The silent agony of students queuing in Vocational Education Centers in Manicaland, Zimbabwe.

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Abstract: Queuing system impact us every day and may even affect us without our knowledge, influencing availability and services, yet without such systems, we might never be able to afford access to the students. This study is intended to make an investigation into problems faced by students in queues at Vocational Education Centers in Manicaland in light of the Queuing Model. The sample comprised three hundred (300) respondents—two hundred and fifty (250) males and fifty (50) females were used. Observation and interviews were used to collect data from the participants. In the study the collected quantitative data was analyzed using simple frequency and percentages while the qualitative data was manually analyzed according to emerging themes. From the analyzed data, it emerged that the queues affect the student’s perception on institution’s image, queuing experience and satisfaction suggest that a queue, which occurs at the end of the payment desk, is able to influence overall service evaluations and evaluations of preceding impressions and service interactions: positive evaluations of interactions with the institution that take place prior to queuing at the payment desk can be changed if need be. It is recommended that wait management strategies be formulated to either shorten the queues or make them more pleasant. Also, opening more payment desks at peak operating periods, training programs for accounts clerks to increase receipting speed, and faster scanning technologies will all reduce actual waiting times, to great delight of most students.

Introduction

Queues are now a social norm in our everyday life. Queuing system arise from our need to share resources. A mathematical method of analyzing the congestions and delays of waiting in queuing theory examines every component of waiting in line to be served, including the arrival process, service process, number of “students” (which might be people, data packets, cars, etc) Hui et al (2010) Real-life applications of queuing theory include providing faster student service, improving traffic flow, shipping orders efficiently from a warehouse and designing telecommunications systems such as call centers. Queuing system impact us every day and may even affect us without our knowledge, influencing availability and costs of products and services, yet without such systems, we might never be able to afford access to these students at all. Examples of queuing systems which occur in our daily life include patients waiting for service in a hospital, people queuing at an ATM or banking Hall, students waiting at a payment desk in an educational institution, and travelers waiting to check in at an airport.

Traditionally, education institutions have relied only on differentiation of courses and services to retain their students and also to satisfy the clients. However, times have changed, due to fierce competition from new players entering the market, imitation of new features and increase in number of new offers, students have acquired new choices and they have also become more price sensitive, which has forced marketers to adapt differentiated and client oriented strategies in order to enable them to stand out in the competition and gain a competitive edge. According to Singh (2006), one of the fundamentally important drivers of organizational success is that management must take the needs and wants of their students into account.

Since operating costs are more salient, it is frequent in practice to observe service operations rules designed to attain a given quantifiable service standard. For example, a common rule in retail institutions is to open additional checkouts when the length of the queue surpasses a given threshold. However, there is not much research focusing on how to choose an appropriate target service level. This requires measuring the value that students assign to objective service levels measures and how this translates into revenue. The focus of this research is to measure the effect of service levels—in particular, students waiting in queue, which can be used to attach an economic value to student service. Lack of objective data is an important
limitation to empirically study the effect of waiting on student behavior. A notable exception is call centers, where recent studies have focused on measuring student impatience while waiting on the phone line Little (2009).

The researchers focused on studying physical queues in Vocational Education Center in Manicaland, where students are physically present at the service facility during the wait. These types of queues are common in retail institutions, banks, amusement parks and health care delivery.

There was need to look at causes of delay (before entering service) of an arriving student at payment desk or client contact centers at Vocational Education Center in Manicaland. There was also need to find the effects of the queuing to the students and come out with a suitable solutions to queues at the payment desk with, a time-varying number of payment desks, and client abandonment. Because of lengthy waits some students might opt to leave an service queue without being served. Jagdish (2008) presents statistical evidence suggesting that updating students on their status (e.g., via delay announcements) makes their waits in the queue more bearable and deters them from abandoning the queue before service. Students typical responds to delay announcements and their response alters system performance.

