

# LEARNING QUEUING THEORY AT SEAWORLD SAN DIEGO

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## ABSTRACT

This research seeks to learn about how a practicing organization responds to existing waiting for and during their service delivery. Both servers and/or customers may tolerate, even expect, significant waiting, but at what amount of waiting do these actors consciously optimize the combination of service resources and the cost of wait? Do they accept a relatively high level of guest delay or strive to reduce wait to a substantially lower level, arguing all “waiting is waste”? Waiting diminishes the customer’s experience and denies the server revenue as well as satisfied guests.

Queuing Theory expects wait as long as the arrival and service behavior are random variables where extra fixed capacity and/or dynamic flexible capacity are not available. Many service managers consider their delivery process to be a production system with deterministic arrival rates and flow rates. Instead, frequently service systems are wildly stochastic and queuing analysis is necessary to explain the increasingly dreaded waiting times. Think fast food, motor vehicles, banks, retail checkout and many other realities everyone frequently must tolerate. Do we complain, accept or avoid these wastes.? Some service operators now see another option – reduce wait, improve service quality and reap benefits for all.

Approached by SeaWorld (SW) San Diego, this author was asked to present information about queuing theory to allow SW to examine service operations and consider strategies to improve the waiting experience of their guests. A framework was prepared to guide their learning and presented to about 40 key managers. SW agreed to the following design:

1. Establish their service team’s recognition of waiting theory and ensure there are committed to conduct a study of existing waiting at several key service sites in the Park.
2. Guide SW in their examination of survey data, assist in detailing the service design and waiting performance of service systems.
3. Conduct analyses to predict system performance under alternative strategies and resources, considering changes resulting in less guest waiting and lower server idle time.
4. Use SW’s own service members, form process improvement teams to observe waiting, recognize weakness and recommend revisions to service processes.
5. Capture the knowledge gained by servers and their managers about system behavior to provide training and insight, ensuring SW is constantly aware of waiting outcomes and continuously improving guest service.

More detailed and current status of the SW queuing intervention is presented at the WDSI meeting in April 2012, but preliminary study of their operations suggest these insights:

1. They have sufficient facilities and service capacity with lower populations in the Park, but at higher attendance, weaknesses appear in service resources. Alternative solutions are proposed by this research.
2. Failure of service equipment is the most frequent cause of excessive guest delay and “breakdown frequency and breakdown time” should be studied and both reduced by applying Failure Mode Effects Analysis (FMEA).
3. Flexible capacity, or the ability to add service resources as queues emerge, may not be applied soon enough with resulting higher guest wait then should be tolerated. It is likely that in some situations additional flexible resources need to be available in order to achieve the desired average wait targets.

The most challenging “queuing management” happens when the service system realizes sudden surges of demand and servers are under stress to deliver quality service. This research seeks to avoid such anxiety by staff because they welcome the opportunity to respond to demand challenges and have the knowledge and resources to respond at the moment of random guest arrivals and cases of unwanted service time delays.

It is suggested that any hospitality server will be able to respond better to unacceptable queuing outcomes if they have gathered service data and understand the change necessary to adapt and enhance customer satisfaction. Management can demonstrate their commitment to improved service and apply resource allocations justified by clearly impressed visitors, enjoying more activity and providing more revenues.

These hypotheses must ultimately be tested:

*Reducing wait increases revenues in the short and long term, on the visit day and over time as customers return more frequently and encourage others.*

*Optimal costs, or the combination of service and waiting costs, occur when queuing time is minimized.*

The author is witnessing a stronger societal demand for less waiting everywhere. More frequent literature, defending reduced waiting, is referenced in this study. Even “Emergency Rooms” are seeking to reduce wait, with one hospital in the San Francisco Bay Area advertising ER service with less than 30 minutes in the queue! It is apparent that the broad Hospitality industry, including aquariums, zoos and theme parks, have seen the light and are leading other industries in queuing improvement.