dining service from the students’ perspective. The second part of the questionnaire adopted a five-dimensional Likert scale, which ranged from strongly agree to strongly disagree. This part of the questionnaire contained seven questions asking about the relationship between foodservice quality and student health, learning effectiveness, inspiration, happiness, and school reputation. In addition, the second part of the questionnaire asked six questions concerning the students’ evaluation of the quality of the university’s foodservice. The second part of the questionnaire also contained seven questions which probed student awareness of the importance of the foodservice. The third part of the questionnaire consisted of three open-ended questions. For example, one question inquired “What are the three things that satisfy you the most about our foodservice and what is your advice to the dining service?”

The field workers administered the questionnaire to small groups of student diners. Each group had six members consisting of three men and three women. The field workers administered

the survey at meal times in every dining hall. In order to improve the authenticity and validity of the questionnaire, the field workers required the target respondents to do the questionnaire on the spot. The researchers felt that the attitudes of students could be measured more accurately when the students were in a dining atmosphere. The field workers selected random tables during lunch and evening dinnertime, both on weekdays and on the weekend. The student fieldworkers delivered 350 questionnaires in this fashion to those students eating at the selected tables. Most students were very pleasant and cooperative when asked to fill out the questionnaire.

RESULTS

Participant Observation

The student fieldworkers sorted the data collected into three major categories, each category reflecting a significant impact on the students: student morale and satisfaction, student health, and student learning. Findings and conclusions will be given here, organized in general by the above three categories. We will present miscellaneous discoveries afterwards. Tables 1 and 2 in the appendix contain detailed observations made by the participant observers.

Table 1: Effects of food quality on physical health and learning

<i>Date/Time/Situation</i>	<i>Observations</i>	<i>Academic interpretation</i>	<i>Managerial suggestions</i>
11/8/2011 Tuesday 18:00 The fourth mess hall at supper time, about 90% seats were taken	The window for cooked noodles has the longest queue, followed by the steamed bread and porridge window, and then the self-selected dishes, combo and Lucai ("green dish," a kind of pickled food)	Cooked noodles is the most favored food; Always the combo windows offer limited food that is not hot upon serving; the price of Lucai is far over the average consumption level of students	Add some noodle windows, and at the same time reduce porridge and steamed bread windows. Increasing food types at the combo window and cover the dishes to prevent them from becoming cold. The number of Lucai windows can be reduced
11/15/2011 Wednesday 7:35 In the third mess hall at breakfast time about 70% of the seats were taken	Most people are eating alone when they have breakfast. Most choose porridge and soybean milk, also adding a kind of pickle in the porridge. Students who opt for soybean milk mostly drink it in the dining hall	Due to the early morning class, students have not sufficient time to chat during breakfast. Plus, because the plastic cups aren't sealed, students have no choice but to sit down before drinking. Porridge tastes bland, so a lot of people like to add some pickles	Supply a sealed cup which can keep warm and which is easy to carry. The pickle's brand and supply should be fluctuated with the demand of students
11/20/2011 Sunday 22:10 The dining Hall Two at snack time was half full	Four boys order five side dishes and five bottles of beer; a couple and three boys choose rice noodles; two boys and a girl chose side dishes and orange juice	Students often choose side dishes plus beer or soft drinks when they dine together, and opt for rice noodles when they eat alone	Add some other desserts and snacks, such as peanuts, barbecue and sticky tofu, because many students tend to dine together in the dining hall, and thus prefer variety
11/21/2011 Monday 12:10 At the supermarket doorway behind the second mess hall At weekday lunch time dining hall was completely full	A boy is paying for a bottle of mineral water, a tin of beverage and a box of instant noodles; A girl who holds a packet of paper towels and a piece of bread waits in line; three boys stay in the area for instant noodles, and four girls linger in the area for bread	The dining room is crowded with people, and the queue time is too long. So, some students switch to the supermarket buying instant noodles or other foods	Add seats and food windows; repair the damaged seat; implement appropriate ways to prevent diners from putting their bags on the seats, which takes up valuable space