Delays and queuing problems are most common features not only in our daily-life situations such as payment desk in an institution, a bank or postal office, at a ticketing office, in public transportation or in a traffic jam but also in more technical environments, such as in manufacturing, computer networking and telecommunications. Queues develop whenever the demand for a particular service exceeds the capacity (measured by the rate of service) to provide that service Ahmed S. A. AL-Jumaily, Dr. Huda K. T. AL-Jobori (2011). Some people want services without waiting but like it or not waiting is part of daily life and all we should hope to achieve is to reduce its inconvenience to bearable levels (Ahmed et al 2011). Queues play an essential role for business process re-engineering purposes in administrative tasks.

Whenever students arrive at a service facility, some of them have to wait before they receive the desired service. It means that the student has to wait for his/her turn, may be in a line. Students arrive at a service facility (payment desk) with several queues, each with one payment desk (sales payment desk). The students choose a queue of a payment desk according to some mechanism. According to Jagdish (2008), sometimes insufficiencies in services also occur due to an undue waiting service may be because of new employee. Delays in service jobs beyond their due time may result in losing future business opportunities. Queuing theory uses queuing models to represent the various types of queuing systems that arise in practice. The models enable finding an appropriate balance between the cost of service and the amount of waiting.

In Manicaland there are 5 Vocational Education centers namely Magamba Vocational Training, Mutare Vocational Training, Nyanyadzi Vocational Training, Forestry Industry Training Center and Muture Polytechnic, Marange Vocational College and Nyahode Vocational College. The Institutions offer a variety of courses under different divisions including:

- Applied Arts and Hospitality Division
- Commerce Division
- Information Technology
- Engineering Division (Automotive Engineering, Electrical Engineering, Mechanical Engineering; Civil and Construction Engineering)
- REED-Research, Education and Enterprise Development (specific to Mutare polytechnic)

The congestion at payment desks in all Vocational Education centers in Manicaland especially on enrolment periods, tuition payment periods, identity card processing periods, Hexco registration periods, food service periods, invoked the researchers’ interest into studying the queues which are experienced in these institutions and to come up with informed conclusions on how the problem could be solved as it disturbs the productive learning time.

In order to be a successful player in the provision of its academic and skills services, Vocational Education centers in Manicaland have to provide better services than its competitors and one of the methods is to reduce the amount of time spent by its students in the queues. In designing queuing systems the researchers need to aim at balancing services to students and economic considerations. Decisions regarding students should be made on the basis of some measure of performance. The researchers were seeking answers to the following Research Questions:

1. What are the causes of slow queue service in the Vocational Education Centers in Manicaland?
2. How are the long queues at Vocational Education Centers in Manicaland affecting its students?
3 What are the mitigatory measures to the long queues to payment desk and service system in Vocational Education centers institutions?

Research Design

According to Oyedele (2011) Research design is the plan, structure and strategy in investigation conceived, as to obtain answers to research questions and to control variances. This plan is the overall scheme of the program of research. It includes an outline of what the researchers will do. This implies that the researchers has to design a plan of action which involves methods procedures to systematically carry out a research.

The researchers used mixed research design which borrows ideas from quantitative research design and qualitative research design. The data the researchers collected rendered itself to a particular presentation technique. Data collected through interviews and observation rendered themselves to qualitative or descriptive analysis while data that is statistical in nature rendered themselves to quantitative analysis.

Study Population

Study population is a group of people with the same characteristics from which a researchers intends to collect data. It is a form of collection of all the elements or subjects of interest to the researchers. In this study, the target population consists of students of 7 (seven) Vocational Education Center in Manicaland. Then convenient sampling was carried out as the researchers could not be in a position to know the students who were to come to the payment services so the researchers sampled those that were present at the time of data collection process.