Table 2: Service attitude and student’s emotional outlook

<i>Date/Time/Situation</i>	<i>Observations</i>	<i>Academic interpretation</i>	<i>Managerial suggestions</i>
11/12/2011 Saturday 12:20 The second mess hall At lunch time dining hall is completely full	Within 15 minutes, there are 21 students packaging their food to take out of the dining room	When class is over, dining room is crowded with people and there are almost no seats, so students have to choose to take out	Add seats and food windows; repair the damaged seat and implement appropriate ways to prevent diners from putting their bags on the seats, which takes up valuable space
11/15/2011 Tuesday 10:10 a.m. the second mess hall and the third mess hall between breakfast and lunch time are almost empty	The second mess hall has already started providing lunch, some windows also offer breakfast. While the third mess hall has not yet begun to operate	The second mess mainly aims at undergraduates and the third mess hall for graduate students. Generally speaking, the graduate students have a more regular schedule than undergraduate students	Primary customers of the second mess hall are undergraduates, so the service time can be flexibly adjusted according to undergraduate eating habits
11/17/2011 Thursday 22:30 The second mess hall at snack time is almost empty	Groups of students, just returned from exercising and others from studying in the library, line up in the front of pastries and other snack windows	Students are more likely to feel hungry after exercise and studying, so they often take food at night	Add windows providing food, porridge and snacks after ten o’clock at night
11/28/2011 Monday 12:15 the second mess hall at lunch time is completely full	The tables around the main aisles are almost completely occupied, causing traffic inconvenience	After class, students will generally dine together. A rectangular dining table is beneficial for students gathering together, but the passage gap between the tables is too small	Layout the dining tables again and reasonably utilize the limited space of the dining hall

Student Morale and Satisfaction

The field workers observed that the students not only used the dining halls for mundane eating, but in addition, they used the dining halls for a social gathering place, and as a place to carry out student activities, or a common place to eat together on a holiday. The observers noted a direct and positive impact on student morale.

By contrast, the researchers discovered conditions which had a negative impact on student morale. For example, the dining halls tailored their menus mainly towards the majority Guangdong population, thus neglecting the tastes of the minority of the student body who were from different regions and whose cuisine was different. In addition, the field workers observed students in front of the set meal window who were unhappy with their choices. They also observed that the dining halls did not open up early enough before the first early morning class. Additionally, they observed that some foodservice workers had no patience when providing

services for students, providing services with “a straight face and heavy tone.” And lastly, the student researchers perceived a suboptimal eating environment in the dining halls, which were not bright, comfortable, clean, and quiet enough. They saw the tables as sometimes messy. They observed that some students were getting packed meals from the dining halls and carrying them to the dormitory, perhaps to avoid the dining hall environment.

Student Health

Observations concerning the impact of the Shantou University foodservice operation on student health included the following. Food service staff had diluted the soybean soup with water, so that the soup had no nutritional value. There was not a variety of vegetables. Food service cooks had prepared food with too much oil and salt. There were no professional rules concerning staff training and health safety. Employees were not wearing their masks correctly. Staff assigned to clean up tasks would clean tables at

which students were not finished eating. There were flies all around at least one of the dining halls. Students lined up much more often at the snack and pastry window, suggesting their nutritional needs were not being met. See Table 5 in the appendix for more detailed information.

Student Learning

The field workers found that one major characteristic of the dining service impacted student learning. Inconvenient operating hours were seen to have an especially negative impact on student academic efforts. There was a rush hour at breakfast that concentrated breakfast eating to ten or twenty minutes before class. Students rushed their eating, or either ate as they walked to class. Lines were long, and students had to wait a long time to eat. See Table 6 in the appendix for further information.

Miscellaneous Findings

The student researchers felt that food quality was the issue students were concerned about the most. They also observed that students learned from each other which dining rooms featured what, sharing their experiences in the various dining halls with each other. For example, they observed that the Fourth Dining Hall had the most delicious cooked noodles; while the Second Dining Hall offered more entries than that of the Third Dining Hall, which had provided a limited choice in terms of food selection. The

combos, a fixed combination of several sorts of dishes, were the most popular choice of the students, because the price was very low, due to subsidies from the Li Kaishing Foundation. However, there were also long queues in front of windows providing more expensive selections. For example, students greatly patronized the window supplying “Lucai” (Green Dishes), which contained pickled food, pasta and soup at higher prices. The researchers interpreted this to mean that students, craving variety, were willing to pay more to get it. Other miscellaneous findings of interest were that students had no opportunity to choose the quantity of rice staff served them, which inevitably led to waste when students were served more rice than they wanted; also, foodservice management had not laid out tables optimally, and students placing bags on chairs used up scarce seats which could have been used by diners.

In-depth Interview

Student Morale and Satisfaction

In terms of the foodservice influencing the students’ morale and satisfaction, 49.12% of the respondents thought the catering service would affect the students’ mental outlook and mentality, but only 17.54% of respondents believed that the impact was negligible. When asked about where the foodservice needs to improve, the respondents stated that the styles of food, food combinations, service attitude and dining envi-

Table 3: Foodservice’s influence on general mood

<i>Questions</i>	<i>Top explanations</i>	<i>Frequency</i>	<i>Frequency rate</i>
<i>Influences on Students’ Mental Outlook</i>	Mental outlook and mentality	56	49.12%
	Mood	32	28.07%
	Little	20	17.54%
<i>Impacts of Foodservice</i>	The quality of the service influences appetite and satisfaction	80	70.18%
	Good service makes students have a good mood and high satisfaction	35	30.70%
	Ensure student’s physical strength and energy	26	22.81%
<i>What Aspects Need to be Improved?</i>	Food style and taste	64	56.14%
	Service attitude	55	48.25%
	Dining environment	27	23.68%
	Sanitary conditions of food and tableware	26	22.81%
<i>How to Improve?</i>	Increase food variety	49	42.98%
	Train employees and strengthen staff management	48	42.11%
	Promote sanitary conditions	18	15.79%

Table 4: Foodservices’ influences on student’s happiness

<i>Questions</i>	<i>Top explanations</i>	<i>Frequency</i>	<i>Frequency rate</i>
<i>Influences on Student’s Happiness</i>	Mood	48	42.11%
	Learning efficiency and satisfaction	33	28.94%
	Moral for study	19	16.67%
	Service attitude affects appetite and mood	68	59.64%
	Dissatisfaction on the food price and quality	64	56.14%
<i>What Aspects Need to be Improved?</i>	The dining environmental impacts dining mood	36	31.57%
	Service staff’s attitudes	68	59.65%
<i>How to Improve?</i>	Food styles	55	48.24%
	Sanitary conditions offood and tableware	45	39.47%
	Train employees and strengthen staff management	66	57.89%
	Promote sanitary conditions	64	56.14%
	Increase food variety	55	48.26%

ronment needed to improve. See Table 3 in the appendix for detailed information of the foodservice’s influence on students’ mental outlook. Also see Table 4 in the appendix for detailed information concerning the impact of the dining service on student happiness.

Student Health

The depth interviews revealed that foodservice quality had a great perceived influence on students’ health, affecting the students’ perceived physical health, nutritional intake, and fear of disease. The largest problems detected were sanitary conditions and lack of variety of foods. See Table 5 in the appendix for detailed information of foodservices’ influences on student’s health.

Student Learning

The researchers postulated that the quality of the university dining service would affect the students’ mood for learning, their physical strength and their learning efficiency. Table 6 reports students’ reported attitudes towards these factors. The students’ perception is indeed that their foodservice affects their academics. See Table 6 in the appendix for detailed information concerning the university foodservice’s impacts on student learning.