Sample

A sample is a subset of the parent population a representative sample is thus described as a smaller unit that depicts to very good extent the characteristics of the parent population Jagdish (2008). According to Oyedele (2011) a sampling procedure is a process through which a sample is selected from the whole population. It is very fundamental to the conduct of research and the interpretation of its results. In this study, convenience sampling was employed to select students meant for the interview survey. Three hundred student participants were chosen for the survey. The mentioned sampling technique was ideal for this purpose because it permitted the selection of participants in accordance to accessibility and interest.

Data Collection Instruments

Research instrument are tools that are used for data collection states Jagdish (2008). In this research interviews and direct observation were used to collect data. The data was collected over a period of one month. For each data set the number of student arrival was recorded and the departure time and waiting time were calculated.

Face to Face Interviews

Interviews were used to complement the observations in data collection. Interviewing utilized open-ended questions that allowed for individual variations. An interview guide or "schedule" is a list of questions or general topics that the interviewer wants to explore during each interview. Although it is prepared to insure that basically the same data is obtained from each person, there are no predetermined responses, and in semi-structured interviews the interviewer is free to probe and explore within these predetermined inquiry areas. Interview guides ensure good use of limited interview time; they make interviewing multiple subjects more systematic and comprehensive; and they help to keep interactions focused. In keeping with the flexible nature of qualitative research designs, interview guides were modified over time to focus attention on areas of particular importance, or to exclude questions the researchers has found to be unproductive for the goals of the research as Hu and Chang (2011) asserts.

Observations

The classic form of data collection in naturalistic or field research is observation of participants in the context of a natural scene. Observational data was captured for the purpose of description-of settings, activities, people, and the meanings of what was observed from the perspective of the participants. Observation was found ideal due to its ability to lead to deeper understandings than interviews alone, because it provides knowledge of the context in which events occur, and may enable the researchers to see things that participants themselves are not aware of, or that they are unwilling to discuss Hu and Chang (2011). The researchers used the observation check list.

Data Analysis and Presentation Procedure

Data collected through interviews was analyzed using qualitative methods. Qualitative data analysis involved written presentation of information. Data
collections of any number of related observations can be collected in a given day by several people or even by one person per day over a period of several days (Hu and Chang 2011). The study employed qualitative data analysis methods. Since the research is phenomenological in nature, the issues coming up were also qualitative in nature.

For any data to be useful, observations needed to be organized so that trends could be picked out and logical conclusions arrived at. The data came from actual observations, interviews, as well as from records that were kept for normal managerial purposes and this data normally assist management in making educated guesses about the causes and probable effects of certain characteristics in given situations (Hu and Chang 2011). Presentation of data is a form of communication and any number selected in any selected diagram should tell a true story Jagdish (2008). In this study, for data presentation, the researchers used tables to depict responses from the respondents on an issue asked in the questionnaire so that clarity would prevail. Data was also presented using pie charts as they are best suited for displaying categorical data. Bar charts were also used in order to show clear depiction of comparisons while histograms were also used to portray a graphical display of data using bars of different heights. It is however important to note that this analysis said above does not automatically render this research to quantitative approach but it remains a qualitative one.

Age of the respondents

As shown in figure 1 above the age of the respondents is mainly within the range of 31-40 years with 90 respondents. Below the age of 20 years there were 30 respondents and 21-30 years there were 8 respondents. 70 respondents were in the age group 41-50 while there were only 30 respondents those were 51 years and above.

This is purely indicative that in Vocational Education Centers in Manicaland, students are mainly in youthful and active ages. These age groups have a serious effect on the respondents’ view on time waited in the queue as the youthful generation is not patient with time wasting.

Levels of education of the respondents

As shown in figure 2: Showing the levels of education of the respondents N=300

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As shown in the figure 2 above, 50% respondents (150) indicated that they have been to school up to secondary level. 30% (90) respondents indicated that they have been up to tertiary level with diploma or certificate. 16.6% (50) respondents were primary education certified. Only 10 (3.3%) of the respondents was a holder of degrees only reinforcing his degree with practical skill at the institution.