Student Perception of Their University’s Reputation

Considering how the dining service affects the student’s perception of the reputation of his school, 65.79% of the students held that the

Table 5: Foodservices’ influences on student’s health

<i>Questions</i>	<i>Top explanations</i>	<i>Frequency</i>	<i>Frequency rate</i>
<i>How Does the Foodservice Impact Student Health?</i>	Physical health	57	50.00%
	Nutritional intake and balance	22	19.30%
	Disease	21	18.42%
<i>What Aspects of the Foodservice Impact Student Health?</i>	Unhealthy diet	77	67.54%
	Lack of nutrients in the food	44	38.60%
	Poor food quality	32	28.07%
<i>What Aspects Need to be Improved?</i>	Sanitary conditions	90	78.95%
	Variety and collocation of foods	84	73.68%
	Service attitudes of staff	25	21.93%
<i>How to Improve?</i>	Increase food variety	63	55.26%
	Train employees to improve their professionalism	38	33.33%
	Improve health conditions	45	39.47%

Table 6: Foodservice influence on student learning

<i>Questions</i>	<i>Top explanations</i>	<i>Frequency</i>	<i>Frequency rate</i>
<i>Impacts on Student Learning</i>	Learning mood	53	46.49%
	Physical strength	38	33.33%
	Learning efficiency	12	10.53%
<i>Specific Causal Factors and Their Impacts</i>	Nutritional balance is helpful to improve learning efficiency	52	45.61%
	Good service attitudes can improve learning enthusiasm	38	33.33%
	Good dining experience has a positive impact on learning mood	30	26.32%
<i>What Aspects Need to be Improved?</i>	Food style and taste	76	66.67%
	Sanitary conditions of food and tableware	57	50%
	Service attitude	33	28.95%
<i>How to Improve?</i>	Increase the food styles and pay more attention to food nutritional balance	58	50.88%
	Pay more attention to sanitary conditions	58	23.68%
	Train employees to improve their professionalism	42	36.84%

school's foodservice had an influence on the student's satisfaction with the school; 21.93% of the students deemed that the school service facilities would affect the student's identifica-

tion with the school and the student's sense of belonging; 65.79% of the students considered that the dining service had a direct impact on the degree of satisfaction with the school. See Table

Table 7: Foodservice influences on perception of school reputation

<i>Questions</i>	<i>Top explanations</i>	<i>Frequency</i>	<i>Frequency rate</i>
<i>How Does the School Dining Service Affect Student Perception of School Reputation?</i>	Satisfaction with the school	75	65.79%
	Identification with the school and sense of belonging	25	21.93%
	The school's reputation and public praise	21	18.42%
	Catering service has a direct impact on the degree of satisfaction with the school	75	65.79%

Table 8: Questionnaire sample

<i>Dining hall number¹</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Joint area</i>	<i>Invalid data</i>	-	-
<i>Hometown</i>	Guangdong	Mid-South	Eastern China	North China	Northeast	South west	Northwest
	210	50	56	3	1	18	1
<i>Family Economic Condition²</i>	Very rich	Rich	Middle	Lower middle	Difficult	Invalid data	-
	0	14	242	62	20	3	-
<i>Hometown</i>	Mega city	Big city	Middle-sized city	Small city	Town	Country-side	Invalid data
	8	32	83	56	73	88	1
<i>Willing to Recommend?</i>	Very willing to	Willing to	Confused	Not willing to	Very reluctant to	Invalid data	-
	31	183	85	34	5	3	-
<i>Go to East Gate³ for Dining</i>	Very often	Sometimes	Occasionally	Never	In valid data	-	-
	39	102	193	6	1	-	-

¹No Dining Hall Number 1 exists on campus.

²According to the subjective judgment of the respondent

³Near the East Gate of the university there are many small, popular restaurants

Table 9: Impacts from satisfaction with foodservices

<i>Impacts</i>	<i>Average score¹</i>	<i>Strongly agree</i>	<i>Agree</i>	<i>Uncertain</i>	<i>Disagree</i>	<i>Strongly disagree</i>
Q.1. Physical health	1.463	60%	36%	3%	1%	0
Q.2. Learning effects	2.235	20%	46%	25%	8%	1%
Q.3. Mental outlooks	2.067	26%	49%	18%	7%	0
Q.4. Happiness	1.768	41%	47%	7%	5%	0
Q.5. Satisfaction with the school	1.777	36%	54%	6%	4%	0

¹Strongly agree, 1 point; Agree, 2 points; Uncertain, 3 points; Disagree, 4 points; Strongly disagree, 5 points. The lower the score, the higher the satisfaction

7 in the appendix for detailed information of foodservices' influences on student's satisfaction with his university's reputation.

Questionnaire

In this research project, the researchers conducted a questionnaire survey to assure the quality of our observational data and analysis. The sample consisted of 341 STU students. Among them 184 were females (54%), and 156 were males (46%). Broken out by grade level, the sample included 49 freshmen, 61 sophomores, 157 juniors, and 24 seniors. The number of first-year, second-year, and third-year postgraduate students was 34, 12, and 3 respectively. One grade form was filled incorrectly. Other sample statistics are shown in the appendix at Table 8.

From Table 8 the researchers discover that 62% of students came from Guangdong province, 71% of the students' family economic condition was at the middle level, and 63% of the students were very willing to recommend Shantou University to those students who were preparing to register for the college entrance exam-

ination. Ninety-eight percent of the students had eaten in restaurants at the East Gate. Ninety-eight percent of the students who had eaten at the East Gate preferred to eat there rather than in the school dining halls. This latter statistic especially demonstrates that the school dining hall has not satisfied students' foodservice needs at Shantou University.

Table 9 in the appendix shows that the quality of foodservice impacted students in many aspects. The researchers see that foodservice quality directly impacted students' health, learning, mental outlook, happiness and satisfaction with the school. Because an educational institution is founded in order to serve students, it follows that a university should improve its service quality and should increase the students' satisfaction with their school. Improving foodservice quality seems to be a good method to advance the university towards that goal.

Table 10 in the appendix is the evaluation of student satisfaction with the foodservice of Shantou University's dining hall services. From this table we discover that more than 50% of students were not satisfied with foodservice

Table 10: Student satisfaction with dining services

	<i>Average agreement¹</i>	<i>Strongly agree</i>	<i>Agree</i>	<i>Uncertain</i>	<i>Disagree</i>	<i>Strongly disagree</i>
Q.11. Price satisfaction	2.836	6%	39%	24%	27%	4%
Q.12. Satisfaction with portions	3.349	3%	25%	20%	39%	13%
Q.13. Environment satisfaction	3.109	2%	35%	23%	31%	9%
Q.14. health satisfaction	3.446	1%	18%	29%	38%	14%
Q.15. Food diversity satisfaction	4.326	1%	3%	6%	42%	48%
Q.16. Service attitude satisfaction	3.692	0	14%	24%	40%	22%

¹Strongly agree, 1 point; Agree, 2 points; Uncertain, 3 points; Disagree, 4 points; Strongly Disagree, 5 points. The lower the score, the higher the satisfaction.

Table 11: Effects of foodservice on the university's reputation

	<i>Average degree of agreement</i>	<i>Strongly agree</i>	<i>Agree</i>	<i>Neutral</i>	<i>Disagree</i>	<i>Strongly disagree</i>
Q.6. Campus foodservice affects the school reputation directly	2.079	26%	49%	16%	8%	1%
Q.7. Importance of school management	1.595	48%	46%	4%	2%	0
Q.17. Foodservice should be included in the evaluation and rating index	1.716	42%	47%	8%	2%	1%
Q.18. School leaders should pay attention to the foodservice	3.487	3%	9%	38%	35%	15%
Q.19. Foodservice quality is as important as teaching quality	2.164	23%	50%	16%	9%	2%

¹Strongly agree, 1 point; Agree, 2 points; Uncertain; 3 points, Disagree; 4 points, Strongly Disagree, 5 points. The lower the score, the higher rate of the agreement.

portions, health effects, food variety, and service attitude. Therefore, the data indicate that there is much room for improvement on the part of Shantou University's dining services.

Table 11 in the appendix indicates that more than 73% of the sampled students agreed that the campus foodservice had direct effects on the school reputation and was one of the major responsibilities of the university's managers. The students felt that foodservice quality should be included in the indicators used to assess and to evaluate the school. In addition, the students thought that foodservice quality was as important as teaching quality. More than half of the students disagreed that school leaders had paid enough attention to foodservice. Because dining services had been outsourced, the students felt the university should communicate with the private operators of the dining service to discuss how to enhance the foodservice level,

which, they felt, had a tremendous influence on the university.