Interview follow ups revealed that educated students are very particular with time and would not want to wait in a queue for long hence the need to find solutions to minimize students frustration and waiting period in a queue.

## Marital status of respondents

<table>
<thead>
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<th>Marital status</th>
<th>Frequency</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Married</td>
<td>150</td>
<td>50%</td>
</tr>
<tr>
<td>Widowed</td>
<td>50</td>
<td>16.7%</td>
</tr>
<tr>
<td>Single</td>
<td>100</td>
<td>33.3%</td>
</tr>
<tr>
<td>Total</td>
<td>300</td>
<td>100%</td>
</tr>
</tbody>
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According to table 1 above showing the marital status of the respondents 50% of the respondents indicated that they were married while 16.7% of the respondents indicated that they were widowed while 33.3% respondent indicated that they are single. This means the bigger percentage of the students in Vocational Education centers in Manicaland are married people who have lots of obligations to satisfy and so would not want to wait in a queue for a long time.

### Period of stay Vocational Education Center in Manicaland as student N=300

The figure 3 shows that 10 (3.3%) respondent has been a student of Mutare polytechnic for less than 1 year, 50 (16.7%) of them have been students for a period of 1-2 years, 90 (30%) and 150 (50%) were students for more than 3 years. According to observation the longer a student has been sincere to the Institution the more the student was to endure the long queues.

### Causes of queuing

**Service value**

The more valuable the service, the longer a student is willing to wait, hence, waiting for something of little value can be intolerable. Thus without payment a student is not allowed into the classroom. Waiting to get out of a service environment is the worst wait of all (Maister, 1985), since no or little value is still to be received. The actual service of ‘payment/checking-out’ is likely not seen by many students as a service and especially not as one worth waiting for, since once the student has her receipt, leaving the payment area as soon as possible is all that matters.

Study findings at Vocational Education Centers in Manicaland showed that if students have to be in a queue with entertaining friends, they are more likely to be tolerant of the wait than when only few products or ‘unimportant extras’ are being purchased. It was found that even if the queue length was very long such students would not abandon the queue or join another queue.

One of the students had this to say:

> I have been in the queue for the past 60 minutes since I only do my fees payment once a term, for if I can not pay now I will not be allowed to attend lectures, so I have to endure the waiting period before my service as for tomorrow I will be going for lectures.

This is supported by Verbeke et al. (1996) who consider the ‘total monetary purchase amount per payment trip’ an important factor in determining students’ reactions to queue lengths at points of payment. It has been seen in the Mutare polytechnic scenario that more valuable services bought forces a student to wait and be patient for service causing queues to be long.

### Effects of student queuing

Waiting for service is a negative experience. The study carried in Vocational Education Centers in Manicaland showed that there is a negative relationship between how long students had to wait in line, and their satisfaction with the received service. Waiting negatively affects the overall evaluation of the service system.
The waiting experience can be influenced by such factors as level of perceived control, degree of filled time, perceived social justice, value of the service, and the appearance of the waiting area. These factors can all be seen as antecedents of the waiting experience.

One of the Vocational Education Center in Manicaland students had this to say:

*Waiting is bad but in an environment like this which well aerated and with music the queue service is not much of a problem so with friendliness of the environment and service provision it is worthy the waiting.*

**Evaluating Institution**

Services are often evaluated with a measurement of quality or a measurement of satisfaction. Quality is seen by Ashley (2000) as a “comparison to excellence in service by the student”. Service quality is one driver of student satisfaction (Ashley 2000), since student satisfaction is also influenced by product quality, price, situational factors and personal factors. A service quality measure adapted to institution settings is ‘institution image’

Another interviewed student had this to say;

**Length of stay in the queue**

According to the responses from interviews made 30 (10%) of the students waited in the queue for up to 20 minutes, 60 (20%) were in the system for 20-40 minutes, 80 (26.7%) were in the queue for 40-60 minutes, 10 (33.3 %) were in the system for 60-80 minutes and 30 students queued for payment service in the queue for more than 80 minutes. From this information it shows that more students waited in the queue before getting service for over 10 minutes which is rather too long a time for an average student who has other academic business to do. Thus, it is important to note that perceived duration will be seen as a direct, negative antecedent of institution image, wait experience and satisfaction.