Table 12 in the appendix shows that parents of the students sampled were quite concerned about the diet of their children at university and in addition, that students also often discussed the campus foodservice. Thirty-six percent of students thought that the dining hall had taken their eating habits in their hometowns into account. The overall satisfaction degree was only 3.258, which indicated there was much room for the dining hall to improve its campus foodservice.

The questionnaire required each respondent to list three aspects which the dining hall performed well (see Table 13 in the appendix). Sixty-six percent blank spaces indicates that many students did not list three aspects. Besides the six aspects explicitly listed in the table, 12% of the answers contained other factors than those six. Respondents considered reasonable price to be

Table 12: Other questions

	<i>Average degree of agreement</i>	<i>Strongly agree</i>	<i>Agree</i>	<i>Neutral</i>	<i>Disagree</i>	<i>Strongly disagree</i>
Q.8. Parents attention paid to foodservice	1.918	34%	49%	10%	6%	1%
Q.9. Foodservice often discussed by students?	1.982	35%	42%	12%	10%	1%
Q.10. Hometown eating habits considered by foodservice?	3.082	4%	32%	24%	31%	9%
Q.20. Overall satisfaction	3.258	2%	26%	27%	35%	10%

¹ Strongly agree, 1 point; Agree, 2 points; Uncertain, 3 points; Disagree; 4 point;, Strongly disagree. The lower the score, the lower the satisfaction.

Table 13: Open ended question 1: Good points of dining hall

<i>Points</i>	<i>Aspects listed in the first three places (%)</i>
1. Reasonable price	11%
2. Long service period	3%
3. Variety of dishes	4%
4. Fried rice and fried noodles	1%
5. Set meal	2%
6. Good service attitudes	1%
7. Others	12%
8. Blank space	66%

Notes: The rate above is based on 1023 (341*3) answers, so the highest rate possible is 33 % (341/1023).

Table 14: Open ended question 2: Disappointments of dining hall

<i>Points</i>	<i>Percentage of aspects listed in first three places</i>
1. Poor service attitude	17%
2. Single type	12%
3. Unhygienic conditions	13%
4. Small food portions	5%
5. Crowdedness	2%
6. Negative flavor	3%
7. Others	8%
8. Blank place	40%

Notes: The rate above is based on 1023 (341*3) answers, so the highest rate possible is 33 % (341/1023).

Table 15: Open ended question 3: three sentences to leaders

<i>Contents listed</i>	<i>Percentage of aspects listed in first three places</i>
1. Hygiene improvement	9%
2. Taste improvement	7%
3. Supervision enhancement/managers should receive feedback and advice from outside sources	7%
4. Improvement of the facilities	2%
5. Officials should have meals in dining hall	5%
6. Staff training needs improvement	6%
7. Others	18%
8. Blank	46%

Notes: The rate above is based on 1023 (341*3) answers, so the highest rate possible is 33 % (341/1023).

the most positive aspect with 11%, which is also reflected in Table 10 with 46% of students satis-

fied with the price. Respondents seem to favor- able view dish variety and long hours of opera- tion. This would seem to run counter to the obser- vations recorded by the participant observers and interviewers, who indicated that dish variety and hours of operation were unsatisfactory.

Table 14 in the appendix indicates that each of the 341 respondents was supposed to list three aspects which were done poorly by the dining hall. Many students did not list three aspects, so as a result 40% of the potential answers were blank. Respondents particularly singled out poor service attitudes. Fifty-one percent of students thought there was still room for improvement of the service attitude of service staff. In addition, student diners considered unhygienic conditions and monotonous food offerings to be negative attributes of Shantou University’s foodservice.

Responses recorded in Table 15 in the appen- dix reported three sentences related to foodser- vices that students most wanted to tell their school leaders. The answers were varied. The respon- ses indicated that the dining hall should improve hygiene, increase the number and variety of dish- es, and foodservice management should ask stu- dents for advice and should enhance supervi- sion of its staff.