**Emotive Responses**

Queuing has generally been described as uncertain, frustrating, annoying, demoralizing, aggravating, stressful, and producing anxiety. Findings of the study at Vocational Education Center in
Manicaland showed that when students join a queue they do not know how long they will have to wait, and this created feelings of anxiety and uncertainty in the case of those in long queues. Increasing their uncertainty was the fear of having chosen the wrong line. The longer a wait seemed to last, the higher the level of uncertainty became. In this regard it was found out that students of Vocational Education Center in Manicaland who were in a bad mood left the queue more negatively and less satisfied with the service than those students who were in a good mood. Delay in queue system service caused the anger and associated feelings of annoyance, irritation and frustration.

Figure 5: Students’ affective responses

The longer a wait lasted, the more likely the student experienced feelings of anger and the more negative the overall service was evaluated. From figure 5 it shows that 70 (23.3%) students were frustrated, 30 (10%) students were annoyed, 80 (26.7%) were demoralised, 20 (6%) were aggravated, 50 (16.6%) were stressed and another 50 (16.6%) were anxious about long waits in the queue before receiving service. The more the queue wait was attributed to factors controlled by the institution, the less self-controlled students felt over the situation, resulting in high levels of stress and anxiety, negatively affecting satisfaction.

Conclusions
While the perceived attribution for the queue-wait can make the delayed students angrier and more frustrated, the filling of time should have a more positive effect on service evaluations. From observations made it shows that time filled with reading tabloids and listening to music or watching television in the institution appeared to pass more quickly than unfilled time. Being attentive to the passage of time results in boredom and unfilled time has a negative impact on the wait experience and subsequent overall service evaluation. It is therefore suggested to eliminate empty time by diverting attention away from waiting. Distraction increases mental activity and takes the attention away from the passage of time. Thus, when time is perceived to be filled, less attention is paid to the passage of time, resulting in a less negative impact of the wait on experiences and service evaluations.

The more students perceived that employees were friendly, helpful and knowledgeable, and the more these students were attracted by the physical facilities, layout, and product assortment, the more satisfied they were with their overall payment experience and the more they were willing to endure the waiting in the service queues. It also provides further support for the notion that institution image is an antecedent of satisfaction. Observation has also shown that students’ wait experiences are directly related to their level of satisfaction meaning that the less students disliked their time in line (or the more they enjoyed it), the higher their level of satisfaction with the overall payment experience. Ensuring that students feel more relaxed, less bored and frustrated while waiting could therefore increase student satisfaction. Students who are relaxed, joyful and not bored during a wait will evaluate the service more positively and are more satisfied with the service than people who feel stressed, agitated and bored.

Recommendations
The findings have several implications for management.

- It is recommended that wait management strategies be formulated by the institutions to either shorten the queues or make them more pleasant.
- Certainly, opening more payment points during known busy queuing periods, training programs for accounts clerk to increase receipting efficiency, and embracing faster scanning technologies will all reduce actual waiting times, to great delight of most students.
- This study showed that there is no single approach to make waiting in line more
enjoyable, but that it is rather a combination of perceptions that should be managed in order to achieve the intended result of creating student satisfaction.

➢ Tidiness and neatness turned out to indirectly influence students’ satisfaction levels.
➢ Students prefer waiting in organized and attractive waiting area.
➢ Distracting students so that they will not pay attention to the wait itself, can be done by means of activities or things to look at.
➢ Background music makes the wait seem longer, but more enjoyable, positively influencing the waiting experience. It also makes the service environment look more positive to students in waiting lines.
➢ Be justice in the queuing system by avoiding unorthodox payment service provisions by not giving priority to students who are not worthy.

References