DISCUSSION

There were five research questions posed at the beginning of this research. These ques- tions were: 1) How did Shantou’s foodservice af- fect student satisfaction with their university and with their dining experience? 2) How did Shan- tou’s foodservice affect student learning? 3) How did Shantou’s foodservice affect student health? 4) How might the foodservice operation at Shan- tou be enhanced? 5) Should foodservice quality be included in the government’s performance evaluation of the university? The data collected shows that these questions may be answered in the following manner.

Student Satisfaction

This research indicated that at Shantou Uni- versity, a large plurality of students believed that foodservice factors would indeed affect their sat- isfaction with their university dining experience. A large plurality believed that dining hall quality would affect their degree of satisfaction. Most of the factors uncovered by the research were neg- ative aspects of the university foodservice: bias towards local cuisine at the expense of out-of-

province students; not enough food variety (especially with the set meals); the cafeterias opened too late; the attitude of foodservice workers was less than optimal; the dining environment was not bright, not comfortable, not clean, not quiet, and not sanitary enough. However, the research discovered that there was one positive factor which impacted student satisfaction, and that was the fact that the food service management offered the dining halls to the students to be used for student gatherings and for student activities.

Student Learning

The research found that perceived student learning was impacted by one major characteristic of the dining service. Student diners felt that inconvenient operating hours had an especially negative impact on student academic efforts. There was a rush hour at breakfast that concentrated breakfast eating to ten or twenty minutes before class. Students rushed their eating, or ate as they walked to class. Lines were long, and students had to wait a long time to eat. We postulated that the quality of the university dining service would affect the students' mood for learning, their physical strength and their learning efficiency. Table 6 reports students reported attitudes towards these factors. The students' perception is indeed that their foodservice affects their academics.

Student Health

The research discovered that, from the aspect of the students' perception, foodservice quality had a great-perceived influence on the students' health, affecting the perception of the students' physical health, nutritional intake, and fear of disease. There were problems with the variety and quality of foods offered. For example, food service staff had diluted the soybean soup with water, which thus had no nutritional value. The STU foodservice did not provide a variety of vegetables. Students lined up much more often at the snack and pastry window, suggesting that the dining halls were not meeting their nutritional needs. The staff cooked food with too much oil and salt. In addition, there were health issues arising from deficiencies in the foodservice staff. There were no professional rules concerning staff training and health safe-

ty. Employees were not wearing their masks correctly. Staff assigned to clean up tasks would clean tables at which students were not finished eating. And the field workers discovered an unsanitary condition in at least one of the dining halls, where there were flies all around.

Suggestions for Enhancement

The research suggested a need for improvement in three areas of the Shantou foodservice operation. The first needed improvement was concerned with sanitary conditions, which participant observation, in-depth interviews, and questionnaires all detected as something that needed to be attended to. The second needed improvement was an increase in the variety of foods, a need that was also detected by all three of the research methods used. The third needed enhancement of the foodservice operation was an increase in staff performance and professionalism through training. The need for this was also detected by all three research methods used in this research project.

Include Foodservice Quality into Evaluation of the University

Questionnaire data revealed strong support among the student diners for the proposition that foodservice quality should be included in the set of evaluation criteria used by the Chinese government to evaluate universities. Forty-seven percent of the students surveyed agreed with that proposition, and 42% strongly agreed.

CONCLUSION

This research has accomplished several purposes. Firstly, it encourages the use of ethnographic techniques in business research, which techniques are truly effective and reliable. Secondly, it encourages the appropriate use of covert participant observation, which is also very reliable and effective in terms of obtaining data. Thirdly, this research has revealed factors about the relationship of Chinese university foodservice operations to both Chinese university students and to universities, which is a very important issue that reaches beyond foodservice operations, and which pertains to the whole higher education industry in China.

RECOMMENDATIONS

Although the findings from this case study can serve as evidence that anthropological methods work in business research, it is less possible to extrapolate that conclusion to other business research projects, given the fact that this study took only one university foodservice as the study subject. In addition, the study did not investigate whether the foodservice management, the university, as well as the university administration had different opinions. Researchers need to conduct further investigations to test the anthropological method's effectiveness in business research by recruiting more universities to participate in similar studies; moreover, scholars need to study foodservice management, university leadership, and higher education administration as well, in order to confirm the findings from this research.

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